



ANALYTICAL REPORT

Lab Number:	L1940717
Client:	Crede Associates, LLC 776 Main Street Westbrook, ME 04092
ATTN:	Sean Gannon
Phone:	(207) 828-1272
Project Name:	TOMBARELLO SITE
Project Number:	17001426
Report Date:	09/20/19

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Project Name: TOMBARELLO SITE

Project Number: 17001426

Lab Number: L1940717

Report Date: 09/20/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940717-01	AS-5	SOLID	LAWRENCE, MA	09/03/19 11:05	09/06/19
L1940717-02	AS-6	SOLID	LAWRENCE, MA	09/03/19 11:15	09/06/19
L1940717-03	AS-7	SOLID	LAWRENCE, MA	09/03/19 11:20	09/06/19
L1940717-04	AS-8	SOLID	LAWRENCE, MA	09/03/19 11:25	09/06/19
L1940717-05	AS-1	SOLID	LAWRENCE, MA	09/03/19 11:45	09/06/19
L1940717-06	AS-2	SOLID	LAWRENCE, MA	09/03/19 11:50	09/06/19
L1940717-07	AS-3	SOLID	LAWRENCE, MA	09/03/19 11:55	09/06/19
L1940717-08	AS-4	SOLID	LAWRENCE, MA	09/03/19 12:05	09/06/19
L1940717-09	AS-DUP-1	SOLID	LAWRENCE, MA	09/03/19 00:00	09/06/19
L1940717-10	SB-4 (0-0.5)	SOIL	LAWRENCE, MA	09/04/19 08:30	09/06/19
L1940717-11	SB-4 (1-2)	SOIL	LAWRENCE, MA	09/04/19 08:50	09/06/19
L1940717-12	SB-4 (2-3)	SOIL	LAWRENCE, MA	09/04/19 08:40	09/06/19
L1940717-13	SB-4 (3-5)	SOIL	LAWRENCE, MA	09/04/19 09:05	09/06/19
L1940717-14	SB-4 (5-7)-1	SOIL	LAWRENCE, MA	09/04/19 09:10	09/06/19
L1940717-15	SB-4 (5-7)-2	SOIL	LAWRENCE, MA	09/04/19 09:10	09/06/19
L1940717-16	SB-3 (0-0.5)	SOIL	LAWRENCE, MA	09/04/19 09:20	09/06/19
L1940717-17	SB-3 (1-2)	SOIL	LAWRENCE, MA	09/04/19 09:25	09/06/19
L1940717-18	SB-3 (2-3)	SOIL	LAWRENCE, MA	09/04/19 09:30	09/06/19
L1940717-19	SB-3 (3-5)	SOIL	LAWRENCE, MA	09/04/19 09:35	09/06/19
L1940717-20	SB-3 (5-7)-1	SOIL	LAWRENCE, MA	09/04/19 09:40	09/06/19
L1940717-21	SB-3 (5-7)-2	SOIL	LAWRENCE, MA	09/04/19 09:40	09/06/19
L1940717-22	SB-2 (0-0.5)	SOIL	LAWRENCE, MA	09/04/19 10:00	09/06/19
L1940717-23	SB-2 (1-2)	SOIL	LAWRENCE, MA	09/04/19 10:05	09/06/19
L1940717-24	SB-2 (2-3)	SOIL	LAWRENCE, MA	09/04/19 10:07	09/06/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940717-25	SB-2 (3-5)	SOIL	LAWRENCE, MA	09/04/19 10:15	09/06/19
L1940717-26	SB-2 (5-7)-1	SOIL	LAWRENCE, MA	09/04/19 10:20	09/06/19
L1940717-27	SB-2 (5-7)-2	SOIL	LAWRENCE, MA	09/04/19 10:20	09/06/19
L1940717-28	E-07 (1-2)	SOIL	LAWRENCE, MA	09/04/19 11:00	09/06/19
L1940717-29	E-07 (2-3)	SOIL	LAWRENCE, MA	09/04/19 11:03	09/06/19
L1940717-30	E-07 (3-5)	SOIL	LAWRENCE, MA	09/04/19 11:06	09/06/19
L1940717-31	E-07 (5-7)	SOIL	LAWRENCE, MA	09/04/19 11:09	09/06/19
L1940717-32	E-08 (1-2)	SOIL	LAWRENCE, MA	09/04/19 11:25	09/06/19
L1940717-33	E-08 (2-3)	SOIL	LAWRENCE, MA	09/04/19 11:30	09/06/19
L1940717-34	E-08 (3-5)	SOIL	LAWRENCE, MA	09/04/19 11:35	09/06/19
L1940717-35	E-08 (5-7)	SOIL	LAWRENCE, MA	09/04/19 11:40	09/06/19
L1940717-36	D-08 (1-2)	SOIL	LAWRENCE, MA	09/04/19 11:53	09/06/19
L1940717-37	D-08 (2-3)	SOIL	LAWRENCE, MA	09/04/19 11:56	09/06/19
L1940717-38	D-08 (3-5)	SOIL	LAWRENCE, MA	09/04/19 11:59	09/06/19
L1940717-39	D-08 (5-7)	SOIL	LAWRENCE, MA	09/04/19 12:03	09/06/19
L1940717-40	D-07 (1-2)	SOIL	LAWRENCE, MA	09/04/19 12:12	09/06/19
L1940717-41	D-07 (2-3)	SOIL	LAWRENCE, MA	09/04/19 12:14	09/06/19
L1940717-42	D-07 (3-5)	SOIL	LAWRENCE, MA	09/04/19 12:20	09/06/19
L1940717-43	D-07 (5-7)	SOIL	LAWRENCE, MA	09/04/19 12:25	09/06/19
L1940717-44	D-07 (1-3)	SOIL	LAWRENCE, MA	09/04/19 12:16	09/06/19
L1940717-45	D-07 (7-9)	SOIL	LAWRENCE, MA	09/04/19 12:30	09/06/19
L1940717-46	D-06 (1-2)	SOIL	LAWRENCE, MA	09/04/19 12:50	09/06/19
L1940717-47	D-06 (2-3)	SOIL	LAWRENCE, MA	09/04/19 12:53	09/06/19
L1940717-48	D-06 (3-5)	SOIL	LAWRENCE, MA	09/04/19 12:56	09/06/19
L1940717-49	D-06 (5-7)	SOIL	LAWRENCE, MA	09/04/19 12:59	09/06/19
L1940717-50	SB-DUP-5	SOIL	LAWRENCE, MA	09/04/19 00:00	09/06/19
L1940717-51	E-06 (1-2)	SOIL	LAWRENCE, MA	09/04/19 13:22	09/06/19
L1940717-52	E-06 (2-3)	SOIL	LAWRENCE, MA	09/04/19 13:26	09/06/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940717-53	E-06 (3-5)	SOIL	LAWRENCE, MA	09/04/19 13:28	09/06/19
L1940717-54	E-06 (5-7)-1	SOIL	LAWRENCE, MA	09/04/19 13:35	09/06/19
L1940717-55	E-06 (1-3)	SOIL	LAWRENCE, MA	09/04/19 13:24	09/06/19
L1940717-56	E-06 (5-7)-2	SOIL	LAWRENCE, MA	09/04/19 13:35	09/06/19
L1940717-57	E-05 (1-2)	SOIL	LAWRENCE, MA	09/04/19 14:10	09/06/19
L1940717-58	E-05 (2-3)	SOIL	LAWRENCE, MA	09/04/19 14:12	09/06/19
L1940717-59	E-05 (3-5)	SOIL	LAWRENCE, MA	09/04/19 14:14	09/06/19
L1940717-60	E-05 (5-7)	SOIL	LAWRENCE, MA	09/04/19 14:16	09/06/19
L1940717-61	SB-DUP-6	SOIL	LAWRENCE, MA	09/04/19 00:00	09/06/19
L1940717-62	D-05 (1-2)	SOIL	LAWRENCE, MA	09/04/19 14:30	09/06/19
L1940717-63	D-05 (2-3)	SOIL	LAWRENCE, MA	09/04/19 14:33	09/06/19
L1940717-64	D-05 (3-5)	SOIL	LAWRENCE, MA	09/04/19 14:36	09/06/19
L1940717-65	D-05 (5-7)	SOIL	LAWRENCE, MA	09/04/19 14:39	09/06/19
L1940717-66	D-09 (1-2)	SOIL	LAWRENCE, MA	09/04/19 14:50	09/06/19
L1940717-67	D-09 (2-3)	SOIL	LAWRENCE, MA	09/04/19 14:53	09/06/19
L1940717-68	D-09 (3-5)	SOIL	LAWRENCE, MA	09/04/19 14:56	09/06/19
L1940717-69	D-09 (5-7)	SOIL	LAWRENCE, MA	09/04/19 14:59	09/06/19
L1940717-70	B-06 (1-2)	SOIL	LAWRENCE, MA	09/04/19 15:15	09/06/19
L1940717-71	B-06 (2-3)	SOIL	LAWRENCE, MA	09/04/19 15:18	09/06/19
L1940717-72	B-06 (3-5)	SOIL	LAWRENCE, MA	09/04/19 15:21	09/06/19
L1940717-73	B-06 (5-7)	SOIL	LAWRENCE, MA	09/04/19 15:24	09/06/19
L1940717-74	B-07 (1-2)	SOIL	LAWRENCE, MA	09/04/19 15:27	09/06/19
L1940717-75	B-07 (2-3)	SOIL	LAWRENCE, MA	09/04/19 15:29	09/06/19
L1940717-76	B-07 (3-5)	SOIL	LAWRENCE, MA	09/04/19 15:31	09/06/19
L1940717-77	B-07 (5-7)	SOIL	LAWRENCE, MA	09/04/19 15:33	09/06/19
L1940717-78	C-07 (1-2)	SOIL	LAWRENCE, MA	09/05/19 08:25	09/06/19
L1940717-79	C-07 (2-3)	SOIL	LAWRENCE, MA	09/05/19 08:30	09/06/19
L1940717-80	C-07 (3-5)	SOIL	LAWRENCE, MA	09/05/19 08:35	09/06/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940717-81	C-07 (5-7)	SOIL	LAWRENCE, MA	09/05/19 08:40	09/06/19
L1940717-82	A-07 (1-2)	SOIL	LAWRENCE, MA	09/05/19 08:53	09/06/19
L1940717-83	A-07 (2-3)	SOIL	LAWRENCE, MA	09/05/19 08:56	09/06/19
L1940717-84	A-07 (3-5)	SOIL	LAWRENCE, MA	09/05/19 08:59	09/06/19
L1940717-85	A-07 (5-7)	SOIL	LAWRENCE, MA	09/05/19 09:02	09/06/19
L1940717-86	C-08 (1-2)	SOIL	LAWRENCE, MA	09/05/19 09:08	09/06/19
L1940717-87	C-08 (2-3)	SOIL	LAWRENCE, MA	09/05/19 09:11	09/06/19
L1940717-88	C-08 (3-5)	SOIL	LAWRENCE, MA	09/05/19 09:14	09/06/19
L1940717-89	C-08 (5-7)	SOIL	LAWRENCE, MA	09/05/19 09:17	09/06/19
L1940717-90	SB-DUP-4	SOIL	LAWRENCE, MA	09/05/19 00:00	09/06/19
L1940717-91	B-08 (1-2)	SOIL	LAWRENCE, MA	09/05/19 09:28	09/06/19
L1940717-92	B-08 (2-3)	SOIL	LAWRENCE, MA	09/05/19 09:30	09/06/19
L1940717-93	B-08 (3-5)	SOIL	LAWRENCE, MA	09/05/19 09:32	09/06/19
L1940717-94	B-08 (5-7)	SOIL	LAWRENCE, MA	09/05/19 09:34	09/06/19
L1940717-95	C-09 (1-2)	SOIL	LAWRENCE, MA	09/05/19 09:40	09/06/19
L1940717-96	C-09 (2-3)	SOIL	LAWRENCE, MA	09/05/19 09:42	09/06/19
L1940717-97	C-09 (3-5)	SOIL	LAWRENCE, MA	09/05/19 09:44	09/06/19
L1940717-98	C-09 (5-7)	SOIL	LAWRENCE, MA	09/05/19 09:46	09/06/19
L1940717-99	B-09 (1-2)	SOIL	LAWRENCE, MA	09/05/19 09:53	09/06/19
L1940717-100	SB-DUP-3	SOIL	LAWRENCE, MA	09/05/19 00:00	09/06/19
L1940717-101	B-09 (1-3)	SOIL	LAWRENCE, MA	09/05/19 09:54	09/06/19
L1940717-102	B-09 (2-3)	SOIL	LAWRENCE, MA	09/05/19 09:55	09/06/19
L1940717-103	B-09 (3-5)	SOIL	LAWRENCE, MA	09/05/19 09:57	09/06/19
L1940717-104	B-09 (5-7)-1	SOIL	LAWRENCE, MA	09/05/19 09:59	09/06/19
L1940717-105	B-09 (5-7)-2	SOIL	LAWRENCE, MA	09/05/19 10:02	09/06/19
L1940717-106	A-06 (1-2)	SOIL	LAWRENCE, MA	09/05/19 10:33	09/06/19
L1940717-107	A-06 (2-3)	SOIL	LAWRENCE, MA	09/05/19 10:36	09/06/19
L1940717-108	A-06 (3-5)	SOIL	LAWRENCE, MA	09/05/19 10:39	09/06/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940717-109	A-06 (5-7)	SOIL	LAWRENCE, MA	09/05/19 10:42	09/06/19
L1940717-110	SB-DUP-2	SOIL	LAWRENCE, MA	09/05/19 00:00	09/06/19
L1940717-111	B-05 (1-2)	SOIL	LAWRENCE, MA	09/05/19 10:48	09/06/19
L1940717-112	B-05 (2-3)	SOIL	LAWRENCE, MA	09/05/19 10:51	09/06/19
L1940717-113	B-05 (1-3)	SOIL	LAWRENCE, MA	09/05/19 10:54	09/06/19
L1940717-114	B-05 (3-5)-1	SOIL	LAWRENCE, MA	09/05/19 10:57	09/06/19
L1940717-115	B-05 (3-5)-2	SOIL	LAWRENCE, MA	09/05/19 10:57	09/06/19
L1940717-116	B-05 (5-7)	SOIL	LAWRENCE, MA	09/05/19 11:00	09/06/19
L1940717-117	C-05 (1-2)	SOIL	LAWRENCE, MA	09/05/19 11:12	09/06/19
L1940717-118	C-05 (2-3)	SOIL	LAWRENCE, MA	09/05/19 11:15	09/06/19
L1940717-119	C-05 (3-5)	SOIL	LAWRENCE, MA	09/05/19 11:18	09/06/19
L1940717-120	C-05 (5-7)	SOIL	LAWRENCE, MA	09/05/19 11:21	09/06/19
L1940717-121	C-06 (1-2)	SOIL	LAWRENCE, MA	09/05/19 11:32	09/06/19
L1940717-122	C-06 (2-3)	SOIL	LAWRENCE, MA	09/05/19 11:34	09/06/19
L1940717-123	C-06 (3-5)	SOIL	LAWRENCE, MA	09/05/19 11:36	09/06/19
L1940717-124	C-06 (5-7)	SOIL	LAWRENCE, MA	09/05/19 11:38	09/06/19
L1940717-125	A-05 (1-2)	SOIL	LAWRENCE, MA	09/05/19 12:12	09/06/19
L1940717-126	A-05 (2-3)	SOIL	LAWRENCE, MA	09/05/19 12:14	09/06/19
L1940717-127	A-05 (3-5)	SOIL	LAWRENCE, MA	09/05/19 12:16	09/06/19
L1940717-128	A-05 (5-7)	SOIL	LAWRENCE, MA	09/05/19 12:18	09/06/19
L1940717-129	E-02 (1-2)	SOIL	LAWRENCE, MA	09/05/19 13:05	09/06/19
L1940717-130	E-02 (2-3)	SOIL	LAWRENCE, MA	09/05/19 13:08	09/06/19
L1940717-131	E-02 (3-5)	SOIL	LAWRENCE, MA	09/05/19 13:11	09/06/19
L1940717-132	E-02 (5-7)	SOIL	LAWRENCE, MA	09/05/19 13:14	09/06/19
L1940717-133	B-04 (1-2)	SOIL	LAWRENCE, MA	09/05/19 13:20	09/06/19
L1940717-134	B-04 (2-3)	SOIL	LAWRENCE, MA	09/05/19 13:23	09/06/19
L1940717-135	B-04 (3-5)	SOIL	LAWRENCE, MA	09/05/19 13:26	09/06/19
L1940717-136	B-04 (5-7)	SOIL	LAWRENCE, MA	09/05/19 13:29	09/06/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940717-137	SB-1 (0-0.5)	SOIL	LAWRENCE, MA	09/05/19 13:33	09/06/19
L1940717-138	SB-1 (1-2)	SOIL	LAWRENCE, MA	09/05/19 13:36	09/06/19
L1940717-139	SB-1 (2-3)	SOIL	LAWRENCE, MA	09/05/19 13:39	09/06/19
L1940717-140	SB-DUP-1	SOIL	LAWRENCE, MA	09/05/19 00:00	09/06/19
L1940717-141	SB-1 (3-5)	SOIL	LAWRENCE, MA	09/05/19 13:42	09/06/19
L1940717-142	SB-1 (5-7)-1	SOIL	LAWRENCE, MA	09/05/19 13:45	09/06/19
L1940717-143	SB-1 (5-7)-2	SOIL	LAWRENCE, MA	09/05/19 13:48	09/06/19
L1940717-144	TRIP BLANK	SOIL	LAWRENCE, MA	09/05/19 00:00	09/06/19

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MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	NO
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES
A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO
For any questions answered "No", please refer to the case narrative section on the following page(s).		

Please note that sample matrix information is located in the Sample Results section of this report.



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Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

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Case Narrative (continued)

Report Submission

September 20, 2019: This final report includes the results of all requested analyses.

September 17, 2019: This is a preliminary report.

MCP Related Narratives

Sample Receipt

In reference to question A:

L1940717-11, -12, -15, -17, -18, -21, -23, -24, -27, -44, -45, -50, -55, and -56: The water-preserved VOA vials for Volatile Organics Low-Level analysis were received at the laboratory beyond the 48 hour holding time required for freezing. The client was notified and the results of the analysis are reported.

Volatile Organics

L1940717-15, -27, -44, -138, and -143 were analyzed as a High Level Methanol in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.

In reference to question G:

L1940717-12, -50, and -113: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1940717-23: The internal standard (IS) response for 1,4-dichlorobenzene-d4 (33%) and the surrogate recovery for 1,2-dichloroethane-d4 (141%) were outside the acceptance criteria; however, re-analysis achieved a similar result: 1,4-dichlorobenzene-d4 (34%). The results of both analyses are reported; however, since the IS response was below method criteria, all associated compounds and surrogate recoveries are considered to have a potentially high bias.

The initial calibration, associated with L1940717-11, -12, -18, -27, -44, -45, -50, -55, -56, -101, -105, -

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Case Narrative (continued)

113, -115, -138, -139, -140, and -143 did not meet the method required minimum response factor on the lowest calibration standard for 1,4-dioxane (0.0034), as well as the average response factor for 1,4-dioxane. The initial calibration, associated with L1940717-15, -17, -21, -23, and -24 did not meet the method required minimum response factor on the lowest calibration standard for 4-methyl-2-pentanone (0.0798) and 1,4-dioxane (0.0013), as well as the average response factor for 4-methyl-2-pentanone and 1,4-dioxane. In addition, the initial calibration verification is outside acceptance criteria for dichlorodifluoromethane (175%). The continuing calibration standards, associated with L1940717-11, -12, -15, -17, -18, -21, -23, -24, -27, -44, -45, -50, -55, -56, -101, -105, -113, -115, -138, -139, -140, and -143, are outside the acceptance criteria for several compounds; however, they are within overall method allowances. Copies of the continuing calibration standards are included as an addendum to this report.

EPH

In reference to question G:

L1940717-17, -18, -21, -23, -27, -44, -50, -55, -56, -101, -105, -113, -138, -139, and -140: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1940717-27, -44, and -56: The surrogate recoveries are below the acceptance criteria for chlorooctadecane (0%) and o-terphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

L1940717-50: The surrogate recovery is outside the acceptance criteria for o-terphenyl (250%); however, the sample was not re-extracted due to coelution with obvious interferences. A copy of the chromatogram is included as an attachment to this report.

PCBs

L1940717-15: The sample has elevated detection limits due to limited sample volume available for analysis.

In reference to question G:

L1940717-16, -32, -40, -51, -57, -61, -66, -67, -86, -99, -100, -102, -105, -111, and -117: One or more

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Case Narrative (continued)

of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1940717-02, -32, -40, -51, -57, -61, -66, -67, -86, -99, and -100: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

Total Metals

In reference to question H:

The WG1284380-4/-5 MS/MSD recoveries, performed on L1940717-23, are outside the acceptance criteria for barium (65%/61%) and zinc (MSD 144%). Re-analysis of the MS yielded unacceptable recoveries for barium and zinc in the range of 30-74% or >125%. The LCS recoveries were within acceptance criteria for these analytes; therefore, no further action was taken.

The WG1284380-4/-5 MS/MSD recoveries, performed on L1940717-23, are outside the acceptance criteria for chromium (MSD 0%) and lead (0%/0%). Re-analysis of the MS yielded unacceptable recoveries for chromium and lead of <30%. The MS % recoveries are <30%, but the sample detections are above the RL. The LCS recoveries are acceptable; therefore, no further action was taken. The MS/MSD RPD for chromium (42%) is above the acceptance criteria.

The WG1284380-7/-8 MS/MSD recoveries, performed on L1940717-113, are outside the acceptance criteria for chromium (MS 70%), lead (46%/140%), and zinc (818%/64%). Re-analysis of the MS yielded unacceptable recoveries for chromium, lead, and zinc in the range of 30-74% or >125%. The LCS recoveries were within acceptance criteria for these analytes; therefore, no further action was taken. The MS/MSD RPD for zinc (77%) is above the acceptance criteria.

The WG1284469-5 MSD recovery, performed on L1940717-139, is outside the acceptance criteria for mercury (141%). Re-analysis of the MSD yielded an unacceptable recovery for mercury in the range of 30-74% or >125%. The LCS recovery was within acceptance criteria for this analyte; therefore, no further action was taken.

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The WG1284649-4/-5 MS/MSD recoveries, performed on L1940717-139, are outside the acceptance criteria for arsenic (149%/149%). Re-analysis of the MS yielded an unacceptable recovery for arsenic in the range of >125%. The LCS recovery was within acceptance criteria for this analyte; therefore, no further action was taken.

The WG1284380-6 serial dilution analysis, associated with L1940717-23, had a %D above the acceptance criteria for barium (22%), lead (30%), and zinc (28%).

The WG1284380-9 serial dilution analysis, associated with L1940717-113, had a %D above the acceptance criteria for lead (26%) and zinc (28%).

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

Chromium, Hexavalent


LCS/LCSD SRM Lot#: ERA D101-192

In reference to question A:

L1940717-11, -12, -15, -17, -18, -21, -23, -24, -27, -44, -45, -50, -55, -56, -101, -105, -113, -115, -138, -139, -140, and -143: The analyses of pH and ORP were performed beyond the required 24hr holding time specified per the Sample Collection, Preservation, and Handling Procedures for Hexavalent Chromium (Cr(VI)) by WSC-CAM-VI B.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 09/20/19

QC OUTLIER SUMMARY REPORT

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Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment
MCP Volatile Organics by EPA 5035 High - Westborough Lab								
8260C	Batch QC	WG1284521-3	Dichlorodifluoromethane	LCS	141	70-130	15	potential high bias
8260C	Batch QC	WG1284521-4	Dichlorodifluoromethane	LCSD	137	70-130	15	potential high bias
8260C	Batch QC	WG1284780-4	Acetone	LCSD	134	70-130	44	potential high bias
8260C	Batch QC	WG1284929-3	Chloromethane	LCS	137	70-130	138,143	potential high bias
8260C	Batch QC	WG1284929-3	Acetone	LCS	133	70-130	138,143	potential high bias
8260C	Batch QC	WG1284929-4	Chloromethane	LCSD	138	70-130	138,143	potential high bias
8260C	Batch QC	WG1284929-4	Acetone	LCSD	137	70-130	138,143	potential high bias
MCP Volatile Organics by EPA 5035 Low - Westborough Lab								
8260C	SB-2 (1-2)	L1940717-23	1,2-Dichloroethane-d4	Surrogate	141	70-130	-	potential high bias
8260C	Batch QC	WG1284397-3	Trichlorofluoromethane	LCS	132	70-130	15,17,23	potential high bias
8260C	Batch QC	WG1284397-3	1,2-Dichloroethane	LCS	135	70-130	15,17,23	potential high bias
8260C	Batch QC	WG1284397-3	Chloromethane	LCS	133	70-130	15,17,23	potential high bias
8260C	Batch QC	WG1284397-3	Dichlorodifluoromethane	LCS	152	70-130	15,17,23	potential high bias
8260C	Batch QC	WG1284397-4	1,2-Dichloroethane	LCSD	132	70-130	15,17,23	potential high bias
8260C	Batch QC	WG1284397-4	Chloromethane	LCSD	131	70-130	15,17,23	potential high bias
8260C	Batch QC	WG1284397-4	Dichlorodifluoromethane	LCSD	148	70-130	15,17,23	potential high bias
8260C	Batch QC	WG1284519-3	Dichlorodifluoromethane	LCS	141	70-130	21,23-24	potential high bias
8260C	Batch QC	WG1284519-4	Dichlorodifluoromethane	LCSD	137	70-130	21,23-24	potential high bias
8260C	Batch QC	WG1284781-4	Acetone	LCSD	134	70-130	18,105,140	potential high bias
Extractable Petroleum Hydrocarbons - Westborough Lab								
EPH-04-1.1	SB-2 (5-7)-2	L1940717-27 D	Chloro-Octadecane	Surrogate	0	40-140	-	-- not applicable --
EPH-04-1.1	SB-2 (5-7)-2	L1940717-27 D	o-Terphenyl	Surrogate	0	40-140	-	-- not applicable --
EPH-04-1.1	D-07 (1-3)	L1940717-44 D	Chloro-Octadecane	Surrogate	0	40-140	-	-- not applicable --
EPH-04-1.1	D-07 (1-3)	L1940717-44 D	o-Terphenyl	Surrogate	0	40-140	-	-- not applicable --
EPH-04-1.1	SB-DUP-5	L1940717-50 D	o-Terphenyl	Surrogate	250	40-140	-	potential high bias
EPH-04-1.1	E-06 (5-7)-2	L1940717-56 D	Chloro-Octadecane	Surrogate	0	40-140	-	-- not applicable --
EPH-04-1.1	E-06 (5-7)-2	L1940717-56 D	o-Terphenyl	Surrogate	0	40-140	-	-- not applicable --
EPH-04-1.1	Batch QC	WG1283558-3	C9-C18 Aliphatics	LCSD	27	25	45,50,55-56,143	non-directional bias

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EPH-04-1.1	Batch QC	WG1283558-3	Naphthalene	LCSD	29	25	45,50,55-56,143	non-directional bias
EPH-04-1.1	Batch QC	WG1283558-3	2-Methylnaphthalene	LCSD	28	25	45,50,55-56,143	non-directional bias
EPH-04-1.1	Batch QC	WG1283558-3	Acenaphthylene	LCSD	27	25	45,50,55-56,143	non-directional bias
EPH-04-1.1	Batch QC	WG1283558-3	Acenaphthene	LCSD	27	25	45,50,55-56,143	non-directional bias
EPH-04-1.1	Batch QC	WG1283558-3	Nonane (C9)	LCSD	33	25	45,50,55-56,143	non-directional bias
EPH-04-1.1	Batch QC	WG1283558-3	Decane (C10)	LCSD	31	25	45,50,55-56,143	non-directional bias
EPH-04-1.1	Batch QC	WG1283558-3	Dodecane (C12)	LCSD	31	25	45,50,55-56,143	non-directional bias
EPH-04-1.1	Batch QC	WG1283558-3	Tetradecane (C14)	LCSD	30	25	45,50,55-56,143	non-directional bias
MCP Polychlorinated Biphenyls - Westborough Lab								
8082A	AS-6	L1940717-02 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	AS-6	L1940717-02 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	AS-6	L1940717-02 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	AS-6	L1940717-02 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-3	L1940717-100 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-3	L1940717-100 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-3	L1940717-100 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-3	L1940717-100 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	B-09 (2-3)	L1940717-102 D	Decachlorobiphenyl (B)	Surrogate	181	30-150	-	potential high bias
8082A	B-09 (5-7)-2	L1940717-105 D	Decachlorobiphenyl (B)	Surrogate	167	30-150	-	potential high bias
8082A	A-05 (2-3)	L1940717-126	Decachlorobiphenyl (B)	Surrogate	158	30-150	-	potential high bias
8082A	SB-4 (5-7)-2	L1940717-15	Decachlorobiphenyl (A)	Surrogate	27	30-150	-	potential low bias
8082A	E-08 (1-2)	L1940717-32 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-08 (1-2)	L1940717-32 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-08 (1-2)	L1940717-32 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-08 (1-2)	L1940717-32 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --

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8082A	D-07 (1-2)	L1940717-40 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-07 (1-2)	L1940717-40 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-07 (1-2)	L1940717-40 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-07 (1-2)	L1940717-40 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-06 (1-2)	L1940717-51 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-06 (1-2)	L1940717-51 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-06 (1-2)	L1940717-51 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-06 (1-2)	L1940717-51 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-06 (2-3)	L1940717-52	Decachlorobiphenyl (B)	Surrogate	163	30-150	-	potential high bias
8082A	E-05 (1-2)	L1940717-57 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-05 (1-2)	L1940717-57 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-05 (1-2)	L1940717-57 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	E-05 (1-2)	L1940717-57 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-6	L1940717-61 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-6	L1940717-61 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-6	L1940717-61 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-DUP-6	L1940717-61 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (1-2)	L1940717-66 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (1-2)	L1940717-66 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (1-2)	L1940717-66 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (1-2)	L1940717-66 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (2-3)	L1940717-67 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (2-3)	L1940717-67 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (2-3)	L1940717-67 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	D-09 (2-3)	L1940717-67 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	C-08 (1-2)	L1940717-86 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	C-08 (1-2)	L1940717-86 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	C-08 (1-2)	L1940717-86 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	C-08 (1-2)	L1940717-86 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --

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8082A	C-08 (2-3)	L1940717-87	Decachlorobiphenyl (B)	Surrogate	153	30-150	-	potential high bias
8082A	SB-DUP-4	L1940717-90	Decachlorobiphenyl (B)	Surrogate	158	30-150	-	potential high bias
8082A	B-09 (1-2)	L1940717-99 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	B-09 (1-2)	L1940717-99 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	B-09 (1-2)	L1940717-99 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	B-09 (1-2)	L1940717-99 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
MCP Total Metals - Mansfield Lab								
6010D	Batch QC (L1940717-23)	WG1284380-4	Barium, Total	MS	65	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential low bias
6010D	Batch QC (L1940717-23)	WG1284380-4	Lead, Total	MS	0	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential low bias
6010D	Batch QC (L1940717-23)	WG1284380-5	Barium, Total	MSD	61	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential low bias
6010D	Batch QC (L1940717-23)	WG1284380-5	Chromium, Total	MSD	0	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential low bias

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Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment
6010D	Batch QC (L1940717-23)	WG1284380-5	Chromium, Total	MSD	42	35	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	non-directional bias
6010D	Batch QC (L1940717-23)	WG1284380-5	Lead, Total	MSD	0	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential low bias
6010D	Batch QC (L1940717-23)	WG1284380-5	Zinc, Total	MSD	144	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential high bias
6010D	Batch QC (L1940717-23)	WG1284380-6	Barium, Total	SERDIL	22	35	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	non-directional bias
6010D	Batch QC (L1940717-23)	WG1284380-6	Lead, Total	SERDIL	30	35	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	non-directional bias
6010D	Batch QC (L1940717-23)	WG1284380-6	Zinc, Total	SERDIL	28	35	11-12,15,17-	non-directional bias

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6010D	Batch QC (L1940717-113)	WG1284380-7	Chromium, Total	MS	70	75-125	18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential low bias
6010D	Batch QC (L1940717-113)	WG1284380-7	Lead, Total	MS	46	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential low bias
6010D	Batch QC (L1940717-113)	WG1284380-7	Zinc, Total	MS	818	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential high bias
6010D	Batch QC (L1940717-113)	WG1284380-8	Lead, Total	MSD	140	75-125	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	potential high bias
6010D	Batch QC (L1940717-113)	WG1284380-8	Zinc, Total	MSD	64	75-125	11-12,15,17-18,21,23-24,27,44-	potential low bias

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6010D	Batch QC (L1940717-113)	WG1284380-8	Zinc, Total	MSD	77	35	45,50,55-56,101,105,113,115,138,140	non-directional bias
6010D	Batch QC (L1940717-113)	WG1284380-9	Lead, Total	SERDIL	26	35	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	non-directional bias
6010D	Batch QC (L1940717-113)	WG1284380-9	Zinc, Total	SERDIL	28	35	11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140	non-directional bias
6010D	Batch QC (L1940717-139)	WG1284649-4	Arsenic, Total	MS	149	75-125	139,143	potential high bias
6010D	Batch QC (L1940717-139)	WG1284649-5	Arsenic, Total	MSD	149	75-125	139,143	potential high bias
7471B	Batch QC (L1940717-139)	WG1284469-5	Mercury, Total	MSD	141	75-125	139	potential high bias



ORGANICS

VOLATILES

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-11
 Client ID: SB-4 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:50
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 20:33
 Analyst: NLK
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	3.7	--	1
1,1-Dichloroethane	ND		ug/kg	0.74	--	1
Chloroform	ND		ug/kg	1.1	--	1
Carbon tetrachloride	ND		ug/kg	0.74	--	1
1,2-Dichloropropane	ND		ug/kg	0.74	--	1
Dibromochloromethane	ND		ug/kg	0.74	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.74	--	1
Tetrachloroethene	ND		ug/kg	0.37	--	1
Chlorobenzene	ND		ug/kg	0.37	--	1
Trichlorofluoromethane	ND		ug/kg	3.0	--	1
1,2-Dichloroethane	ND		ug/kg	0.74	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.37	--	1
Bromodichloromethane	ND		ug/kg	0.37	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.74	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.37	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.37	--	1
1,1-Dichloropropene	ND		ug/kg	0.37	--	1
Bromoform	ND		ug/kg	3.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.37	--	1
Benzene	ND		ug/kg	0.37	--	1
Toluene	ND		ug/kg	0.74	--	1
Ethylbenzene	ND		ug/kg	0.74	--	1
Chloromethane	ND		ug/kg	3.0	--	1
Bromomethane	ND		ug/kg	1.5	--	1
Vinyl chloride	ND		ug/kg	0.74	--	1
Chloroethane	ND		ug/kg	1.5	--	1
1,1-Dichloroethene	ND		ug/kg	0.74	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.1	--	1

Project Name: TOMBARELLO SITE
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Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-11
Client ID: SB-4 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:50
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.37	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.5	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.5	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.5	--	1
Methyl tert butyl ether	ND		ug/kg	1.5	--	1
p/m-Xylene	ND		ug/kg	1.5	--	1
o-Xylene	ND		ug/kg	0.74	--	1
Xylenes, Total	ND		ug/kg	0.74	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.74	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.74	--	1
Dibromomethane	ND		ug/kg	1.5	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.5	--	1
Styrene	ND		ug/kg	0.74	--	1
Dichlorodifluoromethane	ND		ug/kg	7.4	--	1
Acetone	100		ug/kg	7.4	--	1
Carbon disulfide	ND		ug/kg	7.4	--	1
Methyl ethyl ketone	ND		ug/kg	7.4	--	1
Methyl isobutyl ketone	ND		ug/kg	7.4	--	1
2-Hexanone	ND		ug/kg	7.4	--	1
Bromochloromethane	ND		ug/kg	1.5	--	1
Tetrahydrofuran	ND		ug/kg	3.0	--	1
2,2-Dichloropropane	ND		ug/kg	1.5	--	1
1,2-Dibromoethane	ND		ug/kg	0.74	--	1
1,3-Dichloropropane	ND		ug/kg	1.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.37	--	1
Bromobenzene	ND		ug/kg	1.5	--	1
n-Butylbenzene	ND		ug/kg	0.74	--	1
sec-Butylbenzene	ND		ug/kg	0.74	--	1
tert-Butylbenzene	ND		ug/kg	1.5	--	1
o-Chlorotoluene	ND		ug/kg	1.5	--	1
p-Chlorotoluene	ND		ug/kg	1.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.2	--	1
Hexachlorobutadiene	ND		ug/kg	3.0	--	1
Isopropylbenzene	ND		ug/kg	0.74	--	1
p-Isopropyltoluene	ND		ug/kg	0.74	--	1
Naphthalene	ND		ug/kg	3.0	--	1
n-Propylbenzene	ND		ug/kg	0.74	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-11
Client ID: SB-4 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:50
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.5	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.5	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.5	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.5	--	1
Diethyl ether	ND		ug/kg	1.5	--	1
Diisopropyl Ether	ND		ug/kg	1.5	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.5	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.5	--	1
1,4-Dioxane	ND		ug/kg	60	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-12
 Client ID: SB-4 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:40
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 19:20
 Analyst: NLK
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	260	--	1
1,1-Dichloroethane	ND		ug/kg	52	--	1
Chloroform	ND		ug/kg	78	--	1
Carbon tetrachloride	ND		ug/kg	52	--	1
1,2-Dichloropropane	ND		ug/kg	52	--	1
Dibromochloromethane	ND		ug/kg	52	--	1
1,1,2-Trichloroethane	ND		ug/kg	52	--	1
Tetrachloroethene	340		ug/kg	26	--	1
Chlorobenzene	ND		ug/kg	26	--	1
Trichlorofluoromethane	ND		ug/kg	210	--	1
1,2-Dichloroethane	ND		ug/kg	52	--	1
1,1,1-Trichloroethane	ND		ug/kg	26	--	1
Bromodichloromethane	ND		ug/kg	26	--	1
trans-1,3-Dichloropropene	ND		ug/kg	52	--	1
cis-1,3-Dichloropropene	ND		ug/kg	26	--	1
1,3-Dichloropropene, Total	ND		ug/kg	26	--	1
1,1-Dichloropropene	ND		ug/kg	26	--	1
Bromoform	ND		ug/kg	210	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	26	--	1
Benzene	ND		ug/kg	26	--	1
Toluene	ND		ug/kg	52	--	1
Ethylbenzene	ND		ug/kg	52	--	1
Chloromethane	ND		ug/kg	210	--	1
Bromomethane	ND		ug/kg	100	--	1
Vinyl chloride	ND		ug/kg	52	--	1
Chloroethane	ND		ug/kg	100	--	1
1,1-Dichloroethene	ND		ug/kg	52	--	1
trans-1,2-Dichloroethene	ND		ug/kg	78	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-12
Client ID: SB-4 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:40
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	100		ug/kg	26	--	1
1,2-Dichlorobenzene	ND		ug/kg	100	--	1
1,3-Dichlorobenzene	ND		ug/kg	100	--	1
1,4-Dichlorobenzene	ND		ug/kg	100	--	1
Methyl tert butyl ether	ND		ug/kg	100	--	1
p/m-Xylene	ND		ug/kg	100	--	1
o-Xylene	ND		ug/kg	52	--	1
Xylenes, Total	ND		ug/kg	52	--	1
cis-1,2-Dichloroethene	ND		ug/kg	52	--	1
1,2-Dichloroethene, Total	ND		ug/kg	52	--	1
Dibromomethane	ND		ug/kg	100	--	1
1,2,3-Trichloropropane	ND		ug/kg	100	--	1
Styrene	ND		ug/kg	52	--	1
Dichlorodifluoromethane	ND		ug/kg	520	--	1
Acetone	ND		ug/kg	520	--	1
Carbon disulfide	ND		ug/kg	520	--	1
Methyl ethyl ketone	ND		ug/kg	520	--	1
Methyl isobutyl ketone	ND		ug/kg	520	--	1
2-Hexanone	ND		ug/kg	520	--	1
Bromochloromethane	ND		ug/kg	100	--	1
Tetrahydrofuran	ND		ug/kg	210	--	1
2,2-Dichloropropane	ND		ug/kg	100	--	1
1,2-Dibromoethane	ND		ug/kg	52	--	1
1,3-Dichloropropane	ND		ug/kg	100	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	26	--	1
Bromobenzene	ND		ug/kg	100	--	1
n-Butylbenzene	ND		ug/kg	52	--	1
sec-Butylbenzene	ND		ug/kg	52	--	1
tert-Butylbenzene	ND		ug/kg	100	--	1
o-Chlorotoluene	ND		ug/kg	100	--	1
p-Chlorotoluene	ND		ug/kg	100	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	160	--	1
Hexachlorobutadiene	ND		ug/kg	210	--	1
Isopropylbenzene	ND		ug/kg	52	--	1
p-Isopropyltoluene	ND		ug/kg	52	--	1
Naphthalene	ND		ug/kg	210	--	1
n-Propylbenzene	ND		ug/kg	52	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-12
Client ID: SB-4 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:40
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	100	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	100	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	100	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	100	--	1
Diethyl ether	ND		ug/kg	100	--	1
Diisopropyl Ether	ND		ug/kg	100	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	100	--	1
1,4-Dioxane	ND		ug/kg	4100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	92		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
 Client ID: SB-4 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/14/19 13:27
 Analyst: KJD
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.2	--	1
1,1-Dichloroethane	ND		ug/kg	1.2	--	1
Chloroform	ND		ug/kg	1.9	--	1
Carbon tetrachloride	ND		ug/kg	1.2	--	1
1,2-Dichloropropane	ND		ug/kg	1.2	--	1
Dibromochloromethane	ND		ug/kg	1.2	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.2	--	1
Tetrachloroethene	ND		ug/kg	0.62	--	1
Chlorobenzene	ND		ug/kg	0.62	--	1
Trichlorofluoromethane	ND		ug/kg	5.0	--	1
1,2-Dichloroethane	ND		ug/kg	1.2	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.62	--	1
Bromodichloromethane	ND		ug/kg	0.62	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.62	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.62	--	1
1,1-Dichloropropene	ND		ug/kg	0.62	--	1
Bromoform	ND		ug/kg	5.0	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.62	--	1
Benzene	ND		ug/kg	0.62	--	1
Toluene	ND		ug/kg	1.2	--	1
Ethylbenzene	ND		ug/kg	1.2	--	1
Chloromethane	ND		ug/kg	5.0	--	1
Bromomethane	ND		ug/kg	2.5	--	1
Vinyl chloride	ND		ug/kg	1.2	--	1
Chloroethane	ND		ug/kg	2.5	--	1
1,1-Dichloroethene	ND		ug/kg	1.2	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.9	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
Client ID: SB-4 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.62	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.5	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.5	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.5	--	1
Methyl tert butyl ether	ND		ug/kg	2.5	--	1
p/m-Xylene	ND		ug/kg	2.5	--	1
o-Xylene	ND		ug/kg	1.2	--	1
Xylenes, Total	ND		ug/kg	1.2	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.2	--	1
Dibromomethane	ND		ug/kg	2.5	--	1
1,2,3-Trichloropropane	ND		ug/kg	2.5	--	1
Styrene	ND		ug/kg	1.2	--	1
Dichlorodifluoromethane	ND		ug/kg	12	--	1
Acetone	480	E	ug/kg	12	--	1
Carbon disulfide	ND		ug/kg	12	--	1
Methyl ethyl ketone	ND		ug/kg	12	--	1
Methyl isobutyl ketone	ND		ug/kg	12	--	1
2-Hexanone	ND		ug/kg	12	--	1
Bromochloromethane	ND		ug/kg	2.5	--	1
Tetrahydrofuran	ND		ug/kg	5.0	--	1
2,2-Dichloropropane	ND		ug/kg	2.5	--	1
1,2-Dibromoethane	ND		ug/kg	1.2	--	1
1,3-Dichloropropane	ND		ug/kg	2.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.62	--	1
Bromobenzene	ND		ug/kg	2.5	--	1
n-Butylbenzene	ND		ug/kg	1.2	--	1
sec-Butylbenzene	ND		ug/kg	1.2	--	1
tert-Butylbenzene	ND		ug/kg	2.5	--	1
o-Chlorotoluene	ND		ug/kg	2.5	--	1
p-Chlorotoluene	ND		ug/kg	2.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.7	--	1
Hexachlorobutadiene	ND		ug/kg	5.0	--	1
Isopropylbenzene	ND		ug/kg	1.2	--	1
p-Isopropyltoluene	ND		ug/kg	1.2	--	1
Naphthalene	ND		ug/kg	5.0	--	1
n-Propylbenzene	ND		ug/kg	1.2	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
 Client ID: SB-4 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.5	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.5	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.5	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.5	--	1
Diethyl ether	ND		ug/kg	2.5	--	1
Diisopropyl Ether	ND		ug/kg	2.5	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.5	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.5	--	1
1,4-Dioxane	ND		ug/kg	99	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	128		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	109		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
 Client ID: SB-4 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 17:18
 Analyst: NLK
 Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	610	--	1
1,1-Dichloroethane	ND		ug/kg	120	--	1
Chloroform	ND		ug/kg	180	--	1
Carbon tetrachloride	ND		ug/kg	120	--	1
1,2-Dichloropropane	ND		ug/kg	120	--	1
Dibromochloromethane	ND		ug/kg	120	--	1
1,1,2-Trichloroethane	ND		ug/kg	120	--	1
Tetrachloroethene	61		ug/kg	61	--	1
Chlorobenzene	ND		ug/kg	61	--	1
Trichlorofluoromethane	ND		ug/kg	490	--	1
1,2-Dichloroethane	ND		ug/kg	120	--	1
1,1,1-Trichloroethane	ND		ug/kg	61	--	1
Bromodichloromethane	ND		ug/kg	61	--	1
trans-1,3-Dichloropropene	ND		ug/kg	120	--	1
cis-1,3-Dichloropropene	ND		ug/kg	61	--	1
1,3-Dichloropropene, Total	ND		ug/kg	61	--	1
1,1-Dichloropropene	ND		ug/kg	61	--	1
Bromoform	ND		ug/kg	490	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	61	--	1
Benzene	ND		ug/kg	61	--	1
Toluene	ND		ug/kg	120	--	1
Ethylbenzene	ND		ug/kg	120	--	1
Chloromethane	ND		ug/kg	490	--	1
Bromomethane	ND		ug/kg	240	--	1
Vinyl chloride	ND		ug/kg	120	--	1
Chloroethane	ND		ug/kg	240	--	1
1,1-Dichloroethene	ND		ug/kg	120	--	1
trans-1,2-Dichloroethene	ND		ug/kg	180	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
Client ID: SB-4 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	61	--	1
1,2-Dichlorobenzene	ND		ug/kg	240	--	1
1,3-Dichlorobenzene	ND		ug/kg	240	--	1
1,4-Dichlorobenzene	ND		ug/kg	240	--	1
Methyl tert butyl ether	ND		ug/kg	240	--	1
p/m-Xylene	ND		ug/kg	240	--	1
o-Xylene	ND		ug/kg	120	--	1
Xylenes, Total	ND		ug/kg	120	--	1
cis-1,2-Dichloroethene	ND		ug/kg	120	--	1
1,2-Dichloroethene, Total	ND		ug/kg	120	--	1
Dibromomethane	ND		ug/kg	240	--	1
1,2,3-Trichloropropane	ND		ug/kg	240	--	1
Styrene	ND		ug/kg	120	--	1
Dichlorodifluoromethane	ND		ug/kg	1200	--	1
Acetone	ND		ug/kg	1200	--	1
Carbon disulfide	ND		ug/kg	1200	--	1
Methyl ethyl ketone	ND		ug/kg	1200	--	1
Methyl isobutyl ketone	ND		ug/kg	1200	--	1
2-Hexanone	ND		ug/kg	1200	--	1
Bromochloromethane	ND		ug/kg	240	--	1
Tetrahydrofuran	ND		ug/kg	490	--	1
2,2-Dichloropropane	ND		ug/kg	240	--	1
1,2-Dibromoethane	ND		ug/kg	120	--	1
1,3-Dichloropropane	ND		ug/kg	240	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	61	--	1
Bromobenzene	ND		ug/kg	240	--	1
n-Butylbenzene	ND		ug/kg	120	--	1
sec-Butylbenzene	ND		ug/kg	120	--	1
tert-Butylbenzene	ND		ug/kg	240	--	1
o-Chlorotoluene	ND		ug/kg	240	--	1
p-Chlorotoluene	ND		ug/kg	240	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	360	--	1
Hexachlorobutadiene	ND		ug/kg	490	--	1
Isopropylbenzene	ND		ug/kg	120	--	1
p-Isopropyltoluene	ND		ug/kg	120	--	1
Naphthalene	ND		ug/kg	490	--	1
n-Propylbenzene	ND		ug/kg	120	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
 Client ID: SB-4 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	240	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	240	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	240	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	240	--	1
Diethyl ether	ND		ug/kg	240	--	1
Diisopropyl Ether	ND		ug/kg	240	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	240	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	240	--	1
1,4-Dioxane	ND		ug/kg	9700	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	128		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	106		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-17
 Client ID: SB-3 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:25
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/14/19 13:53
 Analyst: KJD
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	3.7	--	1
1,1-Dichloroethane	ND		ug/kg	0.74	--	1
Chloroform	ND		ug/kg	1.1	--	1
Carbon tetrachloride	ND		ug/kg	0.74	--	1
1,2-Dichloropropane	ND		ug/kg	0.74	--	1
Dibromochloromethane	ND		ug/kg	0.74	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.74	--	1
Tetrachloroethene	14		ug/kg	0.37	--	1
Chlorobenzene	ND		ug/kg	0.37	--	1
Trichlorofluoromethane	ND		ug/kg	2.9	--	1
1,2-Dichloroethane	ND		ug/kg	0.74	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.37	--	1
Bromodichloromethane	ND		ug/kg	0.37	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.74	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.37	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.37	--	1
1,1-Dichloropropene	ND		ug/kg	0.37	--	1
Bromoform	ND		ug/kg	2.9	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.37	--	1
Benzene	ND		ug/kg	0.37	--	1
Toluene	ND		ug/kg	0.74	--	1
Ethylbenzene	ND		ug/kg	0.74	--	1
Chloromethane	ND		ug/kg	2.9	--	1
Bromomethane	ND		ug/kg	1.5	--	1
Vinyl chloride	ND		ug/kg	0.74	--	1
Chloroethane	ND		ug/kg	1.5	--	1
1,1-Dichloroethene	ND		ug/kg	0.74	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.1	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-17
Client ID: SB-3 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:25
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	1.5		ug/kg	0.37	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.5	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.5	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.5	--	1
Methyl tert butyl ether	ND		ug/kg	1.5	--	1
p/m-Xylene	ND		ug/kg	1.5	--	1
o-Xylene	ND		ug/kg	0.74	--	1
Xylenes, Total	ND		ug/kg	0.74	--	1
cis-1,2-Dichloroethene	1.4		ug/kg	0.74	--	1
1,2-Dichloroethene, Total	1.4		ug/kg	0.74	--	1
Dibromomethane	ND		ug/kg	1.5	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.5	--	1
Styrene	ND		ug/kg	0.74	--	1
Dichlorodifluoromethane	ND		ug/kg	7.4	--	1
Acetone	140		ug/kg	7.4	--	1
Carbon disulfide	ND		ug/kg	7.4	--	1
Methyl ethyl ketone	ND		ug/kg	7.4	--	1
Methyl isobutyl ketone	ND		ug/kg	7.4	--	1
2-Hexanone	ND		ug/kg	7.4	--	1
Bromochloromethane	ND		ug/kg	1.5	--	1
Tetrahydrofuran	ND		ug/kg	2.9	--	1
2,2-Dichloropropane	ND		ug/kg	1.5	--	1
1,2-Dibromoethane	ND		ug/kg	0.74	--	1
1,3-Dichloropropane	ND		ug/kg	1.5	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.37	--	1
Bromobenzene	ND		ug/kg	1.5	--	1
n-Butylbenzene	ND		ug/kg	0.74	--	1
sec-Butylbenzene	ND		ug/kg	0.74	--	1
tert-Butylbenzene	ND		ug/kg	1.5	--	1
o-Chlorotoluene	ND		ug/kg	1.5	--	1
p-Chlorotoluene	ND		ug/kg	1.5	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.2	--	1
Hexachlorobutadiene	ND		ug/kg	2.9	--	1
Isopropylbenzene	ND		ug/kg	0.74	--	1
p-Isopropyltoluene	ND		ug/kg	0.74	--	1
Naphthalene	ND		ug/kg	2.9	--	1
n-Propylbenzene	ND		ug/kg	0.74	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-17
Client ID: SB-3 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:25
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.5	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.5	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.5	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.5	--	1
Diethyl ether	ND		ug/kg	1.5	--	1
Diisopropyl Ether	ND		ug/kg	1.5	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.5	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.5	--	1
1,4-Dioxane	ND		ug/kg	59	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	110		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-18
 Client ID: SB-3 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/16/19 09:45
 Analyst: JC
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	3.6	--	1
1,1-Dichloroethane	ND		ug/kg	0.72	--	1
Chloroform	ND		ug/kg	1.1	--	1
Carbon tetrachloride	ND		ug/kg	0.72	--	1
1,2-Dichloropropane	ND		ug/kg	0.72	--	1
Dibromochloromethane	ND		ug/kg	0.72	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.72	--	1
Tetrachloroethene	5.8		ug/kg	0.36	--	1
Chlorobenzene	ND		ug/kg	0.36	--	1
Trichlorofluoromethane	ND		ug/kg	2.9	--	1
1,2-Dichloroethane	ND		ug/kg	0.72	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.36	--	1
Bromodichloromethane	ND		ug/kg	0.36	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.72	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.36	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.36	--	1
1,1-Dichloropropene	ND		ug/kg	0.36	--	1
Bromoform	ND		ug/kg	2.9	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.36	--	1
Benzene	ND		ug/kg	0.36	--	1
Toluene	ND		ug/kg	0.72	--	1
Ethylbenzene	ND		ug/kg	0.72	--	1
Chloromethane	ND		ug/kg	2.9	--	1
Bromomethane	ND		ug/kg	1.4	--	1
Vinyl chloride	ND		ug/kg	0.72	--	1
Chloroethane	ND		ug/kg	1.4	--	1
1,1-Dichloroethene	ND		ug/kg	0.72	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.1	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-18
Client ID: SB-3 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	0.79		ug/kg	0.36	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.4	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.4	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.4	--	1
Methyl tert butyl ether	ND		ug/kg	1.4	--	1
p/m-Xylene	ND		ug/kg	1.4	--	1
o-Xylene	ND		ug/kg	0.72	--	1
Xylenes, Total	ND		ug/kg	0.72	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.72	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.72	--	1
Dibromomethane	ND		ug/kg	1.4	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.4	--	1
Styrene	ND		ug/kg	0.72	--	1
Dichlorodifluoromethane	ND		ug/kg	7.2	--	1
Acetone	100		ug/kg	7.2	--	1
Carbon disulfide	ND		ug/kg	7.2	--	1
Methyl ethyl ketone	ND		ug/kg	7.2	--	1
Methyl isobutyl ketone	ND		ug/kg	7.2	--	1
2-Hexanone	ND		ug/kg	7.2	--	1
Bromochloromethane	ND		ug/kg	1.4	--	1
Tetrahydrofuran	ND		ug/kg	2.9	--	1
2,2-Dichloropropane	ND		ug/kg	1.4	--	1
1,2-Dibromoethane	ND		ug/kg	0.72	--	1
1,3-Dichloropropane	ND		ug/kg	1.4	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.36	--	1
Bromobenzene	ND		ug/kg	1.4	--	1
n-Butylbenzene	ND		ug/kg	0.72	--	1
sec-Butylbenzene	ND		ug/kg	0.72	--	1
tert-Butylbenzene	ND		ug/kg	1.4	--	1
o-Chlorotoluene	ND		ug/kg	1.4	--	1
p-Chlorotoluene	ND		ug/kg	1.4	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.2	--	1
Hexachlorobutadiene	ND		ug/kg	2.9	--	1
Isopropylbenzene	ND		ug/kg	0.72	--	1
p-Isopropyltoluene	ND		ug/kg	0.72	--	1
Naphthalene	ND		ug/kg	2.9	--	1
n-Propylbenzene	ND		ug/kg	0.72	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-18
Client ID: SB-3 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.4	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.4	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.4	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.4	--	1
Diethyl ether	ND		ug/kg	1.4	--	1
Diisopropyl Ether	ND		ug/kg	1.4	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.4	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.4	--	1
1,4-Dioxane	ND		ug/kg	58	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	97		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-21
 Client ID: SB-3 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:40
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 15:33
 Analyst: NLK
 Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	--	1
1,1-Dichloroethane	ND		ug/kg	0.95	--	1
Chloroform	ND		ug/kg	1.4	--	1
Carbon tetrachloride	ND		ug/kg	0.95	--	1
1,2-Dichloropropane	ND		ug/kg	0.95	--	1
Dibromochloromethane	ND		ug/kg	0.95	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.95	--	1
Tetrachloroethene	11		ug/kg	0.48	--	1
Chlorobenzene	ND		ug/kg	0.48	--	1
Trichlorofluoromethane	ND		ug/kg	3.8	--	1
1,2-Dichloroethane	ND		ug/kg	0.95	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	--	1
Bromodichloromethane	ND		ug/kg	0.48	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.95	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	--	1
1,1-Dichloropropene	ND		ug/kg	0.48	--	1
Bromoform	ND		ug/kg	3.8	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Benzene	ND		ug/kg	0.48	--	1
Toluene	ND		ug/kg	0.95	--	1
Ethylbenzene	ND		ug/kg	0.95	--	1
Chloromethane	ND		ug/kg	3.8	--	1
Bromomethane	ND		ug/kg	1.9	--	1
Vinyl chloride	ND		ug/kg	0.95	--	1
Chloroethane	ND		ug/kg	1.9	--	1
1,1-Dichloroethene	ND		ug/kg	0.95	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-21
Client ID: SB-3 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:40
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	1.9		ug/kg	0.48	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	--	1
Methyl tert butyl ether	ND		ug/kg	1.9	--	1
p/m-Xylene	ND		ug/kg	1.9	--	1
o-Xylene	ND		ug/kg	0.95	--	1
Xylenes, Total	ND		ug/kg	0.95	--	1
cis-1,2-Dichloroethene	4.0		ug/kg	0.95	--	1
1,2-Dichloroethene, Total	4.0		ug/kg	0.95	--	1
Dibromomethane	ND		ug/kg	1.9	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	--	1
Styrene	ND		ug/kg	0.95	--	1
Dichlorodifluoromethane	ND		ug/kg	9.5	--	1
Acetone	260		ug/kg	9.5	--	1
Carbon disulfide	ND		ug/kg	9.5	--	1
Methyl ethyl ketone	12		ug/kg	9.5	--	1
Methyl isobutyl ketone	ND		ug/kg	9.5	--	1
2-Hexanone	ND		ug/kg	9.5	--	1
Bromochloromethane	ND		ug/kg	1.9	--	1
Tetrahydrofuran	ND		ug/kg	3.8	--	1
2,2-Dichloropropane	ND		ug/kg	1.9	--	1
1,2-Dibromoethane	ND		ug/kg	0.95	--	1
1,3-Dichloropropane	ND		ug/kg	1.9	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Bromobenzene	ND		ug/kg	1.9	--	1
n-Butylbenzene	ND		ug/kg	0.95	--	1
sec-Butylbenzene	ND		ug/kg	0.95	--	1
tert-Butylbenzene	ND		ug/kg	1.9	--	1
o-Chlorotoluene	ND		ug/kg	1.9	--	1
p-Chlorotoluene	ND		ug/kg	1.9	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.8	--	1
Hexachlorobutadiene	ND		ug/kg	3.8	--	1
Isopropylbenzene	ND		ug/kg	0.95	--	1
p-Isopropyltoluene	ND		ug/kg	0.95	--	1
Naphthalene	ND		ug/kg	3.8	--	1
n-Propylbenzene	ND		ug/kg	0.95	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-21
 Client ID: SB-3 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:40
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	--	1
Diethyl ether	ND		ug/kg	1.9	--	1
Diisopropyl Ether	ND		ug/kg	1.9	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.9	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.9	--	1
1,4-Dioxane	ND		ug/kg	76	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	129		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	111		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23
 Client ID: SB-2 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/14/19 15:11
 Analyst: KJD
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.2	--	1
1,1-Dichloroethane	ND		ug/kg	1.0	--	1
Chloroform	ND		ug/kg	1.6	--	1
Carbon tetrachloride	ND		ug/kg	1.0	--	1
1,2-Dichloropropane	ND		ug/kg	1.0	--	1
Dibromochloromethane	ND		ug/kg	1.0	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	--	1
Tetrachloroethene	2.1		ug/kg	0.52	--	1
Chlorobenzene	ND		ug/kg	0.52	--	1
Trichlorofluoromethane	ND		ug/kg	4.2	--	1
1,2-Dichloroethane	ND		ug/kg	1.0	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.52	--	1
Bromodichloromethane	ND		ug/kg	0.52	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.52	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.52	--	1
1,1-Dichloropropene	ND		ug/kg	0.52	--	1
Bromoform	ND		ug/kg	4.2	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.52	--	1
Benzene	ND		ug/kg	0.52	--	1
Toluene	ND		ug/kg	1.0	--	1
Ethylbenzene	ND		ug/kg	1.0	--	1
Chloromethane	ND		ug/kg	4.2	--	1
Bromomethane	ND		ug/kg	2.1	--	1
Vinyl chloride	ND		ug/kg	1.0	--	1
Chloroethane	ND		ug/kg	2.1	--	1
1,1-Dichloroethene	ND		ug/kg	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23
Client ID: SB-2 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.52	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	--	1
Methyl tert butyl ether	ND		ug/kg	2.1	--	1
p/m-Xylene	ND		ug/kg	2.1	--	1
o-Xylene	ND		ug/kg	1.0	--	1
Xylenes, Total	ND		ug/kg	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--	1
Dibromomethane	ND		ug/kg	2.1	--	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	--	1
Styrene	ND		ug/kg	1.0	--	1
Dichlorodifluoromethane	ND		ug/kg	10	--	1
Acetone	ND		ug/kg	10	--	1
Carbon disulfide	ND		ug/kg	10	--	1
Methyl ethyl ketone	ND		ug/kg	10	--	1
Methyl isobutyl ketone	ND		ug/kg	10	--	1
2-Hexanone	ND		ug/kg	10	--	1
Bromochloromethane	ND		ug/kg	2.1	--	1
Tetrahydrofuran	ND		ug/kg	4.2	--	1
2,2-Dichloropropane	ND		ug/kg	2.1	--	1
1,2-Dibromoethane	ND		ug/kg	1.0	--	1
1,3-Dichloropropane	ND		ug/kg	2.1	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.52	--	1
Bromobenzene	ND		ug/kg	2.1	--	1
n-Butylbenzene	ND		ug/kg	1.0	--	1
sec-Butylbenzene	ND		ug/kg	1.0	--	1
tert-Butylbenzene	ND		ug/kg	2.1	--	1
o-Chlorotoluene	ND		ug/kg	2.1	--	1
p-Chlorotoluene	ND		ug/kg	2.1	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	--	1
Hexachlorobutadiene	ND		ug/kg	4.2	--	1
Isopropylbenzene	ND		ug/kg	1.0	--	1
p-Isopropyltoluene	ND		ug/kg	1.0	--	1
Naphthalene	ND		ug/kg	4.2	--	1
n-Propylbenzene	ND		ug/kg	1.0	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23
Client ID: SB-2 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	--	1
Diethyl ether	ND		ug/kg	2.1	--	1
Diisopropyl Ether	ND		ug/kg	2.1	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.1	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.1	--	1
1,4-Dioxane	ND		ug/kg	83	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	141	Q	70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	114		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23 R
 Client ID: SB-2 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 15:59
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.2	--	1
1,1-Dichloroethane	ND		ug/kg	0.85	--	1
Chloroform	ND		ug/kg	1.3	--	1
Carbon tetrachloride	ND		ug/kg	0.85	--	1
1,2-Dichloropropane	ND		ug/kg	0.85	--	1
Dibromochloromethane	ND		ug/kg	0.85	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.85	--	1
Tetrachloroethene	1.4		ug/kg	0.42	--	1
Chlorobenzene	ND		ug/kg	0.42	--	1
Trichlorofluoromethane	ND		ug/kg	3.4	--	1
1,2-Dichloroethane	ND		ug/kg	0.85	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.42	--	1
Bromodichloromethane	ND		ug/kg	0.42	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.85	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.42	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.42	--	1
1,1-Dichloropropene	ND		ug/kg	0.42	--	1
Bromoform	ND		ug/kg	3.4	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.42	--	1
Benzene	ND		ug/kg	0.42	--	1
Toluene	ND		ug/kg	0.85	--	1
Ethylbenzene	ND		ug/kg	0.85	--	1
Chloromethane	ND		ug/kg	3.4	--	1
Bromomethane	ND		ug/kg	1.7	--	1
Vinyl chloride	ND		ug/kg	0.85	--	1
Chloroethane	ND		ug/kg	1.7	--	1
1,1-Dichloroethene	ND		ug/kg	0.85	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.3	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23 R
 Client ID: SB-2 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.42	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.7	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.7	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.7	--	1
Methyl tert butyl ether	ND		ug/kg	1.7	--	1
p/m-Xylene	ND		ug/kg	1.7	--	1
o-Xylene	ND		ug/kg	0.85	--	1
Xylenes, Total	ND		ug/kg	0.85	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.85	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.85	--	1
Dibromomethane	ND		ug/kg	1.7	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.7	--	1
Styrene	ND		ug/kg	0.85	--	1
Dichlorodifluoromethane	ND		ug/kg	8.5	--	1
Acetone	19		ug/kg	8.5	--	1
Carbon disulfide	ND		ug/kg	8.5	--	1
Methyl ethyl ketone	ND		ug/kg	8.5	--	1
Methyl isobutyl ketone	ND		ug/kg	8.5	--	1
2-Hexanone	ND		ug/kg	8.5	--	1
Bromochloromethane	ND		ug/kg	1.7	--	1
Tetrahydrofuran	ND		ug/kg	3.4	--	1
2,2-Dichloropropane	ND		ug/kg	1.7	--	1
1,2-Dibromoethane	ND		ug/kg	0.85	--	1
1,3-Dichloropropane	ND		ug/kg	1.7	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.42	--	1
Bromobenzene	ND		ug/kg	1.7	--	1
n-Butylbenzene	ND		ug/kg	0.85	--	1
sec-Butylbenzene	ND		ug/kg	0.85	--	1
tert-Butylbenzene	ND		ug/kg	1.7	--	1
o-Chlorotoluene	ND		ug/kg	1.7	--	1
p-Chlorotoluene	ND		ug/kg	1.7	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.5	--	1
Hexachlorobutadiene	ND		ug/kg	3.4	--	1
Isopropylbenzene	ND		ug/kg	0.85	--	1
p-Isopropyltoluene	ND		ug/kg	0.85	--	1
Naphthalene	24		ug/kg	3.4	--	1
n-Propylbenzene	ND		ug/kg	0.85	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23 R
 Client ID: SB-2 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.7	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.7	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.7	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.7	--	1
Diethyl ether	ND		ug/kg	1.7	--	1
Diisopropyl Ether	ND		ug/kg	1.7	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.7	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.7	--	1
1,4-Dioxane	ND		ug/kg	68	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	129		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	110		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-24
 Client ID: SB-2 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:07
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 15:07
 Analyst: NLK
 Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	--	1
1,1-Dichloroethane	ND		ug/kg	0.97	--	1
Chloroform	ND		ug/kg	1.4	--	1
Carbon tetrachloride	ND		ug/kg	0.97	--	1
1,2-Dichloropropane	ND		ug/kg	0.97	--	1
Dibromochloromethane	ND		ug/kg	0.97	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.97	--	1
Tetrachloroethene	0.61		ug/kg	0.48	--	1
Chlorobenzene	ND		ug/kg	0.48	--	1
Trichlorofluoromethane	ND		ug/kg	3.9	--	1
1,2-Dichloroethane	ND		ug/kg	0.97	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	--	1
Bromodichloromethane	ND		ug/kg	0.48	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.97	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	--	1
1,1-Dichloropropene	ND		ug/kg	0.48	--	1
Bromoform	ND		ug/kg	3.9	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Benzene	ND		ug/kg	0.48	--	1
Toluene	ND		ug/kg	0.97	--	1
Ethylbenzene	ND		ug/kg	0.97	--	1
Chloromethane	ND		ug/kg	3.9	--	1
Bromomethane	ND		ug/kg	1.9	--	1
Vinyl chloride	ND		ug/kg	0.97	--	1
Chloroethane	ND		ug/kg	1.9	--	1
1,1-Dichloroethene	ND		ug/kg	0.97	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-24
Client ID: SB-2 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:07
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.48	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	--	1
Methyl tert butyl ether	ND		ug/kg	1.9	--	1
p/m-Xylene	ND		ug/kg	1.9	--	1
o-Xylene	ND		ug/kg	0.97	--	1
Xylenes, Total	ND		ug/kg	0.97	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.97	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.97	--	1
Dibromomethane	ND		ug/kg	1.9	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	--	1
Styrene	ND		ug/kg	0.97	--	1
Dichlorodifluoromethane	ND		ug/kg	9.7	--	1
Acetone	120		ug/kg	9.7	--	1
Carbon disulfide	ND		ug/kg	9.7	--	1
Methyl ethyl ketone	ND		ug/kg	9.7	--	1
Methyl isobutyl ketone	ND		ug/kg	9.7	--	1
2-Hexanone	ND		ug/kg	9.7	--	1
Bromochloromethane	ND		ug/kg	1.9	--	1
Tetrahydrofuran	ND		ug/kg	3.9	--	1
2,2-Dichloropropane	ND		ug/kg	1.9	--	1
1,2-Dibromoethane	ND		ug/kg	0.97	--	1
1,3-Dichloropropane	ND		ug/kg	1.9	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Bromobenzene	ND		ug/kg	1.9	--	1
n-Butylbenzene	ND		ug/kg	0.97	--	1
sec-Butylbenzene	ND		ug/kg	0.97	--	1
tert-Butylbenzene	ND		ug/kg	1.9	--	1
o-Chlorotoluene	ND		ug/kg	1.9	--	1
p-Chlorotoluene	ND		ug/kg	1.9	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.9	--	1
Hexachlorobutadiene	ND		ug/kg	3.9	--	1
Isopropylbenzene	ND		ug/kg	0.97	--	1
p-Isopropyltoluene	ND		ug/kg	0.97	--	1
Naphthalene	ND		ug/kg	3.9	--	1
n-Propylbenzene	ND		ug/kg	0.97	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-24
Client ID: SB-2 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:07
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	--	1
Diethyl ether	ND		ug/kg	1.9	--	1
Diisopropyl Ether	ND		ug/kg	1.9	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.9	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.9	--	1
1,4-Dioxane	ND		ug/kg	77	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	109		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27
Client ID: SB-2 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 97,8260C
Analytical Date: 09/14/19 16:15
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	6.6	--	1
1,1-Dichloroethane	ND		ug/kg	1.3	--	1
Chloroform	ND		ug/kg	2.0	--	1
Carbon tetrachloride	ND		ug/kg	1.3	--	1
1,2-Dichloropropane	ND		ug/kg	1.3	--	1
Dibromochloromethane	ND		ug/kg	1.3	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.3	--	1
Tetrachloroethene	17		ug/kg	0.66	--	1
Chlorobenzene	ND		ug/kg	0.66	--	1
Trichlorofluoromethane	ND		ug/kg	5.3	--	1
1,2-Dichloroethane	ND		ug/kg	1.3	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.66	--	1
Bromodichloromethane	ND		ug/kg	0.66	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.3	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.66	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.66	--	1
1,1-Dichloropropene	ND		ug/kg	0.66	--	1
Bromoform	ND		ug/kg	5.3	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.66	--	1
Benzene	ND		ug/kg	0.66	--	1
Toluene	ND		ug/kg	1.3	--	1
Ethylbenzene	ND		ug/kg	1.3	--	1
Chloromethane	ND		ug/kg	5.3	--	1
Bromomethane	ND		ug/kg	2.6	--	1
Vinyl chloride	ND		ug/kg	1.3	--	1
Chloroethane	ND		ug/kg	2.6	--	1
1,1-Dichloroethene	ND		ug/kg	1.3	--	1
trans-1,2-Dichloroethene	ND		ug/kg	2.0	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27
Client ID: SB-2 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	7.0		ug/kg	0.66	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.6	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.6	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.6	--	1
Methyl tert butyl ether	ND		ug/kg	2.6	--	1
p/m-Xylene	ND		ug/kg	2.6	--	1
o-Xylene	ND		ug/kg	1.3	--	1
Xylenes, Total	ND		ug/kg	1.3	--	1
cis-1,2-Dichloroethene	4.8		ug/kg	1.3	--	1
1,2-Dichloroethene, Total	4.8		ug/kg	1.3	--	1
Dibromomethane	ND		ug/kg	2.6	--	1
1,2,3-Trichloropropane	ND		ug/kg	2.6	--	1
Styrene	ND		ug/kg	1.3	--	1
Dichlorodifluoromethane	ND		ug/kg	13	--	1
Acetone	440	E	ug/kg	13	--	1
Carbon disulfide	ND		ug/kg	13	--	1
Methyl ethyl ketone	ND		ug/kg	13	--	1
Methyl isobutyl ketone	ND		ug/kg	13	--	1
2-Hexanone	ND		ug/kg	13	--	1
Bromochloromethane	ND		ug/kg	2.6	--	1
Tetrahydrofuran	ND		ug/kg	5.3	--	1
2,2-Dichloropropane	ND		ug/kg	2.6	--	1
1,2-Dibromoethane	ND		ug/kg	1.3	--	1
1,3-Dichloropropane	ND		ug/kg	2.6	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.66	--	1
Bromobenzene	ND		ug/kg	2.6	--	1
n-Butylbenzene	ND		ug/kg	1.3	--	1
sec-Butylbenzene	ND		ug/kg	1.3	--	1
tert-Butylbenzene	ND		ug/kg	2.6	--	1
o-Chlorotoluene	ND		ug/kg	2.6	--	1
p-Chlorotoluene	ND		ug/kg	2.6	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.9	--	1
Hexachlorobutadiene	ND		ug/kg	5.3	--	1
Isopropylbenzene	ND		ug/kg	1.3	--	1
p-Isopropyltoluene	ND		ug/kg	1.3	--	1
Naphthalene	ND		ug/kg	5.3	--	1
n-Propylbenzene	ND		ug/kg	1.3	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27
Client ID: SB-2 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.6	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.6	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.6	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.6	--	1
Diethyl ether	ND		ug/kg	2.6	--	1
Diisopropyl Ether	ND		ug/kg	2.6	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.6	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.6	--	1
1,4-Dioxane	ND		ug/kg	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27
 Client ID: SB-2 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/17/19 12:15
 Analyst: NLK
 Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	520	--	1
1,1-Dichloroethane	ND		ug/kg	100	--	1
Chloroform	ND		ug/kg	150	--	1
Carbon tetrachloride	ND		ug/kg	100	--	1
1,2-Dichloropropane	ND		ug/kg	100	--	1
Dibromochloromethane	ND		ug/kg	100	--	1
1,1,2-Trichloroethane	ND		ug/kg	100	--	1
Tetrachloroethene	340		ug/kg	52	--	1
Chlorobenzene	ND		ug/kg	52	--	1
Trichlorofluoromethane	ND		ug/kg	410	--	1
1,2-Dichloroethane	ND		ug/kg	100	--	1
1,1,1-Trichloroethane	ND		ug/kg	52	--	1
Bromodichloromethane	ND		ug/kg	52	--	1
trans-1,3-Dichloropropene	ND		ug/kg	100	--	1
cis-1,3-Dichloropropene	ND		ug/kg	52	--	1
1,3-Dichloropropene, Total	ND		ug/kg	52	--	1
1,1-Dichloropropene	ND		ug/kg	52	--	1
Bromoform	ND		ug/kg	410	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	52	--	1
Benzene	ND		ug/kg	52	--	1
Toluene	ND		ug/kg	100	--	1
Ethylbenzene	ND		ug/kg	100	--	1
Chloromethane	ND		ug/kg	410	--	1
Bromomethane	ND		ug/kg	210	--	1
Vinyl chloride	ND		ug/kg	100	--	1
Chloroethane	ND		ug/kg	210	--	1
1,1-Dichloroethene	ND		ug/kg	100	--	1
trans-1,2-Dichloroethene	ND		ug/kg	150	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27
Client ID: SB-2 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	130		ug/kg	52	--	1
1,2-Dichlorobenzene	ND		ug/kg	210	--	1
1,3-Dichlorobenzene	ND		ug/kg	210	--	1
1,4-Dichlorobenzene	ND		ug/kg	210	--	1
Methyl tert butyl ether	ND		ug/kg	210	--	1
p/m-Xylene	ND		ug/kg	210	--	1
o-Xylene	ND		ug/kg	100	--	1
Xylenes, Total	ND		ug/kg	100	--	1
cis-1,2-Dichloroethene	130		ug/kg	100	--	1
1,2-Dichloroethene, Total	130		ug/kg	100	--	1
Dibromomethane	ND		ug/kg	210	--	1
1,2,3-Trichloropropane	ND		ug/kg	210	--	1
Styrene	ND		ug/kg	100	--	1
Dichlorodifluoromethane	ND		ug/kg	1000	--	1
Acetone	ND		ug/kg	1000	--	1
Carbon disulfide	ND		ug/kg	1000	--	1
Methyl ethyl ketone	ND		ug/kg	1000	--	1
Methyl isobutyl ketone	ND		ug/kg	1000	--	1
2-Hexanone	ND		ug/kg	1000	--	1
Bromochloromethane	ND		ug/kg	210	--	1
Tetrahydrofuran	ND		ug/kg	410	--	1
2,2-Dichloropropane	ND		ug/kg	210	--	1
1,2-Dibromoethane	ND		ug/kg	100	--	1
1,3-Dichloropropane	ND		ug/kg	210	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	52	--	1
Bromobenzene	ND		ug/kg	210	--	1
n-Butylbenzene	ND		ug/kg	100	--	1
sec-Butylbenzene	ND		ug/kg	100	--	1
tert-Butylbenzene	ND		ug/kg	210	--	1
o-Chlorotoluene	ND		ug/kg	210	--	1
p-Chlorotoluene	ND		ug/kg	210	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	310	--	1
Hexachlorobutadiene	ND		ug/kg	410	--	1
Isopropylbenzene	ND		ug/kg	100	--	1
p-Isopropyltoluene	ND		ug/kg	100	--	1
Naphthalene	ND		ug/kg	410	--	1
n-Propylbenzene	ND		ug/kg	100	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27
Client ID: SB-2 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	210	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	210	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	210	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	210	--	1
Diethyl ether	ND		ug/kg	210	--	1
Diisopropyl Ether	ND		ug/kg	210	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	210	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	210	--	1
1,4-Dioxane	ND		ug/kg	8200	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	94		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44
 Client ID: D-07 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/14/19 16:39
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.4	--	1
1,1-Dichloroethane	ND		ug/kg	0.88	--	1
Chloroform	ND		ug/kg	1.3	--	1
Carbon tetrachloride	ND		ug/kg	0.88	--	1
1,2-Dichloropropane	ND		ug/kg	0.88	--	1
Dibromochloromethane	ND		ug/kg	0.88	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.88	--	1
Tetrachloroethene	1.1		ug/kg	0.44	--	1
Chlorobenzene	ND		ug/kg	0.44	--	1
Trichlorofluoromethane	ND		ug/kg	3.5	--	1
1,2-Dichloroethane	ND		ug/kg	0.88	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.44	--	1
Bromodichloromethane	ND		ug/kg	0.44	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.88	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.44	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.44	--	1
1,1-Dichloropropene	ND		ug/kg	0.44	--	1
Bromoform	ND		ug/kg	3.5	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.44	--	1
Benzene	ND		ug/kg	0.44	--	1
Toluene	ND		ug/kg	0.88	--	1
Ethylbenzene	ND		ug/kg	0.88	--	1
Chloromethane	ND		ug/kg	3.5	--	1
Bromomethane	ND		ug/kg	1.8	--	1
Vinyl chloride	ND		ug/kg	0.88	--	1
Chloroethane	ND		ug/kg	1.8	--	1
1,1-Dichloroethene	ND		ug/kg	0.88	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.3	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44
Client ID: D-07 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.44	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.8	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.8	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.8	--	1
Methyl tert butyl ether	ND		ug/kg	1.8	--	1
p/m-Xylene	ND		ug/kg	1.8	--	1
o-Xylene	ND		ug/kg	0.88	--	1
Xylenes, Total	ND		ug/kg	0.88	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.88	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.88	--	1
Dibromomethane	ND		ug/kg	1.8	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.8	--	1
Styrene	ND		ug/kg	0.88	--	1
Dichlorodifluoromethane	ND		ug/kg	8.8	--	1
Acetone	350	E	ug/kg	8.8	--	1
Carbon disulfide	ND		ug/kg	8.8	--	1
Methyl ethyl ketone	ND		ug/kg	8.8	--	1
Methyl isobutyl ketone	ND		ug/kg	8.8	--	1
2-Hexanone	ND		ug/kg	8.8	--	1
Bromochloromethane	ND		ug/kg	1.8	--	1
Tetrahydrofuran	ND		ug/kg	3.5	--	1
2,2-Dichloropropane	ND		ug/kg	1.8	--	1
1,2-Dibromoethane	ND		ug/kg	0.88	--	1
1,3-Dichloropropane	ND		ug/kg	1.8	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.44	--	1
Bromobenzene	ND		ug/kg	1.8	--	1
n-Butylbenzene	ND		ug/kg	0.88	--	1
sec-Butylbenzene	ND		ug/kg	0.88	--	1
tert-Butylbenzene	ND		ug/kg	1.8	--	1
o-Chlorotoluene	ND		ug/kg	1.8	--	1
p-Chlorotoluene	ND		ug/kg	1.8	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.6	--	1
Hexachlorobutadiene	ND		ug/kg	3.5	--	1
Isopropylbenzene	ND		ug/kg	0.88	--	1
p-Isopropyltoluene	ND		ug/kg	0.88	--	1
Naphthalene	13		ug/kg	3.5	--	1
n-Propylbenzene	ND		ug/kg	0.88	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44
Client ID: D-07 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.8	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.8	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.8	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.8	--	1
Diethyl ether	ND		ug/kg	1.8	--	1
Diisopropyl Ether	ND		ug/kg	1.8	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.8	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.8	--	1
1,4-Dioxane	ND		ug/kg	70	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44
 Client ID: D-07 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/16/19 09:21
 Analyst: JC
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	270	--	1
1,1-Dichloroethane	ND		ug/kg	54	--	1
Chloroform	ND		ug/kg	81	--	1
Carbon tetrachloride	ND		ug/kg	54	--	1
1,2-Dichloropropane	ND		ug/kg	54	--	1
Dibromochloromethane	ND		ug/kg	54	--	1
1,1,2-Trichloroethane	ND		ug/kg	54	--	1
Tetrachloroethene	ND		ug/kg	27	--	1
Chlorobenzene	ND		ug/kg	27	--	1
Trichlorofluoromethane	ND		ug/kg	220	--	1
1,2-Dichloroethane	ND		ug/kg	54	--	1
1,1,1-Trichloroethane	ND		ug/kg	27	--	1
Bromodichloromethane	ND		ug/kg	27	--	1
trans-1,3-Dichloropropene	ND		ug/kg	54	--	1
cis-1,3-Dichloropropene	ND		ug/kg	27	--	1
1,3-Dichloropropene, Total	ND		ug/kg	27	--	1
1,1-Dichloropropene	ND		ug/kg	27	--	1
Bromoform	ND		ug/kg	220	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	27	--	1
Benzene	ND		ug/kg	27	--	1
Toluene	ND		ug/kg	54	--	1
Ethylbenzene	ND		ug/kg	54	--	1
Chloromethane	ND		ug/kg	220	--	1
Bromomethane	ND		ug/kg	110	--	1
Vinyl chloride	ND		ug/kg	54	--	1
Chloroethane	ND		ug/kg	110	--	1
1,1-Dichloroethene	ND		ug/kg	54	--	1
trans-1,2-Dichloroethene	ND		ug/kg	81	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44
Client ID: D-07 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	27	--	1
1,2-Dichlorobenzene	ND		ug/kg	110	--	1
1,3-Dichlorobenzene	ND		ug/kg	110	--	1
1,4-Dichlorobenzene	ND		ug/kg	110	--	1
Methyl tert butyl ether	ND		ug/kg	110	--	1
p/m-Xylene	ND		ug/kg	110	--	1
o-Xylene	ND		ug/kg	54	--	1
Xylenes, Total	ND		ug/kg	54	--	1
cis-1,2-Dichloroethene	ND		ug/kg	54	--	1
1,2-Dichloroethene, Total	ND		ug/kg	54	--	1
Dibromomethane	ND		ug/kg	110	--	1
1,2,3-Trichloropropane	ND		ug/kg	110	--	1
Styrene	ND		ug/kg	54	--	1
Dichlorodifluoromethane	ND		ug/kg	540	--	1
Acetone	ND		ug/kg	540	--	1
Carbon disulfide	ND		ug/kg	540	--	1
Methyl ethyl ketone	ND		ug/kg	540	--	1
Methyl isobutyl ketone	ND		ug/kg	540	--	1
2-Hexanone	ND		ug/kg	540	--	1
Bromochloromethane	ND		ug/kg	110	--	1
Tetrahydrofuran	ND		ug/kg	220	--	1
2,2-Dichloropropane	ND		ug/kg	110	--	1
1,2-Dibromoethane	ND		ug/kg	54	--	1
1,3-Dichloropropane	ND		ug/kg	110	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	27	--	1
Bromobenzene	ND		ug/kg	110	--	1
n-Butylbenzene	ND		ug/kg	54	--	1
sec-Butylbenzene	ND		ug/kg	54	--	1
tert-Butylbenzene	ND		ug/kg	110	--	1
o-Chlorotoluene	ND		ug/kg	110	--	1
p-Chlorotoluene	ND		ug/kg	110	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	160	--	1
Hexachlorobutadiene	ND		ug/kg	220	--	1
Isopropylbenzene	ND		ug/kg	54	--	1
p-Isopropyltoluene	ND		ug/kg	54	--	1
Naphthalene	4400		ug/kg	220	--	1
n-Propylbenzene	ND		ug/kg	54	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44
Client ID: D-07 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	110	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	110	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	110	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	110	--	1
Diethyl ether	ND		ug/kg	110	--	1
Diisopropyl Ether	ND		ug/kg	110	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	110	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	110	--	1
1,4-Dioxane	ND		ug/kg	4300	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-45
 Client ID: D-07 (7-9)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/14/19 17:03
 Analyst: JC
 Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.2	--	1
1,1-Dichloroethane	ND		ug/kg	0.83	--	1
Chloroform	ND		ug/kg	1.2	--	1
Carbon tetrachloride	ND		ug/kg	0.83	--	1
1,2-Dichloropropane	ND		ug/kg	0.83	--	1
Dibromochloromethane	ND		ug/kg	0.83	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.83	--	1
Tetrachloroethene	ND		ug/kg	0.42	--	1
Chlorobenzene	ND		ug/kg	0.42	--	1
Trichlorofluoromethane	ND		ug/kg	3.3	--	1
1,2-Dichloroethane	ND		ug/kg	0.83	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.42	--	1
Bromodichloromethane	ND		ug/kg	0.42	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.83	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.42	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.42	--	1
1,1-Dichloropropene	ND		ug/kg	0.42	--	1
Bromoform	ND		ug/kg	3.3	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.42	--	1
Benzene	ND		ug/kg	0.42	--	1
Toluene	ND		ug/kg	0.83	--	1
Ethylbenzene	ND		ug/kg	0.83	--	1
Chloromethane	ND		ug/kg	3.3	--	1
Bromomethane	ND		ug/kg	1.7	--	1
Vinyl chloride	ND		ug/kg	0.83	--	1
Chloroethane	ND		ug/kg	1.7	--	1
1,1-Dichloroethene	ND		ug/kg	0.83	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.2	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-45
Client ID: D-07 (7-9)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.42	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.7	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.7	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.7	--	1
Methyl tert butyl ether	ND		ug/kg	1.7	--	1
p/m-Xylene	ND		ug/kg	1.7	--	1
o-Xylene	ND		ug/kg	0.83	--	1
Xylenes, Total	ND		ug/kg	0.83	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.83	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.83	--	1
Dibromomethane	ND		ug/kg	1.7	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.7	--	1
Styrene	ND		ug/kg	0.83	--	1
Dichlorodifluoromethane	ND		ug/kg	8.3	--	1
Acetone	49		ug/kg	8.3	--	1
Carbon disulfide	ND		ug/kg	8.3	--	1
Methyl ethyl ketone	ND		ug/kg	8.3	--	1
Methyl isobutyl ketone	ND		ug/kg	8.3	--	1
2-Hexanone	ND		ug/kg	8.3	--	1
Bromochloromethane	ND		ug/kg	1.7	--	1
Tetrahydrofuran	ND		ug/kg	3.3	--	1
2,2-Dichloropropane	ND		ug/kg	1.7	--	1
1,2-Dibromoethane	ND		ug/kg	0.83	--	1
1,3-Dichloropropane	ND		ug/kg	1.7	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.42	--	1
Bromobenzene	ND		ug/kg	1.7	--	1
n-Butylbenzene	ND		ug/kg	0.83	--	1
sec-Butylbenzene	ND		ug/kg	0.83	--	1
tert-Butylbenzene	ND		ug/kg	1.7	--	1
o-Chlorotoluene	ND		ug/kg	1.7	--	1
p-Chlorotoluene	ND		ug/kg	1.7	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.5	--	1
Hexachlorobutadiene	ND		ug/kg	3.3	--	1
Isopropylbenzene	ND		ug/kg	0.83	--	1
p-Isopropyltoluene	ND		ug/kg	0.83	--	1
Naphthalene	ND		ug/kg	3.3	--	1
n-Propylbenzene	ND		ug/kg	0.83	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-45
Client ID: D-07 (7-9)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.7	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.7	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.7	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.7	--	1
Diethyl ether	ND		ug/kg	1.7	--	1
Diisopropyl Ether	ND		ug/kg	1.7	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.7	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.7	--	1
1,4-Dioxane	ND		ug/kg	67	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	97		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-50
 Client ID: SB-DUP-5
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 19:44
 Analyst: NLK
 Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	240	--	1
1,1-Dichloroethane	ND		ug/kg	49	--	1
Chloroform	ND		ug/kg	73	--	1
Carbon tetrachloride	ND		ug/kg	49	--	1
1,2-Dichloropropane	ND		ug/kg	49	--	1
Dibromochloromethane	ND		ug/kg	49	--	1
1,1,2-Trichloroethane	ND		ug/kg	49	--	1
Tetrachloroethene	ND		ug/kg	24	--	1
Chlorobenzene	ND		ug/kg	24	--	1
Trichlorofluoromethane	ND		ug/kg	200	--	1
1,2-Dichloroethane	ND		ug/kg	49	--	1
1,1,1-Trichloroethane	ND		ug/kg	24	--	1
Bromodichloromethane	ND		ug/kg	24	--	1
trans-1,3-Dichloropropene	ND		ug/kg	49	--	1
cis-1,3-Dichloropropene	ND		ug/kg	24	--	1
1,3-Dichloropropene, Total	ND		ug/kg	24	--	1
1,1-Dichloropropene	ND		ug/kg	24	--	1
Bromoform	ND		ug/kg	200	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	24	--	1
Benzene	ND		ug/kg	24	--	1
Toluene	ND		ug/kg	49	--	1
Ethylbenzene	ND		ug/kg	49	--	1
Chloromethane	ND		ug/kg	200	--	1
Bromomethane	ND		ug/kg	98	--	1
Vinyl chloride	ND		ug/kg	49	--	1
Chloroethane	ND		ug/kg	98	--	1
1,1-Dichloroethene	ND		ug/kg	49	--	1
trans-1,2-Dichloroethene	ND		ug/kg	73	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-50
Client ID: SB-DUP-5
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	24	--	1
1,2-Dichlorobenzene	ND		ug/kg	98	--	1
1,3-Dichlorobenzene	ND		ug/kg	98	--	1
1,4-Dichlorobenzene	ND		ug/kg	98	--	1
Methyl tert butyl ether	ND		ug/kg	98	--	1
p/m-Xylene	ND		ug/kg	98	--	1
o-Xylene	ND		ug/kg	49	--	1
Xylenes, Total	ND		ug/kg	49	--	1
cis-1,2-Dichloroethene	ND		ug/kg	49	--	1
1,2-Dichloroethene, Total	ND		ug/kg	49	--	1
Dibromomethane	ND		ug/kg	98	--	1
1,2,3-Trichloropropane	ND		ug/kg	98	--	1
Styrene	ND		ug/kg	49	--	1
Dichlorodifluoromethane	ND		ug/kg	490	--	1
Acetone	ND		ug/kg	490	--	1
Carbon disulfide	ND		ug/kg	490	--	1
Methyl ethyl ketone	ND		ug/kg	490	--	1
Methyl isobutyl ketone	ND		ug/kg	490	--	1
2-Hexanone	ND		ug/kg	490	--	1
Bromochloromethane	ND		ug/kg	98	--	1
Tetrahydrofuran	ND		ug/kg	200	--	1
2,2-Dichloropropane	ND		ug/kg	98	--	1
1,2-Dibromoethane	ND		ug/kg	49	--	1
1,3-Dichloropropane	ND		ug/kg	98	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	24	--	1
Bromobenzene	ND		ug/kg	98	--	1
n-Butylbenzene	ND		ug/kg	49	--	1
sec-Butylbenzene	ND		ug/kg	49	--	1
tert-Butylbenzene	ND		ug/kg	98	--	1
o-Chlorotoluene	ND		ug/kg	98	--	1
p-Chlorotoluene	ND		ug/kg	98	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	--	1
Hexachlorobutadiene	ND		ug/kg	200	--	1
Isopropylbenzene	ND		ug/kg	49	--	1
p-Isopropyltoluene	ND		ug/kg	49	--	1
Naphthalene	2500		ug/kg	200	--	1
n-Propylbenzene	ND		ug/kg	49	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-50
Client ID: SB-DUP-5
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	98	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	98	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	98	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	98	--	1
Diethyl ether	ND		ug/kg	98	--	1
Diisopropyl Ether	ND		ug/kg	98	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	98	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	98	--	1
1,4-Dioxane	ND		ug/kg	3900	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	92		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-55
 Client ID: E-06 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:24
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 21:45
 Analyst: NLK
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	--	1
1,1-Dichloroethane	ND		ug/kg	0.95	--	1
Chloroform	ND		ug/kg	1.4	--	1
Carbon tetrachloride	ND		ug/kg	0.95	--	1
1,2-Dichloropropane	ND		ug/kg	0.95	--	1
Dibromochloromethane	ND		ug/kg	0.95	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.95	--	1
Tetrachloroethene	2.9		ug/kg	0.48	--	1
Chlorobenzene	ND		ug/kg	0.48	--	1
Trichlorofluoromethane	ND		ug/kg	3.8	--	1
1,2-Dichloroethane	ND		ug/kg	0.95	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	--	1
Bromodichloromethane	ND		ug/kg	0.48	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.95	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	--	1
1,1-Dichloropropene	ND		ug/kg	0.48	--	1
Bromoform	ND		ug/kg	3.8	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Benzene	ND		ug/kg	0.48	--	1
Toluene	ND		ug/kg	0.95	--	1
Ethylbenzene	ND		ug/kg	0.95	--	1
Chloromethane	ND		ug/kg	3.8	--	1
Bromomethane	ND		ug/kg	1.9	--	1
Vinyl chloride	ND		ug/kg	0.95	--	1
Chloroethane	ND		ug/kg	1.9	--	1
1,1-Dichloroethene	ND		ug/kg	0.95	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-55
Client ID: E-06 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:24
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	1.8		ug/kg	0.48	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	--	1
Methyl tert butyl ether	ND		ug/kg	1.9	--	1
p/m-Xylene	ND		ug/kg	1.9	--	1
o-Xylene	ND		ug/kg	0.95	--	1
Xylenes, Total	ND		ug/kg	0.95	--	1
cis-1,2-Dichloroethene	1.2		ug/kg	0.95	--	1
1,2-Dichloroethene, Total	1.2		ug/kg	0.95	--	1
Dibromomethane	ND		ug/kg	1.9	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	--	1
Styrene	ND		ug/kg	0.95	--	1
Dichlorodifluoromethane	ND		ug/kg	9.5	--	1
Acetone	270		ug/kg	9.5	--	1
Carbon disulfide	ND		ug/kg	9.5	--	1
Methyl ethyl ketone	ND		ug/kg	9.5	--	1
Methyl isobutyl ketone	ND		ug/kg	9.5	--	1
2-Hexanone	ND		ug/kg	9.5	--	1
Bromochloromethane	ND		ug/kg	1.9	--	1
Tetrahydrofuran	ND		ug/kg	3.8	--	1
2,2-Dichloropropane	ND		ug/kg	1.9	--	1
1,2-Dibromoethane	ND		ug/kg	0.95	--	1
1,3-Dichloropropane	ND		ug/kg	1.9	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Bromobenzene	ND		ug/kg	1.9	--	1
n-Butylbenzene	ND		ug/kg	0.95	--	1
sec-Butylbenzene	ND		ug/kg	0.95	--	1
tert-Butylbenzene	ND		ug/kg	1.9	--	1
o-Chlorotoluene	ND		ug/kg	1.9	--	1
p-Chlorotoluene	ND		ug/kg	1.9	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.8	--	1
Hexachlorobutadiene	ND		ug/kg	3.8	--	1
Isopropylbenzene	ND		ug/kg	0.95	--	1
p-Isopropyltoluene	ND		ug/kg	0.95	--	1
Naphthalene	ND		ug/kg	3.8	--	1
n-Propylbenzene	ND		ug/kg	0.95	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-55
 Client ID: E-06 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:24
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	--	1
Diethyl ether	ND		ug/kg	1.9	--	1
Diisopropyl Ether	ND		ug/kg	1.9	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.9	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.9	--	1
1,4-Dioxane	ND		ug/kg	76	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-56
 Client ID: E-06 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:35
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 22:09
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.8	--	1
1,1-Dichloroethane	ND		ug/kg	0.97	--	1
Chloroform	ND		ug/kg	1.4	--	1
Carbon tetrachloride	ND		ug/kg	0.97	--	1
1,2-Dichloropropane	ND		ug/kg	0.97	--	1
Dibromochloromethane	ND		ug/kg	0.97	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.97	--	1
Tetrachloroethene	ND		ug/kg	0.48	--	1
Chlorobenzene	ND		ug/kg	0.48	--	1
Trichlorofluoromethane	ND		ug/kg	3.9	--	1
1,2-Dichloroethane	ND		ug/kg	0.97	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.48	--	1
Bromodichloromethane	ND		ug/kg	0.48	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.97	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.48	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.48	--	1
1,1-Dichloropropene	ND		ug/kg	0.48	--	1
Bromoform	ND		ug/kg	3.9	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Benzene	ND		ug/kg	0.48	--	1
Toluene	ND		ug/kg	0.97	--	1
Ethylbenzene	ND		ug/kg	0.97	--	1
Chloromethane	ND		ug/kg	3.9	--	1
Bromomethane	ND		ug/kg	1.9	--	1
Vinyl chloride	ND		ug/kg	0.97	--	1
Chloroethane	ND		ug/kg	1.9	--	1
1,1-Dichloroethene	ND		ug/kg	0.97	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-56
Client ID: E-06 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:35
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.48	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	--	1
Methyl tert butyl ether	ND		ug/kg	1.9	--	1
p/m-Xylene	ND		ug/kg	1.9	--	1
o-Xylene	ND		ug/kg	0.97	--	1
Xylenes, Total	ND		ug/kg	0.97	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.97	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.97	--	1
Dibromomethane	ND		ug/kg	1.9	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	--	1
Styrene	ND		ug/kg	0.97	--	1
Dichlorodifluoromethane	ND		ug/kg	9.7	--	1
Acetone	250		ug/kg	9.7	--	1
Carbon disulfide	ND		ug/kg	9.7	--	1
Methyl ethyl ketone	ND		ug/kg	9.7	--	1
Methyl isobutyl ketone	ND		ug/kg	9.7	--	1
2-Hexanone	ND		ug/kg	9.7	--	1
Bromochloromethane	ND		ug/kg	1.9	--	1
Tetrahydrofuran	ND		ug/kg	3.9	--	1
2,2-Dichloropropane	ND		ug/kg	1.9	--	1
1,2-Dibromoethane	ND		ug/kg	0.97	--	1
1,3-Dichloropropane	ND		ug/kg	1.9	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.48	--	1
Bromobenzene	ND		ug/kg	1.9	--	1
n-Butylbenzene	ND		ug/kg	0.97	--	1
sec-Butylbenzene	ND		ug/kg	0.97	--	1
tert-Butylbenzene	ND		ug/kg	1.9	--	1
o-Chlorotoluene	ND		ug/kg	1.9	--	1
p-Chlorotoluene	ND		ug/kg	1.9	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.9	--	1
Hexachlorobutadiene	ND		ug/kg	3.9	--	1
Isopropylbenzene	ND		ug/kg	0.97	--	1
p-Isopropyltoluene	ND		ug/kg	0.97	--	1
Naphthalene	13		ug/kg	3.9	--	1
n-Propylbenzene	ND		ug/kg	0.97	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-56
Client ID: E-06 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:35
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	--	1
Diethyl ether	ND		ug/kg	1.9	--	1
Diisopropyl Ether	ND		ug/kg	1.9	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.9	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.9	--	1
1,4-Dioxane	ND		ug/kg	77	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-101
 Client ID: B-09 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:54
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/16/19 01:46
 Analyst: NLK
 Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	3.6	--	1
1,1-Dichloroethane	ND		ug/kg	0.73	--	1
Chloroform	ND		ug/kg	1.1	--	1
Carbon tetrachloride	ND		ug/kg	0.73	--	1
1,2-Dichloropropane	ND		ug/kg	0.73	--	1
Dibromochloromethane	ND		ug/kg	0.73	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.73	--	1
Tetrachloroethene	ND		ug/kg	0.36	--	1
Chlorobenzene	ND		ug/kg	0.36	--	1
Trichlorofluoromethane	ND		ug/kg	2.9	--	1
1,2-Dichloroethane	ND		ug/kg	0.73	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.36	--	1
Bromodichloromethane	ND		ug/kg	0.36	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.73	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.36	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.36	--	1
1,1-Dichloropropene	ND		ug/kg	0.36	--	1
Bromoform	ND		ug/kg	2.9	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.36	--	1
Benzene	ND		ug/kg	0.36	--	1
Toluene	ND		ug/kg	0.73	--	1
Ethylbenzene	ND		ug/kg	0.73	--	1
Chloromethane	ND		ug/kg	2.9	--	1
Bromomethane	ND		ug/kg	1.4	--	1
Vinyl chloride	ND		ug/kg	0.73	--	1
Chloroethane	ND		ug/kg	1.4	--	1
1,1-Dichloroethene	ND		ug/kg	0.73	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.1	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-101
Client ID: B-09 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:54
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.36	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.4	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.4	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.4	--	1
Methyl tert butyl ether	ND		ug/kg	1.4	--	1
p/m-Xylene	ND		ug/kg	1.4	--	1
o-Xylene	ND		ug/kg	0.73	--	1
Xylenes, Total	ND		ug/kg	0.73	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.73	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.73	--	1
Dibromomethane	ND		ug/kg	1.4	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.4	--	1
Styrene	ND		ug/kg	0.73	--	1
Dichlorodifluoromethane	ND		ug/kg	7.3	--	1
Acetone	18		ug/kg	7.3	--	1
Carbon disulfide	ND		ug/kg	7.3	--	1
Methyl ethyl ketone	ND		ug/kg	7.3	--	1
Methyl isobutyl ketone	ND		ug/kg	7.3	--	1
2-Hexanone	ND		ug/kg	7.3	--	1
Bromochloromethane	ND		ug/kg	1.4	--	1
Tetrahydrofuran	ND		ug/kg	2.9	--	1
2,2-Dichloropropane	ND		ug/kg	1.4	--	1
1,2-Dibromoethane	ND		ug/kg	0.73	--	1
1,3-Dichloropropane	ND		ug/kg	1.4	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.36	--	1
Bromobenzene	ND		ug/kg	1.4	--	1
n-Butylbenzene	ND		ug/kg	0.73	--	1
sec-Butylbenzene	ND		ug/kg	0.73	--	1
tert-Butylbenzene	ND		ug/kg	1.4	--	1
o-Chlorotoluene	ND		ug/kg	1.4	--	1
p-Chlorotoluene	ND		ug/kg	1.4	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.2	--	1
Hexachlorobutadiene	ND		ug/kg	2.9	--	1
Isopropylbenzene	ND		ug/kg	0.73	--	1
p-Isopropyltoluene	ND		ug/kg	0.73	--	1
Naphthalene	6.1		ug/kg	2.9	--	1
n-Propylbenzene	ND		ug/kg	0.73	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-101
Client ID: B-09 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:54
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.4	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.4	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.4	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.4	--	1
Diethyl ether	ND		ug/kg	1.4	--	1
Diisopropyl Ether	ND		ug/kg	1.4	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.4	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.4	--	1
1,4-Dioxane	ND		ug/kg	58	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	100		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-105
 Client ID: B-09 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:02
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/16/19 10:09
 Analyst: JC
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.3	--	1
1,1-Dichloroethane	ND		ug/kg	1.1	--	1
Chloroform	ND		ug/kg	1.6	--	1
Carbon tetrachloride	ND		ug/kg	1.1	--	1
1,2-Dichloropropane	ND		ug/kg	1.1	--	1
Dibromochloromethane	ND		ug/kg	1.1	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.1	--	1
Tetrachloroethene	ND		ug/kg	0.53	--	1
Chlorobenzene	ND		ug/kg	0.53	--	1
Trichlorofluoromethane	ND		ug/kg	4.3	--	1
1,2-Dichloroethane	ND		ug/kg	1.1	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.53	--	1
Bromodichloromethane	ND		ug/kg	0.53	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.1	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.53	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.53	--	1
1,1-Dichloropropene	ND		ug/kg	0.53	--	1
Bromoform	ND		ug/kg	4.3	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.53	--	1
Benzene	ND		ug/kg	0.53	--	1
Toluene	ND		ug/kg	1.1	--	1
Ethylbenzene	ND		ug/kg	1.1	--	1
Chloromethane	ND		ug/kg	4.3	--	1
Bromomethane	ND		ug/kg	2.1	--	1
Vinyl chloride	ND		ug/kg	1.1	--	1
Chloroethane	ND		ug/kg	2.1	--	1
1,1-Dichloroethene	ND		ug/kg	1.1	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.6	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-105
Client ID: B-09 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:02
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.53	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.1	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.1	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.1	--	1
Methyl tert butyl ether	ND		ug/kg	2.1	--	1
p/m-Xylene	ND		ug/kg	2.1	--	1
o-Xylene	ND		ug/kg	1.1	--	1
Xylenes, Total	ND		ug/kg	1.1	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.1	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.1	--	1
Dibromomethane	ND		ug/kg	2.1	--	1
1,2,3-Trichloropropane	ND		ug/kg	2.1	--	1
Styrene	ND		ug/kg	1.1	--	1
Dichlorodifluoromethane	ND		ug/kg	11	--	1
Acetone	210		ug/kg	11	--	1
Carbon disulfide	ND		ug/kg	11	--	1
Methyl ethyl ketone	ND		ug/kg	11	--	1
Methyl isobutyl ketone	ND		ug/kg	11	--	1
2-Hexanone	ND		ug/kg	11	--	1
Bromochloromethane	ND		ug/kg	2.1	--	1
Tetrahydrofuran	ND		ug/kg	4.3	--	1
2,2-Dichloropropane	ND		ug/kg	2.1	--	1
1,2-Dibromoethane	ND		ug/kg	1.1	--	1
1,3-Dichloropropane	ND		ug/kg	2.1	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.53	--	1
Bromobenzene	ND		ug/kg	2.1	--	1
n-Butylbenzene	ND		ug/kg	1.1	--	1
sec-Butylbenzene	ND		ug/kg	1.1	--	1
tert-Butylbenzene	ND		ug/kg	2.1	--	1
o-Chlorotoluene	ND		ug/kg	2.1	--	1
p-Chlorotoluene	ND		ug/kg	2.1	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.2	--	1
Hexachlorobutadiene	ND		ug/kg	4.3	--	1
Isopropylbenzene	ND		ug/kg	1.1	--	1
p-Isopropyltoluene	ND		ug/kg	1.1	--	1
Naphthalene	ND		ug/kg	4.3	--	1
n-Propylbenzene	ND		ug/kg	1.1	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-105
Client ID: B-09 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:02
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.1	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.1	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.1	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.1	--	1
Diethyl ether	ND		ug/kg	2.1	--	1
Diisopropyl Ether	ND		ug/kg	2.1	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.1	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.1	--	1
1,4-Dioxane	ND		ug/kg	86	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	100		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-113
 Client ID: B-05 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:54
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 18:32
 Analyst: NLK
 Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	340	--	1
1,1-Dichloroethane	ND		ug/kg	68	--	1
Chloroform	ND		ug/kg	100	--	1
Carbon tetrachloride	ND		ug/kg	68	--	1
1,2-Dichloropropane	ND		ug/kg	68	--	1
Dibromochloromethane	ND		ug/kg	68	--	1
1,1,2-Trichloroethane	ND		ug/kg	68	--	1
Tetrachloroethene	3800		ug/kg	34	--	1
Chlorobenzene	ND		ug/kg	34	--	1
Trichlorofluoromethane	ND		ug/kg	270	--	1
1,2-Dichloroethane	ND		ug/kg	68	--	1
1,1,1-Trichloroethane	ND		ug/kg	34	--	1
Bromodichloromethane	ND		ug/kg	34	--	1
trans-1,3-Dichloropropene	ND		ug/kg	68	--	1
cis-1,3-Dichloropropene	ND		ug/kg	34	--	1
1,3-Dichloropropene, Total	ND		ug/kg	34	--	1
1,1-Dichloropropene	ND		ug/kg	34	--	1
Bromoform	ND		ug/kg	270	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	34	--	1
Benzene	ND		ug/kg	34	--	1
Toluene	ND		ug/kg	68	--	1
Ethylbenzene	ND		ug/kg	68	--	1
Chloromethane	ND		ug/kg	270	--	1
Bromomethane	ND		ug/kg	140	--	1
Vinyl chloride	ND		ug/kg	68	--	1
Chloroethane	ND		ug/kg	140	--	1
1,1-Dichloroethene	ND		ug/kg	68	--	1
trans-1,2-Dichloroethene	ND		ug/kg	100	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-113
Client ID: B-05 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:54
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	490		ug/kg	34	--	1
1,2-Dichlorobenzene	ND		ug/kg	140	--	1
1,3-Dichlorobenzene	ND		ug/kg	140	--	1
1,4-Dichlorobenzene	ND		ug/kg	140	--	1
Methyl tert butyl ether	ND		ug/kg	140	--	1
p/m-Xylene	ND		ug/kg	140	--	1
o-Xylene	ND		ug/kg	68	--	1
Xylenes, Total	ND		ug/kg	68	--	1
cis-1,2-Dichloroethene	ND		ug/kg	68	--	1
1,2-Dichloroethene, Total	ND		ug/kg	68	--	1
Dibromomethane	ND		ug/kg	140	--	1
1,2,3-Trichloropropane	ND		ug/kg	140	--	1
Styrene	ND		ug/kg	68	--	1
Dichlorodifluoromethane	ND		ug/kg	680	--	1
Acetone	ND		ug/kg	680	--	1
Carbon disulfide	ND		ug/kg	680	--	1
Methyl ethyl ketone	ND		ug/kg	680	--	1
Methyl isobutyl ketone	ND		ug/kg	680	--	1
2-Hexanone	ND		ug/kg	680	--	1
Bromochloromethane	ND		ug/kg	140	--	1
Tetrahydrofuran	ND		ug/kg	270	--	1
2,2-Dichloropropane	ND		ug/kg	140	--	1
1,2-Dibromoethane	ND		ug/kg	68	--	1
1,3-Dichloropropane	ND		ug/kg	140	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	34	--	1
Bromobenzene	ND		ug/kg	140	--	1
n-Butylbenzene	ND		ug/kg	68	--	1
sec-Butylbenzene	ND		ug/kg	68	--	1
tert-Butylbenzene	ND		ug/kg	140	--	1
o-Chlorotoluene	ND		ug/kg	140	--	1
p-Chlorotoluene	ND		ug/kg	140	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	200	--	1
Hexachlorobutadiene	ND		ug/kg	270	--	1
Isopropylbenzene	ND		ug/kg	68	--	1
p-Isopropyltoluene	ND		ug/kg	68	--	1
Naphthalene	1000		ug/kg	270	--	1
n-Propylbenzene	ND		ug/kg	68	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-113
 Client ID: B-05 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:54
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	140	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	140	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	140	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	140	--	1
Diethyl ether	ND		ug/kg	140	--	1
Diisopropyl Ether	ND		ug/kg	140	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	140	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	140	--	1
1,4-Dioxane	ND		ug/kg	5400	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	91		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-115
 Client ID: B-05 (3-5)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:57
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 22:57
 Analyst: NLK
 Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	5.1	--	1
1,1-Dichloroethane	ND		ug/kg	1.0	--	1
Chloroform	ND		ug/kg	1.5	--	1
Carbon tetrachloride	ND		ug/kg	1.0	--	1
1,2-Dichloropropane	ND		ug/kg	1.0	--	1
Dibromochloromethane	ND		ug/kg	1.0	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.0	--	1
Tetrachloroethene	8.2		ug/kg	0.51	--	1
Chlorobenzene	ND		ug/kg	0.51	--	1
Trichlorofluoromethane	ND		ug/kg	4.1	--	1
1,2-Dichloroethane	ND		ug/kg	1.0	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.51	--	1
Bromodichloromethane	ND		ug/kg	0.51	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.51	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.51	--	1
1,1-Dichloropropene	ND		ug/kg	0.51	--	1
Bromoform	ND		ug/kg	4.1	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.51	--	1
Benzene	ND		ug/kg	0.51	--	1
Toluene	ND		ug/kg	1.0	--	1
Ethylbenzene	ND		ug/kg	1.0	--	1
Chloromethane	ND		ug/kg	4.1	--	1
Bromomethane	ND		ug/kg	2.0	--	1
Vinyl chloride	ND		ug/kg	1.0	--	1
Chloroethane	ND		ug/kg	2.0	--	1
1,1-Dichloroethene	ND		ug/kg	1.0	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-115
Client ID: B-05 (3-5)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:57
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.51	--	1
1,2-Dichlorobenzene	ND		ug/kg	2.0	--	1
1,3-Dichlorobenzene	ND		ug/kg	2.0	--	1
1,4-Dichlorobenzene	ND		ug/kg	2.0	--	1
Methyl tert butyl ether	ND		ug/kg	2.0	--	1
p/m-Xylene	ND		ug/kg	2.0	--	1
o-Xylene	ND		ug/kg	1.0	--	1
Xylenes, Total	ND		ug/kg	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--	1
Dibromomethane	ND		ug/kg	2.0	--	1
1,2,3-Trichloropropane	ND		ug/kg	2.0	--	1
Styrene	ND		ug/kg	1.0	--	1
Dichlorodifluoromethane	ND		ug/kg	10	--	1
Acetone	120		ug/kg	10	--	1
Carbon disulfide	ND		ug/kg	10	--	1
Methyl ethyl ketone	ND		ug/kg	10	--	1
Methyl isobutyl ketone	ND		ug/kg	10	--	1
2-Hexanone	ND		ug/kg	10	--	1
Bromochloromethane	ND		ug/kg	2.0	--	1
Tetrahydrofuran	ND		ug/kg	4.1	--	1
2,2-Dichloropropane	ND		ug/kg	2.0	--	1
1,2-Dibromoethane	ND		ug/kg	1.0	--	1
1,3-Dichloropropane	ND		ug/kg	2.0	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.51	--	1
Bromobenzene	ND		ug/kg	2.0	--	1
n-Butylbenzene	ND		ug/kg	1.0	--	1
sec-Butylbenzene	ND		ug/kg	1.0	--	1
tert-Butylbenzene	ND		ug/kg	2.0	--	1
o-Chlorotoluene	ND		ug/kg	2.0	--	1
p-Chlorotoluene	ND		ug/kg	2.0	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.1	--	1
Hexachlorobutadiene	ND		ug/kg	4.1	--	1
Isopropylbenzene	ND		ug/kg	1.0	--	1
p-Isopropyltoluene	ND		ug/kg	1.0	--	1
Naphthalene	ND		ug/kg	4.1	--	1
n-Propylbenzene	ND		ug/kg	1.0	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-115
 Client ID: B-05 (3-5)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:57
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--	1
Diethyl ether	ND		ug/kg	2.0	--	1
Diisopropyl Ether	ND		ug/kg	2.0	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--	1
1,4-Dioxane	ND		ug/kg	82	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
 Client ID: SB-1 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 20:57
 Analyst: NLK
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.6	--	1
1,1-Dichloroethane	ND		ug/kg	0.93	--	1
Chloroform	ND		ug/kg	1.4	--	1
Carbon tetrachloride	ND		ug/kg	0.93	--	1
1,2-Dichloropropane	ND		ug/kg	0.93	--	1
Dibromochloromethane	ND		ug/kg	0.93	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.93	--	1
Tetrachloroethene	0.91		ug/kg	0.46	--	1
Chlorobenzene	ND		ug/kg	0.46	--	1
Trichlorofluoromethane	ND		ug/kg	3.7	--	1
1,2-Dichloroethane	ND		ug/kg	0.93	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.46	--	1
Bromodichloromethane	ND		ug/kg	0.46	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.93	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.46	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.46	--	1
1,1-Dichloropropene	ND		ug/kg	0.46	--	1
Bromoform	ND		ug/kg	3.7	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.46	--	1
Benzene	ND		ug/kg	0.46	--	1
Toluene	ND		ug/kg	0.93	--	1
Ethylbenzene	ND		ug/kg	0.93	--	1
Chloromethane	ND		ug/kg	3.7	--	1
Bromomethane	ND		ug/kg	1.9	--	1
Vinyl chloride	ND		ug/kg	0.93	--	1
Chloroethane	ND		ug/kg	1.9	--	1
1,1-Dichloroethene	ND		ug/kg	0.93	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.4	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
Client ID: SB-1 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.46	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.9	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.9	--	1
Methyl tert butyl ether	ND		ug/kg	1.9	--	1
p/m-Xylene	ND		ug/kg	1.9	--	1
o-Xylene	ND		ug/kg	0.93	--	1
Xylenes, Total	ND		ug/kg	0.93	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.93	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.93	--	1
Dibromomethane	ND		ug/kg	1.9	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.9	--	1
Styrene	ND		ug/kg	0.93	--	1
Dichlorodifluoromethane	ND		ug/kg	9.3	--	1
Acetone	280	E	ug/kg	9.3	--	1
Carbon disulfide	ND		ug/kg	9.3	--	1
Methyl ethyl ketone	ND		ug/kg	9.3	--	1
Methyl isobutyl ketone	ND		ug/kg	9.3	--	1
2-Hexanone	ND		ug/kg	9.3	--	1
Bromochloromethane	ND		ug/kg	1.9	--	1
Tetrahydrofuran	ND		ug/kg	3.7	--	1
2,2-Dichloropropane	ND		ug/kg	1.9	--	1
1,2-Dibromoethane	ND		ug/kg	0.93	--	1
1,3-Dichloropropane	ND		ug/kg	1.9	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.46	--	1
Bromobenzene	ND		ug/kg	1.9	--	1
n-Butylbenzene	ND		ug/kg	0.93	--	1
sec-Butylbenzene	ND		ug/kg	0.93	--	1
tert-Butylbenzene	ND		ug/kg	1.9	--	1
o-Chlorotoluene	ND		ug/kg	1.9	--	1
p-Chlorotoluene	ND		ug/kg	1.9	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.8	--	1
Hexachlorobutadiene	ND		ug/kg	3.7	--	1
Isopropylbenzene	ND		ug/kg	0.93	--	1
p-Isopropyltoluene	ND		ug/kg	0.93	--	1
Naphthalene	ND		ug/kg	3.7	--	1
n-Propylbenzene	ND		ug/kg	0.93	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
Client ID: SB-1 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.9	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.9	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.9	--	1
Diethyl ether	ND		ug/kg	1.9	--	1
Diisopropyl Ether	ND		ug/kg	1.9	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.9	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.9	--	1
1,4-Dioxane	ND		ug/kg	74	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	100		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
 Client ID: SB-1 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/16/19 20:46
 Analyst: MV
 Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	270	--	1
1,1-Dichloroethane	ND		ug/kg	54	--	1
Chloroform	ND		ug/kg	81	--	1
Carbon tetrachloride	ND		ug/kg	54	--	1
1,2-Dichloropropane	ND		ug/kg	54	--	1
Dibromochloromethane	ND		ug/kg	54	--	1
1,1,2-Trichloroethane	ND		ug/kg	54	--	1
Tetrachloroethene	45		ug/kg	27	--	1
Chlorobenzene	ND		ug/kg	27	--	1
Trichlorofluoromethane	ND		ug/kg	220	--	1
1,2-Dichloroethane	ND		ug/kg	54	--	1
1,1,1-Trichloroethane	ND		ug/kg	27	--	1
Bromodichloromethane	ND		ug/kg	27	--	1
trans-1,3-Dichloropropene	ND		ug/kg	54	--	1
cis-1,3-Dichloropropene	ND		ug/kg	27	--	1
1,3-Dichloropropene, Total	ND		ug/kg	27	--	1
1,1-Dichloropropene	ND		ug/kg	27	--	1
Bromoform	ND		ug/kg	220	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	27	--	1
Benzene	ND		ug/kg	27	--	1
Toluene	ND		ug/kg	54	--	1
Ethylbenzene	ND		ug/kg	54	--	1
Chloromethane	ND		ug/kg	220	--	1
Bromomethane	ND		ug/kg	110	--	1
Vinyl chloride	ND		ug/kg	54	--	1
Chloroethane	ND		ug/kg	110	--	1
1,1-Dichloroethene	ND		ug/kg	54	--	1
trans-1,2-Dichloroethene	ND		ug/kg	81	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
Client ID: SB-1 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	27	--	1
1,2-Dichlorobenzene	ND		ug/kg	110	--	1
1,3-Dichlorobenzene	ND		ug/kg	110	--	1
1,4-Dichlorobenzene	ND		ug/kg	110	--	1
Methyl tert butyl ether	ND		ug/kg	110	--	1
p/m-Xylene	ND		ug/kg	110	--	1
o-Xylene	ND		ug/kg	54	--	1
Xylenes, Total	ND		ug/kg	54	--	1
cis-1,2-Dichloroethene	ND		ug/kg	54	--	1
1,2-Dichloroethene, Total	ND		ug/kg	54	--	1
Dibromomethane	ND		ug/kg	110	--	1
1,2,3-Trichloropropane	ND		ug/kg	110	--	1
Styrene	ND		ug/kg	54	--	1
Dichlorodifluoromethane	ND		ug/kg	540	--	1
Acetone	ND		ug/kg	540	--	1
Carbon disulfide	ND		ug/kg	540	--	1
Methyl ethyl ketone	ND		ug/kg	540	--	1
Methyl isobutyl ketone	ND		ug/kg	540	--	1
2-Hexanone	ND		ug/kg	540	--	1
Bromochloromethane	ND		ug/kg	110	--	1
Tetrahydrofuran	ND		ug/kg	220	--	1
2,2-Dichloropropane	ND		ug/kg	110	--	1
1,2-Dibromoethane	ND		ug/kg	54	--	1
1,3-Dichloropropane	ND		ug/kg	110	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	27	--	1
Bromobenzene	ND		ug/kg	110	--	1
n-Butylbenzene	ND		ug/kg	54	--	1
sec-Butylbenzene	ND		ug/kg	54	--	1
tert-Butylbenzene	ND		ug/kg	110	--	1
o-Chlorotoluene	ND		ug/kg	110	--	1
p-Chlorotoluene	ND		ug/kg	110	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	160	--	1
Hexachlorobutadiene	ND		ug/kg	220	--	1
Isopropylbenzene	ND		ug/kg	54	--	1
p-Isopropyltoluene	ND		ug/kg	54	--	1
Naphthalene	ND		ug/kg	220	--	1
n-Propylbenzene	ND		ug/kg	54	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
Client ID: SB-1 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	110	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	110	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	110	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	110	--	1
Diethyl ether	ND		ug/kg	110	--	1
Diisopropyl Ether	ND		ug/kg	110	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	110	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	110	--	1
1,4-Dioxane	ND		ug/kg	4300	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-139
 Client ID: SB-1 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:39
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 21:21
 Analyst: NLK
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	4.0	--	1
1,1-Dichloroethane	ND		ug/kg	0.79	--	1
Chloroform	ND		ug/kg	1.2	--	1
Carbon tetrachloride	ND		ug/kg	0.79	--	1
1,2-Dichloropropane	ND		ug/kg	0.79	--	1
Dibromochloromethane	ND		ug/kg	0.79	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.79	--	1
Tetrachloroethene	0.61		ug/kg	0.40	--	1
Chlorobenzene	ND		ug/kg	0.40	--	1
Trichlorofluoromethane	ND		ug/kg	3.2	--	1
1,2-Dichloroethane	ND		ug/kg	0.79	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.40	--	1
Bromodichloromethane	ND		ug/kg	0.40	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.79	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.40	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.40	--	1
1,1-Dichloropropene	ND		ug/kg	0.40	--	1
Bromoform	ND		ug/kg	3.2	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.40	--	1
Benzene	ND		ug/kg	0.40	--	1
Toluene	ND		ug/kg	0.79	--	1
Ethylbenzene	ND		ug/kg	0.79	--	1
Chloromethane	ND		ug/kg	3.2	--	1
Bromomethane	ND		ug/kg	1.6	--	1
Vinyl chloride	ND		ug/kg	0.79	--	1
Chloroethane	ND		ug/kg	1.6	--	1
1,1-Dichloroethene	ND		ug/kg	0.79	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.2	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-139
Client ID: SB-1 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:39
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.40	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.6	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.6	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.6	--	1
Methyl tert butyl ether	ND		ug/kg	1.6	--	1
p/m-Xylene	ND		ug/kg	1.6	--	1
o-Xylene	ND		ug/kg	0.79	--	1
Xylenes, Total	ND		ug/kg	0.79	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.79	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.79	--	1
Dibromomethane	ND		ug/kg	1.6	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.6	--	1
Styrene	ND		ug/kg	0.79	--	1
Dichlorodifluoromethane	ND		ug/kg	7.9	--	1
Acetone	130		ug/kg	7.9	--	1
Carbon disulfide	ND		ug/kg	7.9	--	1
Methyl ethyl ketone	ND		ug/kg	7.9	--	1
Methyl isobutyl ketone	ND		ug/kg	7.9	--	1
2-Hexanone	ND		ug/kg	7.9	--	1
Bromochloromethane	ND		ug/kg	1.6	--	1
Tetrahydrofuran	ND		ug/kg	3.2	--	1
2,2-Dichloropropane	ND		ug/kg	1.6	--	1
1,2-Dibromoethane	ND		ug/kg	0.79	--	1
1,3-Dichloropropane	ND		ug/kg	1.6	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.40	--	1
Bromobenzene	ND		ug/kg	1.6	--	1
n-Butylbenzene	ND		ug/kg	0.79	--	1
sec-Butylbenzene	ND		ug/kg	0.79	--	1
tert-Butylbenzene	ND		ug/kg	1.6	--	1
o-Chlorotoluene	ND		ug/kg	1.6	--	1
p-Chlorotoluene	ND		ug/kg	1.6	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.4	--	1
Hexachlorobutadiene	ND		ug/kg	3.2	--	1
Isopropylbenzene	ND		ug/kg	0.79	--	1
p-Isopropyltoluene	ND		ug/kg	0.79	--	1
Naphthalene	ND		ug/kg	3.2	--	1
n-Propylbenzene	ND		ug/kg	0.79	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-139
Client ID: SB-1 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:39
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.6	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.6	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.6	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.6	--	1
Diethyl ether	ND		ug/kg	1.6	--	1
Diisopropyl Ether	ND		ug/kg	1.6	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.6	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.6	--	1
1,4-Dioxane	ND		ug/kg	63	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	97		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-140
 Client ID: SB-DUP-1
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/16/19 10:33
 Analyst: JC
 Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	3.6	--	1
1,1-Dichloroethane	ND		ug/kg	0.72	--	1
Chloroform	ND		ug/kg	1.1	--	1
Carbon tetrachloride	ND		ug/kg	0.72	--	1
1,2-Dichloropropane	ND		ug/kg	0.72	--	1
Dibromochloromethane	ND		ug/kg	0.72	--	1
1,1,2-Trichloroethane	ND		ug/kg	0.72	--	1
Tetrachloroethene	0.66		ug/kg	0.36	--	1
Chlorobenzene	ND		ug/kg	0.36	--	1
Trichlorofluoromethane	ND		ug/kg	2.9	--	1
1,2-Dichloroethane	ND		ug/kg	0.72	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.36	--	1
Bromodichloromethane	ND		ug/kg	0.36	--	1
trans-1,3-Dichloropropene	ND		ug/kg	0.72	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.36	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.36	--	1
1,1-Dichloropropene	ND		ug/kg	0.36	--	1
Bromoform	ND		ug/kg	2.9	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.36	--	1
Benzene	ND		ug/kg	0.36	--	1
Toluene	ND		ug/kg	0.72	--	1
Ethylbenzene	ND		ug/kg	0.72	--	1
Chloromethane	ND		ug/kg	2.9	--	1
Bromomethane	ND		ug/kg	1.4	--	1
Vinyl chloride	ND		ug/kg	0.72	--	1
Chloroethane	ND		ug/kg	1.4	--	1
1,1-Dichloroethene	ND		ug/kg	0.72	--	1
trans-1,2-Dichloroethene	ND		ug/kg	1.1	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-140
Client ID: SB-DUP-1
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.36	--	1
1,2-Dichlorobenzene	ND		ug/kg	1.4	--	1
1,3-Dichlorobenzene	ND		ug/kg	1.4	--	1
1,4-Dichlorobenzene	ND		ug/kg	1.4	--	1
Methyl tert butyl ether	ND		ug/kg	1.4	--	1
p/m-Xylene	ND		ug/kg	1.4	--	1
o-Xylene	ND		ug/kg	0.72	--	1
Xylenes, Total	ND		ug/kg	0.72	--	1
cis-1,2-Dichloroethene	ND		ug/kg	0.72	--	1
1,2-Dichloroethene, Total	ND		ug/kg	0.72	--	1
Dibromomethane	ND		ug/kg	1.4	--	1
1,2,3-Trichloropropane	ND		ug/kg	1.4	--	1
Styrene	ND		ug/kg	0.72	--	1
Dichlorodifluoromethane	ND		ug/kg	7.2	--	1
Acetone	ND		ug/kg	7.2	--	1
Carbon disulfide	ND		ug/kg	7.2	--	1
Methyl ethyl ketone	ND		ug/kg	7.2	--	1
Methyl isobutyl ketone	ND		ug/kg	7.2	--	1
2-Hexanone	ND		ug/kg	7.2	--	1
Bromochloromethane	ND		ug/kg	1.4	--	1
Tetrahydrofuran	ND		ug/kg	2.9	--	1
2,2-Dichloropropane	ND		ug/kg	1.4	--	1
1,2-Dibromoethane	ND		ug/kg	0.72	--	1
1,3-Dichloropropane	ND		ug/kg	1.4	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.36	--	1
Bromobenzene	ND		ug/kg	1.4	--	1
n-Butylbenzene	ND		ug/kg	0.72	--	1
sec-Butylbenzene	ND		ug/kg	0.72	--	1
tert-Butylbenzene	ND		ug/kg	1.4	--	1
o-Chlorotoluene	ND		ug/kg	1.4	--	1
p-Chlorotoluene	ND		ug/kg	1.4	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	2.2	--	1
Hexachlorobutadiene	ND		ug/kg	2.9	--	1
Isopropylbenzene	ND		ug/kg	0.72	--	1
p-Isopropyltoluene	ND		ug/kg	0.72	--	1
Naphthalene	ND		ug/kg	2.9	--	1
n-Propylbenzene	ND		ug/kg	0.72	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-140
Client ID: SB-DUP-1
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	1.4	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	1.4	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	1.4	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	1.4	--	1
Diethyl ether	ND		ug/kg	1.4	--	1
Diisopropyl Ether	ND		ug/kg	1.4	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	1.4	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	1.4	--	1
1,4-Dioxane	ND		ug/kg	57	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	97		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
 Client ID: SB-1 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/15/19 22:33
 Analyst: NLK
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Methylene chloride	ND		ug/kg	8.1	--	1
1,1-Dichloroethane	ND		ug/kg	1.6	--	1
Chloroform	ND		ug/kg	2.4	--	1
Carbon tetrachloride	ND		ug/kg	1.6	--	1
1,2-Dichloropropane	ND		ug/kg	1.6	--	1
Dibromochloromethane	ND		ug/kg	1.6	--	1
1,1,2-Trichloroethane	ND		ug/kg	1.6	--	1
Tetrachloroethene	1.4		ug/kg	0.81	--	1
Chlorobenzene	ND		ug/kg	0.81	--	1
Trichlorofluoromethane	ND		ug/kg	6.5	--	1
1,2-Dichloroethane	ND		ug/kg	1.6	--	1
1,1,1-Trichloroethane	ND		ug/kg	0.81	--	1
Bromodichloromethane	ND		ug/kg	0.81	--	1
trans-1,3-Dichloropropene	ND		ug/kg	1.6	--	1
cis-1,3-Dichloropropene	ND		ug/kg	0.81	--	1
1,3-Dichloropropene, Total	ND		ug/kg	0.81	--	1
1,1-Dichloropropene	ND		ug/kg	0.81	--	1
Bromoform	ND		ug/kg	6.5	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.81	--	1
Benzene	ND		ug/kg	0.81	--	1
Toluene	ND		ug/kg	1.6	--	1
Ethylbenzene	ND		ug/kg	1.6	--	1
Chloromethane	ND		ug/kg	6.5	--	1
Bromomethane	ND		ug/kg	3.2	--	1
Vinyl chloride	ND		ug/kg	1.6	--	1
Chloroethane	ND		ug/kg	3.2	--	1
1,1-Dichloroethene	ND		ug/kg	1.6	--	1
trans-1,2-Dichloroethene	ND		ug/kg	2.4	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
Client ID: SB-1 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
Trichloroethene	ND		ug/kg	0.81	--	1
1,2-Dichlorobenzene	ND		ug/kg	3.2	--	1
1,3-Dichlorobenzene	ND		ug/kg	3.2	--	1
1,4-Dichlorobenzene	ND		ug/kg	3.2	--	1
Methyl tert butyl ether	ND		ug/kg	3.2	--	1
p/m-Xylene	ND		ug/kg	3.2	--	1
o-Xylene	ND		ug/kg	1.6	--	1
Xylenes, Total	ND		ug/kg	1.6	--	1
cis-1,2-Dichloroethene	ND		ug/kg	1.6	--	1
1,2-Dichloroethene, Total	ND		ug/kg	1.6	--	1
Dibromomethane	ND		ug/kg	3.2	--	1
1,2,3-Trichloropropane	ND		ug/kg	3.2	--	1
Styrene	ND		ug/kg	1.6	--	1
Dichlorodifluoromethane	ND		ug/kg	16	--	1
Acetone	560	E	ug/kg	16	--	1
Carbon disulfide	ND		ug/kg	16	--	1
Methyl ethyl ketone	ND		ug/kg	16	--	1
Methyl isobutyl ketone	ND		ug/kg	16	--	1
2-Hexanone	ND		ug/kg	16	--	1
Bromochloromethane	ND		ug/kg	3.2	--	1
Tetrahydrofuran	ND		ug/kg	6.5	--	1
2,2-Dichloropropane	ND		ug/kg	3.2	--	1
1,2-Dibromoethane	ND		ug/kg	1.6	--	1
1,3-Dichloropropane	ND		ug/kg	3.2	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.81	--	1
Bromobenzene	ND		ug/kg	3.2	--	1
n-Butylbenzene	ND		ug/kg	1.6	--	1
sec-Butylbenzene	ND		ug/kg	1.6	--	1
tert-Butylbenzene	ND		ug/kg	3.2	--	1
o-Chlorotoluene	ND		ug/kg	3.2	--	1
p-Chlorotoluene	ND		ug/kg	3.2	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	4.9	--	1
Hexachlorobutadiene	ND		ug/kg	6.5	--	1
Isopropylbenzene	ND		ug/kg	1.6	--	1
p-Isopropyltoluene	ND		ug/kg	1.6	--	1
Naphthalene	ND		ug/kg	6.5	--	1
n-Propylbenzene	ND		ug/kg	1.6	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
Client ID: SB-1 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	3.2	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	3.2	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	3.2	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	3.2	--	1
Diethyl ether	ND		ug/kg	3.2	--	1
Diisopropyl Ether	ND		ug/kg	3.2	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	3.2	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	3.2	--	1
1,4-Dioxane	ND		ug/kg	130	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	98		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
 Client ID: SB-1 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8260C
 Analytical Date: 09/16/19 21:10
 Analyst: MV
 Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Methylene chloride	ND		ug/kg	590	--	1
1,1-Dichloroethane	ND		ug/kg	120	--	1
Chloroform	ND		ug/kg	180	--	1
Carbon tetrachloride	ND		ug/kg	120	--	1
1,2-Dichloropropane	ND		ug/kg	120	--	1
Dibromochloromethane	ND		ug/kg	120	--	1
1,1,2-Trichloroethane	ND		ug/kg	120	--	1
Tetrachloroethene	91		ug/kg	59	--	1
Chlorobenzene	ND		ug/kg	59	--	1
Trichlorofluoromethane	ND		ug/kg	470	--	1
1,2-Dichloroethane	ND		ug/kg	120	--	1
1,1,1-Trichloroethane	ND		ug/kg	59	--	1
Bromodichloromethane	ND		ug/kg	59	--	1
trans-1,3-Dichloropropene	ND		ug/kg	120	--	1
cis-1,3-Dichloropropene	ND		ug/kg	59	--	1
1,3-Dichloropropene, Total	ND		ug/kg	59	--	1
1,1-Dichloropropene	ND		ug/kg	59	--	1
Bromoform	ND		ug/kg	470	--	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	59	--	1
Benzene	ND		ug/kg	59	--	1
Toluene	ND		ug/kg	120	--	1
Ethylbenzene	ND		ug/kg	120	--	1
Chloromethane	ND		ug/kg	470	--	1
Bromomethane	ND		ug/kg	240	--	1
Vinyl chloride	ND		ug/kg	120	--	1
Chloroethane	ND		ug/kg	240	--	1
1,1-Dichloroethene	ND		ug/kg	120	--	1
trans-1,2-Dichloroethene	ND		ug/kg	180	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
Client ID: SB-1 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
Trichloroethene	ND		ug/kg	59	--	1
1,2-Dichlorobenzene	ND		ug/kg	240	--	1
1,3-Dichlorobenzene	ND		ug/kg	240	--	1
1,4-Dichlorobenzene	ND		ug/kg	240	--	1
Methyl tert butyl ether	ND		ug/kg	240	--	1
p/m-Xylene	ND		ug/kg	240	--	1
o-Xylene	ND		ug/kg	120	--	1
Xylenes, Total	ND		ug/kg	120	--	1
cis-1,2-Dichloroethene	ND		ug/kg	120	--	1
1,2-Dichloroethene, Total	ND		ug/kg	120	--	1
Dibromomethane	ND		ug/kg	240	--	1
1,2,3-Trichloropropane	ND		ug/kg	240	--	1
Styrene	ND		ug/kg	120	--	1
Dichlorodifluoromethane	ND		ug/kg	1200	--	1
Acetone	ND		ug/kg	1200	--	1
Carbon disulfide	ND		ug/kg	1200	--	1
Methyl ethyl ketone	ND		ug/kg	1200	--	1
Methyl isobutyl ketone	ND		ug/kg	1200	--	1
2-Hexanone	ND		ug/kg	1200	--	1
Bromochloromethane	ND		ug/kg	240	--	1
Tetrahydrofuran	ND		ug/kg	470	--	1
2,2-Dichloropropane	ND		ug/kg	240	--	1
1,2-Dibromoethane	ND		ug/kg	120	--	1
1,3-Dichloropropane	ND		ug/kg	240	--	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	59	--	1
Bromobenzene	ND		ug/kg	240	--	1
n-Butylbenzene	ND		ug/kg	120	--	1
sec-Butylbenzene	ND		ug/kg	120	--	1
tert-Butylbenzene	ND		ug/kg	240	--	1
o-Chlorotoluene	ND		ug/kg	240	--	1
p-Chlorotoluene	ND		ug/kg	240	--	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	360	--	1
Hexachlorobutadiene	ND		ug/kg	470	--	1
Isopropylbenzene	ND		ug/kg	120	--	1
p-Isopropyltoluene	ND		ug/kg	120	--	1
Naphthalene	ND		ug/kg	470	--	1
n-Propylbenzene	ND		ug/kg	120	--	1

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
Client ID: SB-1 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/kg	240	--	1
1,2,4-Trichlorobenzene	ND		ug/kg	240	--	1
1,3,5-Trimethylbenzene	ND		ug/kg	240	--	1
1,2,4-Trimethylbenzene	ND		ug/kg	240	--	1
Diethyl ether	ND		ug/kg	240	--	1
Diisopropyl Ether	ND		ug/kg	240	--	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	240	--	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	240	--	1
1,4-Dioxane	ND		ug/kg	9500	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/14/19 09:06
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 15,17,23 Batch: WG1284397-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	0.50	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/14/19 09:06
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 15,17,23 Batch: WG1284397-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	10	--
Carbon disulfide	ND		ug/kg	10	--
Methyl ethyl ketone	ND		ug/kg	10	--
Methyl isobutyl ketone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/14/19 09:06
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 15,17,23 Batch: WG1284397-5					
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
Diethyl ether	ND		ug/kg	2.0	--
Diisopropyl Ether	ND		ug/kg	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	104		70-130



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 14:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 21,23-24 Batch: WG1284519-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	0.50	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

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Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 14:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 21,23-24 Batch: WG1284519-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	10	--
Carbon disulfide	ND		ug/kg	10	--
Methyl ethyl ketone	ND		ug/kg	10	--
Methyl isobutyl ketone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8260C
Analytical Date: 09/15/19 14:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 21,23-24 Batch: WG1284519-5					
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
Diethyl ether	ND		ug/kg	2.0	--
Diisopropyl Ether	ND		ug/kg	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	100		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 14:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15 Batch: WG1284521-5					
Methylene chloride	ND		ug/kg	250	--
1,1-Dichloroethane	ND		ug/kg	50	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	50	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	50	--
Tetrachloroethene	ND		ug/kg	25	--
Chlorobenzene	ND		ug/kg	25	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	25	--
Bromodichloromethane	ND		ug/kg	25	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	25	--
1,3-Dichloropropene, Total	ND		ug/kg	25	--
1,1-Dichloropropene	ND		ug/kg	25	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	--
Benzene	ND		ug/kg	25	--
Toluene	ND		ug/kg	50	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	50	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	25	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 14:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15 Batch: WG1284521-5					
1,2-Dichlorobenzene	ND		ug/kg	100	--
1,3-Dichlorobenzene	ND		ug/kg	100	--
1,4-Dichlorobenzene	ND		ug/kg	100	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	50	--
Xylenes, Total	ND		ug/kg	50	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	100	--
1,2,3-Trichloropropane	ND		ug/kg	100	--
Styrene	ND		ug/kg	50	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	500	--
Carbon disulfide	ND		ug/kg	500	--
Methyl ethyl ketone	ND		ug/kg	500	--
Methyl isobutyl ketone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	100	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	100	--
1,2-Dibromoethane	ND		ug/kg	50	--
1,3-Dichloropropane	ND		ug/kg	100	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	--
Bromobenzene	ND		ug/kg	100	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	100	--
o-Chlorotoluene	ND		ug/kg	100	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8260C
Analytical Date: 09/15/19 14:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15 Batch: WG1284521-5					
p-Chlorotoluene	ND		ug/kg	100	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	100	--
1,2,4-Trichlorobenzene	ND		ug/kg	100	--
1,3,5-Trimethylbenzene	ND		ug/kg	100	--
1,2,4-Trimethylbenzene	ND		ug/kg	100	--
Diethyl ether	ND		ug/kg	100	--
Diisopropyl Ether	ND		ug/kg	100	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	100	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	100	--
1,4-Dioxane	ND		ug/kg	4000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	100		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/14/19 09:00
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 27,44-45 Batch: WG1284565-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	0.50	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/14/19 09:00
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 27,44-45 Batch: WG1284565-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	10	--
Carbon disulfide	ND		ug/kg	10	--
Methyl ethyl ketone	ND		ug/kg	10	--
Methyl isobutyl ketone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8260C
Analytical Date: 09/14/19 09:00
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 27,44-45 Batch: WG1284565-5					
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
Diethyl ether	ND		ug/kg	2.0	--
Diisopropyl Ether	ND		ug/kg	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	91		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 17:36
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12,50,113 Batch: WG1284596-5					
Methylene chloride	ND		ug/kg	250	--
1,1-Dichloroethane	ND		ug/kg	50	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	50	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	50	--
Tetrachloroethene	ND		ug/kg	25	--
Chlorobenzene	ND		ug/kg	25	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	25	--
Bromodichloromethane	ND		ug/kg	25	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	25	--
1,3-Dichloropropene, Total	ND		ug/kg	25	--
1,1-Dichloropropene	ND		ug/kg	25	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	--
Benzene	ND		ug/kg	25	--
Toluene	ND		ug/kg	50	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	50	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	25	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 17:36
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12,50,113 Batch: WG1284596-5					
1,2-Dichlorobenzene	ND		ug/kg	100	--
1,3-Dichlorobenzene	ND		ug/kg	100	--
1,4-Dichlorobenzene	ND		ug/kg	100	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	50	--
Xylenes, Total	ND		ug/kg	50	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	100	--
1,2,3-Trichloropropane	ND		ug/kg	100	--
Styrene	ND		ug/kg	50	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	500	--
Carbon disulfide	ND		ug/kg	500	--
Methyl ethyl ketone	ND		ug/kg	500	--
Methyl isobutyl ketone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	100	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	100	--
1,2-Dibromoethane	ND		ug/kg	50	--
1,3-Dichloropropane	ND		ug/kg	100	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	--
Bromobenzene	ND		ug/kg	100	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	100	--
o-Chlorotoluene	ND		ug/kg	100	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 17:36
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12,50,113 Batch: WG1284596-5					
p-Chlorotoluene	ND		ug/kg	100	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	100	--
1,2,4-Trichlorobenzene	ND		ug/kg	100	--
1,3,5-Trimethylbenzene	ND		ug/kg	100	--
1,2,4-Trimethylbenzene	ND		ug/kg	100	--
Diethyl ether	ND		ug/kg	100	--
Diisopropyl Ether	ND		ug/kg	100	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	100	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	100	--
1,4-Dioxane	ND		ug/kg	4000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 17:36
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11,55-56,101,115,138-139,143 Batch: WG1284598-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	0.50	--

Project Name: TOMBARELLO SITE
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Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/15/19 17:36
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11,55-56,101,115,138-139,143 Batch: WG1284598-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	10	--
Carbon disulfide	ND		ug/kg	10	--
Methyl ethyl ketone	ND		ug/kg	10	--
Methyl isobutyl ketone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8260C
Analytical Date: 09/15/19 17:36
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11,55-56,101,115,138-139,143 Batch: WG1284598-5					
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
Diethyl ether	ND		ug/kg	2.0	--
Diisopropyl Ether	ND		ug/kg	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 08:09
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 44 Batch: WG1284780-5					
Methylene chloride	ND		ug/kg	250	--
1,1-Dichloroethane	ND		ug/kg	50	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	50	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	50	--
Tetrachloroethene	ND		ug/kg	25	--
Chlorobenzene	ND		ug/kg	25	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	25	--
Bromodichloromethane	ND		ug/kg	25	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	25	--
1,3-Dichloropropene, Total	ND		ug/kg	25	--
1,1-Dichloropropene	ND		ug/kg	25	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	--
Benzene	ND		ug/kg	25	--
Toluene	ND		ug/kg	50	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	50	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	25	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 08:09
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 44 Batch: WG1284780-5					
1,2-Dichlorobenzene	ND		ug/kg	100	--
1,3-Dichlorobenzene	ND		ug/kg	100	--
1,4-Dichlorobenzene	ND		ug/kg	100	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	50	--
Xylenes, Total	ND		ug/kg	50	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	100	--
1,2,3-Trichloropropane	ND		ug/kg	100	--
Styrene	ND		ug/kg	50	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	500	--
Carbon disulfide	ND		ug/kg	500	--
Methyl ethyl ketone	ND		ug/kg	500	--
Methyl isobutyl ketone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	100	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	100	--
1,2-Dibromoethane	ND		ug/kg	50	--
1,3-Dichloropropane	ND		ug/kg	100	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	--
Bromobenzene	ND		ug/kg	100	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	100	--
o-Chlorotoluene	ND		ug/kg	100	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 08:09
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 44 Batch: WG1284780-5					
p-Chlorotoluene	ND		ug/kg	100	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	100	--
1,2,4-Trichlorobenzene	ND		ug/kg	100	--
1,3,5-Trimethylbenzene	ND		ug/kg	100	--
1,2,4-Trimethylbenzene	ND		ug/kg	100	--
Diethyl ether	ND		ug/kg	100	--
Diisopropyl Ether	ND		ug/kg	100	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	100	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	100	--
1,4-Dioxane	ND		ug/kg	4000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	93		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 08:09
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18,105,140 Batch: WG1284781-5					
Methylene chloride	ND		ug/kg	5.0	--
1,1-Dichloroethane	ND		ug/kg	1.0	--
Chloroform	ND		ug/kg	1.5	--
Carbon tetrachloride	ND		ug/kg	1.0	--
1,2-Dichloropropane	ND		ug/kg	1.0	--
Dibromochloromethane	ND		ug/kg	1.0	--
1,1,2-Trichloroethane	ND		ug/kg	1.0	--
Tetrachloroethene	ND		ug/kg	0.50	--
Chlorobenzene	ND		ug/kg	0.50	--
Trichlorofluoromethane	ND		ug/kg	4.0	--
1,2-Dichloroethane	ND		ug/kg	1.0	--
1,1,1-Trichloroethane	ND		ug/kg	0.50	--
Bromodichloromethane	ND		ug/kg	0.50	--
trans-1,3-Dichloropropene	ND		ug/kg	1.0	--
cis-1,3-Dichloropropene	ND		ug/kg	0.50	--
1,3-Dichloropropene, Total	ND		ug/kg	0.50	--
1,1-Dichloropropene	ND		ug/kg	0.50	--
Bromoform	ND		ug/kg	4.0	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	0.50	--
Benzene	ND		ug/kg	0.50	--
Toluene	ND		ug/kg	1.0	--
Ethylbenzene	ND		ug/kg	1.0	--
Chloromethane	ND		ug/kg	4.0	--
Bromomethane	ND		ug/kg	2.0	--
Vinyl chloride	ND		ug/kg	1.0	--
Chloroethane	ND		ug/kg	2.0	--
1,1-Dichloroethene	ND		ug/kg	1.0	--
trans-1,2-Dichloroethene	ND		ug/kg	1.5	--
Trichloroethene	ND		ug/kg	0.50	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 08:09
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18,105,140 Batch: WG1284781-5					
1,2-Dichlorobenzene	ND		ug/kg	2.0	--
1,3-Dichlorobenzene	ND		ug/kg	2.0	--
1,4-Dichlorobenzene	ND		ug/kg	2.0	--
Methyl tert butyl ether	ND		ug/kg	2.0	--
p/m-Xylene	ND		ug/kg	2.0	--
o-Xylene	ND		ug/kg	1.0	--
Xylenes, Total	ND		ug/kg	1.0	--
cis-1,2-Dichloroethene	ND		ug/kg	1.0	--
1,2-Dichloroethene, Total	ND		ug/kg	1.0	--
Dibromomethane	ND		ug/kg	2.0	--
1,2,3-Trichloropropane	ND		ug/kg	2.0	--
Styrene	ND		ug/kg	1.0	--
Dichlorodifluoromethane	ND		ug/kg	10	--
Acetone	ND		ug/kg	10	--
Carbon disulfide	ND		ug/kg	10	--
Methyl ethyl ketone	ND		ug/kg	10	--
Methyl isobutyl ketone	ND		ug/kg	10	--
2-Hexanone	ND		ug/kg	10	--
Bromochloromethane	ND		ug/kg	2.0	--
Tetrahydrofuran	ND		ug/kg	4.0	--
2,2-Dichloropropane	ND		ug/kg	2.0	--
1,2-Dibromoethane	ND		ug/kg	1.0	--
1,3-Dichloropropane	ND		ug/kg	2.0	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	0.50	--
Bromobenzene	ND		ug/kg	2.0	--
n-Butylbenzene	ND		ug/kg	1.0	--
sec-Butylbenzene	ND		ug/kg	1.0	--
tert-Butylbenzene	ND		ug/kg	2.0	--
o-Chlorotoluene	ND		ug/kg	2.0	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 08:09
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18,105,140 Batch: WG1284781-5					
p-Chlorotoluene	ND		ug/kg	2.0	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	3.0	--
Hexachlorobutadiene	ND		ug/kg	4.0	--
Isopropylbenzene	ND		ug/kg	1.0	--
p-Isopropyltoluene	ND		ug/kg	1.0	--
Naphthalene	ND		ug/kg	4.0	--
n-Propylbenzene	ND		ug/kg	1.0	--
1,2,3-Trichlorobenzene	ND		ug/kg	2.0	--
1,2,4-Trichlorobenzene	ND		ug/kg	2.0	--
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	--
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	--
Diethyl ether	ND		ug/kg	2.0	--
Diisopropyl Ether	ND		ug/kg	2.0	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	2.0	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	2.0	--
1,4-Dioxane	ND		ug/kg	80	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	93		70-130



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 20:21
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 138,143 Batch: WG1284929-5					
Methylene chloride	ND		ug/kg	250	--
1,1-Dichloroethane	ND		ug/kg	50	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	50	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	50	--
Tetrachloroethene	ND		ug/kg	25	--
Chlorobenzene	ND		ug/kg	25	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	25	--
Bromodichloromethane	ND		ug/kg	25	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	25	--
1,3-Dichloropropene, Total	ND		ug/kg	25	--
1,1-Dichloropropene	ND		ug/kg	25	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	--
Benzene	ND		ug/kg	25	--
Toluene	ND		ug/kg	50	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	50	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	25	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 20:21
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 138,143 Batch: WG1284929-5					
1,2-Dichlorobenzene	ND		ug/kg	100	--
1,3-Dichlorobenzene	ND		ug/kg	100	--
1,4-Dichlorobenzene	ND		ug/kg	100	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	50	--
Xylenes, Total	ND		ug/kg	50	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	100	--
1,2,3-Trichloropropane	ND		ug/kg	100	--
Styrene	ND		ug/kg	50	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	500	--
Carbon disulfide	ND		ug/kg	500	--
Methyl ethyl ketone	ND		ug/kg	500	--
Methyl isobutyl ketone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	100	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	100	--
1,2-Dibromoethane	ND		ug/kg	50	--
1,3-Dichloropropane	ND		ug/kg	100	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	--
Bromobenzene	ND		ug/kg	100	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	100	--
o-Chlorotoluene	ND		ug/kg	100	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/16/19 20:21
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 138,143 Batch: WG1284929-5					
p-Chlorotoluene	ND		ug/kg	100	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	100	--
1,2,4-Trichlorobenzene	ND		ug/kg	100	--
1,3,5-Trimethylbenzene	ND		ug/kg	100	--
1,2,4-Trimethylbenzene	ND		ug/kg	100	--
Diethyl ether	ND		ug/kg	100	--
Diisopropyl Ether	ND		ug/kg	100	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	100	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	100	--
1,4-Dioxane	ND		ug/kg	4000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	91		70-130

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/17/19 09:02
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 27 Batch: WG1285102-5					
Methylene chloride	ND		ug/kg	250	--
1,1-Dichloroethane	ND		ug/kg	50	--
Chloroform	ND		ug/kg	75	--
Carbon tetrachloride	ND		ug/kg	50	--
1,2-Dichloropropane	ND		ug/kg	50	--
Dibromochloromethane	ND		ug/kg	50	--
1,1,2-Trichloroethane	ND		ug/kg	50	--
Tetrachloroethene	ND		ug/kg	25	--
Chlorobenzene	ND		ug/kg	25	--
Trichlorofluoromethane	ND		ug/kg	200	--
1,2-Dichloroethane	ND		ug/kg	50	--
1,1,1-Trichloroethane	ND		ug/kg	25	--
Bromodichloromethane	ND		ug/kg	25	--
trans-1,3-Dichloropropene	ND		ug/kg	50	--
cis-1,3-Dichloropropene	ND		ug/kg	25	--
1,3-Dichloropropene, Total	ND		ug/kg	25	--
1,1-Dichloropropene	ND		ug/kg	25	--
Bromoform	ND		ug/kg	200	--
1,1,2,2-Tetrachloroethane	ND		ug/kg	25	--
Benzene	ND		ug/kg	25	--
Toluene	ND		ug/kg	50	--
Ethylbenzene	ND		ug/kg	50	--
Chloromethane	ND		ug/kg	200	--
Bromomethane	ND		ug/kg	100	--
Vinyl chloride	ND		ug/kg	50	--
Chloroethane	ND		ug/kg	100	--
1,1-Dichloroethene	ND		ug/kg	50	--
trans-1,2-Dichloroethene	ND		ug/kg	75	--
Trichloroethene	ND		ug/kg	25	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8260C
Analytical Date: 09/17/19 09:02
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 27 Batch: WG1285102-5					
1,2-Dichlorobenzene	ND		ug/kg	100	--
1,3-Dichlorobenzene	ND		ug/kg	100	--
1,4-Dichlorobenzene	ND		ug/kg	100	--
Methyl tert butyl ether	ND		ug/kg	100	--
p/m-Xylene	ND		ug/kg	100	--
o-Xylene	ND		ug/kg	50	--
Xylenes, Total	ND		ug/kg	50	--
cis-1,2-Dichloroethene	ND		ug/kg	50	--
1,2-Dichloroethene, Total	ND		ug/kg	50	--
Dibromomethane	ND		ug/kg	100	--
1,2,3-Trichloropropane	ND		ug/kg	100	--
Styrene	ND		ug/kg	50	--
Dichlorodifluoromethane	ND		ug/kg	500	--
Acetone	ND		ug/kg	500	--
Carbon disulfide	ND		ug/kg	500	--
Methyl ethyl ketone	ND		ug/kg	500	--
Methyl isobutyl ketone	ND		ug/kg	500	--
2-Hexanone	ND		ug/kg	500	--
Bromochloromethane	ND		ug/kg	100	--
Tetrahydrofuran	ND		ug/kg	200	--
2,2-Dichloropropane	ND		ug/kg	100	--
1,2-Dibromoethane	ND		ug/kg	50	--
1,3-Dichloropropane	ND		ug/kg	100	--
1,1,1,2-Tetrachloroethane	ND		ug/kg	25	--
Bromobenzene	ND		ug/kg	100	--
n-Butylbenzene	ND		ug/kg	50	--
sec-Butylbenzene	ND		ug/kg	50	--
tert-Butylbenzene	ND		ug/kg	100	--
o-Chlorotoluene	ND		ug/kg	100	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8260C
Analytical Date: 09/17/19 09:02
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
MCP Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 27 Batch: WG1285102-5					
p-Chlorotoluene	ND		ug/kg	100	--
1,2-Dibromo-3-chloropropane	ND		ug/kg	150	--
Hexachlorobutadiene	ND		ug/kg	200	--
Isopropylbenzene	ND		ug/kg	50	--
p-Isopropyltoluene	ND		ug/kg	50	--
Naphthalene	ND		ug/kg	200	--
n-Propylbenzene	ND		ug/kg	50	--
1,2,3-Trichlorobenzene	ND		ug/kg	100	--
1,2,4-Trichlorobenzene	ND		ug/kg	100	--
1,3,5-Trimethylbenzene	ND		ug/kg	100	--
1,2,4-Trimethylbenzene	ND		ug/kg	100	--
Diethyl ether	ND		ug/kg	100	--
Diisopropyl Ether	ND		ug/kg	100	--
Ethyl-Tert-Butyl-Ether	ND		ug/kg	100	--
Tertiary-Amyl Methyl Ether	ND		ug/kg	100	--
1,4-Dioxane	ND		ug/kg	4000	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	92		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15,17,23 Batch: WG1284397-3 WG1284397-4								
Methylene chloride	92		92		70-130	0		20
1,1-Dichloroethane	109		109		70-130	0		20
Chloroform	116		114		70-130	2		20
Carbon tetrachloride	127		123		70-130	3		20
1,2-Dichloropropane	108		107		70-130	1		20
Dibromochloromethane	106		105		70-130	1		20
1,1,2-Trichloroethane	98		96		70-130	2		20
Tetrachloroethene	101		100		70-130	1		20
Chlorobenzene	97		95		70-130	2		20
Trichlorofluoromethane	132	Q	127		70-130	4		20
1,2-Dichloroethane	135	Q	132	Q	70-130	2		20
1,1,1-Trichloroethane	121		118		70-130	3		20
Bromodichloromethane	113		114		70-130	1		20
trans-1,3-Dichloropropene	102		102		70-130	0		20
cis-1,3-Dichloropropene	106		106		70-130	0		20
1,1-Dichloropropene	105		105		70-130	0		20
Bromoform	101		103		70-130	2		20
1,1,2,2-Tetrachloroethane	89		87		70-130	2		20
Benzene	98		97		70-130	1		20
Toluene	96		94		70-130	2		20
Ethylbenzene	102		100		70-130	2		20
Chloromethane	133	Q	131	Q	70-130	2		20
Bromomethane	79		80		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15,17,23 Batch: WG1284397-3 WG1284397-4								
Vinyl chloride	95		94		70-130	1		20
Chloroethane	83		82		70-130	1		20
1,1-Dichloroethene	87		86		70-130	1		20
trans-1,2-Dichloroethene	95		94		70-130	1		20
Trichloroethene	105		104		70-130	1		20
1,2-Dichlorobenzene	96		96		70-130	0		20
1,3-Dichlorobenzene	97		97		70-130	0		20
1,4-Dichlorobenzene	97		97		70-130	0		20
Methyl tert butyl ether	103		103		70-130	0		20
p/m-Xylene	100		98		70-130	2		20
o-Xylene	98		97		70-130	1		20
cis-1,2-Dichloroethene	102		99		70-130	3		20
Dibromomethane	114		115		70-130	1		20
1,2,3-Trichloropropane	97		96		70-130	1		20
Styrene	98		97		70-130	1		20
Dichlorodifluoromethane	152	Q	148	Q	70-130	3		20
Acetone	112		123		70-130	9		20
Carbon disulfide	85		85		70-130	0		20
Methyl ethyl ketone	113		127		70-130	12		20
Methyl isobutyl ketone	98		93		70-130	5		20
2-Hexanone	88		91		70-130	3		20
Bromochloromethane	105		106		70-130	1		20
Tetrahydrofuran	114		121		70-130	6		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15,17,23 Batch: WG1284397-3 WG1284397-4								
2,2-Dichloropropane	116		114		70-130	2		20
1,2-Dibromoethane	99		100		70-130	1		20
1,3-Dichloropropane	99		98		70-130	1		20
1,1,1,2-Tetrachloroethane	104		104		70-130	0		20
Bromobenzene	92		91		70-130	1		20
n-Butylbenzene	96		94		70-130	2		20
sec-Butylbenzene	91		90		70-130	1		20
tert-Butylbenzene	90		89		70-130	1		20
o-Chlorotoluene	92		90		70-130	2		20
p-Chlorotoluene	90		90		70-130	0		20
1,2-Dibromo-3-chloropropane	97		102		70-130	5		20
Hexachlorobutadiene	96		98		70-130	2		20
Isopropylbenzene	87		86		70-130	1		20
p-Isopropyltoluene	92		91		70-130	1		20
Naphthalene	87		91		70-130	4		20
n-Propylbenzene	90		90		70-130	0		20
1,2,3-Trichlorobenzene	98		100		70-130	2		20
1,2,4-Trichlorobenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	91		91		70-130	0		20
1,2,4-Trimethylbenzene	92		92		70-130	0		20
Diethyl ether	77		76		70-130	1		20
Diisopropyl Ether	104		104		70-130	0		20
Ethyl-Tert-Butyl-Ether	103		102		70-130	1		20

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15,17,23 Batch: WG1284397-3 WG1284397-4								
Tertiary-Amyl Methyl Ether	94		94		70-130	0		20
1,4-Dioxane	87		91		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	123		123		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	84		85		70-130
Dibromofluoromethane	104		105		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21,23-24 Batch: WG1284519-3 WG1284519-4								
Methylene chloride	96		94		70-130	2		20
1,1-Dichloroethane	106		103		70-130	3		20
Chloroform	104		104		70-130	0		20
Carbon tetrachloride	109		107		70-130	2		20
1,2-Dichloropropane	109		105		70-130	4		20
Dibromochloromethane	100		98		70-130	2		20
1,1,2-Trichloroethane	99		99		70-130	0		20
Tetrachloroethene	99		95		70-130	4		20
Chlorobenzene	94		92		70-130	2		20
Trichlorofluoromethane	128		122		70-130	5		20
1,2-Dichloroethane	113		111		70-130	2		20
1,1,1-Trichloroethane	107		102		70-130	5		20
Bromodichloromethane	104		101		70-130	3		20
trans-1,3-Dichloropropene	98		96		70-130	2		20
cis-1,3-Dichloropropene	102		99		70-130	3		20
1,1-Dichloropropene	103		99		70-130	4		20
Bromoform	100		96		70-130	4		20
1,1,2,2-Tetrachloroethane	94		89		70-130	5		20
Benzene	98		95		70-130	3		20
Toluene	96		93		70-130	3		20
Ethylbenzene	98		95		70-130	3		20
Chloromethane	129		121		70-130	6		20
Bromomethane	89		87		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21,23-24 Batch: WG1284519-3 WG1284519-4								
Vinyl chloride	103		99		70-130	4		20
Chloroethane	95		91		70-130	4		20
1,1-Dichloroethene	94		87		70-130	8		20
trans-1,2-Dichloroethene	95		93		70-130	2		20
Trichloroethene	102		98		70-130	4		20
1,2-Dichlorobenzene	96		91		70-130	5		20
1,3-Dichlorobenzene	96		91		70-130	5		20
1,4-Dichlorobenzene	96		92		70-130	4		20
Methyl tert butyl ether	98		95		70-130	3		20
p/m-Xylene	96		94		70-130	2		20
o-Xylene	94		92		70-130	2		20
cis-1,2-Dichloroethene	99		96		70-130	3		20
Dibromomethane	108		104		70-130	4		20
1,2,3-Trichloropropane	99		93		70-130	6		20
Styrene	95		91		70-130	4		20
Dichlorodifluoromethane	141	Q	137	Q	70-130	3		20
Acetone	111		108		70-130	3		20
Carbon disulfide	90		85		70-130	6		20
Methyl ethyl ketone	111		109		70-130	2		20
Methyl isobutyl ketone	99		96		70-130	3		20
2-Hexanone	86		83		70-130	4		20
Bromochloromethane	103		101		70-130	2		20
Tetrahydrofuran	118		113		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21,23-24 Batch: WG1284519-3 WG1284519-4								
2,2-Dichloropropane	103		100		70-130	3		20
1,2-Dibromoethane	100		97		70-130	3		20
1,3-Dichloropropane	101		97		70-130	4		20
1,1,1,2-Tetrachloroethane	98		94		70-130	4		20
Bromobenzene	94		90		70-130	4		20
n-Butylbenzene	97		91		70-130	6		20
sec-Butylbenzene	93		89		70-130	4		20
tert-Butylbenzene	92		86		70-130	7		20
o-Chlorotoluene	94		89		70-130	5		20
p-Chlorotoluene	92		88		70-130	4		20
1,2-Dibromo-3-chloropropane	96		92		70-130	4		20
Hexachlorobutadiene	95		90		70-130	5		20
Isopropylbenzene	90		85		70-130	6		20
p-Isopropyltoluene	93		88		70-130	6		20
Naphthalene	90		87		70-130	3		20
n-Propylbenzene	94		88		70-130	7		20
1,2,3-Trichlorobenzene	98		93		70-130	5		20
1,2,4-Trichlorobenzene	99		93		70-130	6		20
1,3,5-Trimethylbenzene	92		88		70-130	4		20
1,2,4-Trimethylbenzene	92		88		70-130	4		20
Diethyl ether	80		79		70-130	1		20
Diisopropyl Ether	100		98		70-130	2		20
Ethyl-Tert-Butyl-Ether	98		94		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21,23-24 Batch: WG1284519-3 WG1284519-4								
Tertiary-Amyl Methyl Ether	91		89		70-130	2		20
1,4-Dioxane	88		88		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	91		92		70-130
4-Bromofluorobenzene	89		85		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15 Batch: WG1284521-3 WG1284521-4								
Methylene chloride	96		94		70-130	2		20
1,1-Dichloroethane	106		103		70-130	3		20
Chloroform	104		104		70-130	0		20
Carbon tetrachloride	109		107		70-130	2		20
1,2-Dichloropropane	109		105		70-130	4		20
Dibromochloromethane	100		98		70-130	2		20
1,1,2-Trichloroethane	99		99		70-130	0		20
Tetrachloroethene	99		95		70-130	4		20
Chlorobenzene	94		92		70-130	2		20
Trichlorofluoromethane	128		122		70-130	5		20
1,2-Dichloroethane	113		111		70-130	2		20
1,1,1-Trichloroethane	107		102		70-130	5		20
Bromodichloromethane	104		101		70-130	3		20
trans-1,3-Dichloropropene	98		96		70-130	2		20
cis-1,3-Dichloropropene	102		99		70-130	3		20
1,1-Dichloropropene	103		99		70-130	4		20
Bromoform	100		96		70-130	4		20
1,1,2,2-Tetrachloroethane	94		89		70-130	5		20
Benzene	98		95		70-130	3		20
Toluene	96		93		70-130	3		20
Ethylbenzene	98		95		70-130	3		20
Chloromethane	129		121		70-130	6		20
Bromomethane	89		87		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15 Batch: WG1284521-3 WG1284521-4								
Vinyl chloride	103		99		70-130	4		20
Chloroethane	95		91		70-130	4		20
1,1-Dichloroethene	94		87		70-130	8		20
trans-1,2-Dichloroethene	95		93		70-130	2		20
Trichloroethene	102		98		70-130	4		20
1,2-Dichlorobenzene	96		91		70-130	5		20
1,3-Dichlorobenzene	96		91		70-130	5		20
1,4-Dichlorobenzene	96		92		70-130	4		20
Methyl tert butyl ether	98		95		70-130	3		20
p/m-Xylene	96		94		70-130	2		20
o-Xylene	94		92		70-130	2		20
cis-1,2-Dichloroethene	99		96		70-130	3		20
Dibromomethane	108		104		70-130	4		20
1,2,3-Trichloropropane	99		93		70-130	6		20
Styrene	95		91		70-130	4		20
Dichlorodifluoromethane	141	Q	137	Q	70-130	3		20
Acetone	111		108		70-130	3		20
Carbon disulfide	90		85		70-130	6		20
Methyl ethyl ketone	111		109		70-130	2		20
Methyl isobutyl ketone	99		96		70-130	3		20
2-Hexanone	86		83		70-130	4		20
Bromochloromethane	103		101		70-130	2		20
Tetrahydrofuran	118		113		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15 Batch: WG1284521-3 WG1284521-4								
2,2-Dichloropropane	103		100		70-130	3		20
1,2-Dibromoethane	100		97		70-130	3		20
1,3-Dichloropropane	101		97		70-130	4		20
1,1,1,2-Tetrachloroethane	98		94		70-130	4		20
Bromobenzene	94		90		70-130	4		20
n-Butylbenzene	97		91		70-130	6		20
sec-Butylbenzene	93		89		70-130	4		20
tert-Butylbenzene	92		86		70-130	7		20
o-Chlorotoluene	94		89		70-130	5		20
p-Chlorotoluene	92		88		70-130	4		20
1,2-Dibromo-3-chloropropane	96		92		70-130	4		20
Hexachlorobutadiene	95		90		70-130	5		20
Isopropylbenzene	90		85		70-130	6		20
p-Isopropyltoluene	93		88		70-130	6		20
Naphthalene	90		87		70-130	3		20
n-Propylbenzene	94		88		70-130	7		20
1,2,3-Trichlorobenzene	98		93		70-130	5		20
1,2,4-Trichlorobenzene	99		93		70-130	6		20
1,3,5-Trimethylbenzene	92		88		70-130	4		20
1,2,4-Trimethylbenzene	92		88		70-130	4		20
Diethyl ether	80		79		70-130	1		20
Diisopropyl Ether	100		98		70-130	2		20
Ethyl-Tert-Butyl-Ether	98		94		70-130	4		20

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15 Batch: WG1284521-3 WG1284521-4								
Tertiary-Amyl Methyl Ether	91		89		70-130	2		20
1,4-Dioxane	88		88		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	91		92		70-130
4-Bromofluorobenzene	89		86		70-130
Dibromofluoromethane	100		99		70-130



Lab Control Sample Analysis

Batch Quality Control

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Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 27,44-45 Batch: WG1284565-3 WG1284565-4								
Methylene chloride	80		78		70-130	3		20
1,1-Dichloroethane	94		91		70-130	3		20
Chloroform	92		89		70-130	3		20
Carbon tetrachloride	94		91		70-130	3		20
1,2-Dichloropropane	89		88		70-130	1		20
Dibromochloromethane	91		90		70-130	1		20
1,1,2-Trichloroethane	86		83		70-130	4		20
Tetrachloroethene	94		90		70-130	4		20
Chlorobenzene	92		90		70-130	2		20
Trichlorofluoromethane	95		91		70-130	4		20
1,2-Dichloroethane	90		88		70-130	2		20
1,1,1-Trichloroethane	96		93		70-130	3		20
Bromodichloromethane	91		90		70-130	1		20
trans-1,3-Dichloropropene	90		88		70-130	2		20
cis-1,3-Dichloropropene	88		86		70-130	2		20
1,1-Dichloropropene	92		89		70-130	3		20
Bromoform	80		78		70-130	3		20
1,1,2,2-Tetrachloroethane	84		85		70-130	1		20
Benzene	89		87		70-130	2		20
Toluene	92		88		70-130	4		20
Ethylbenzene	93		91		70-130	2		20
Chloromethane	112		109		70-130	3		20
Bromomethane	99		86		70-130	14		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

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Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 27,44-45 Batch: WG1284565-3 WG1284565-4								
Vinyl chloride	95		90		70-130	5		20
Chloroethane	87		83		70-130	5		20
1,1-Dichloroethene	91		87		70-130	4		20
trans-1,2-Dichloroethene	92		87		70-130	6		20
Trichloroethene	91		88		70-130	3		20
1,2-Dichlorobenzene	89		88		70-130	1		20
1,3-Dichlorobenzene	93		90		70-130	3		20
1,4-Dichlorobenzene	92		90		70-130	2		20
Methyl tert butyl ether	79		78		70-130	1		20
p/m-Xylene	95		92		70-130	3		20
o-Xylene	92		89		70-130	3		20
cis-1,2-Dichloroethene	88		85		70-130	3		20
Dibromomethane	86		84		70-130	2		20
1,2,3-Trichloropropane	82		83		70-130	1		20
Styrene	93		90		70-130	3		20
Dichlorodifluoromethane	100		97		70-130	3		20
Acetone	101		105		70-130	4		20
Carbon disulfide	88		84		70-130	5		20
Methyl ethyl ketone	88		94		70-130	7		20
Methyl isobutyl ketone	79		83		70-130	5		20
2-Hexanone	90		92		70-130	2		20
Bromochloromethane	89		86		70-130	3		20
Tetrahydrofuran	94		95		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 27,44-45 Batch: WG1284565-3 WG1284565-4								
2,2-Dichloropropane	91		88		70-130	3		20
1,2-Dibromoethane	87		86		70-130	1		20
1,3-Dichloropropane	85		84		70-130	1		20
1,1,1,2-Tetrachloroethane	95		91		70-130	4		20
Bromobenzene	86		85		70-130	1		20
n-Butylbenzene	98		96		70-130	2		20
sec-Butylbenzene	95		92		70-130	3		20
tert-Butylbenzene	92		90		70-130	2		20
o-Chlorotoluene	94		90		70-130	4		20
p-Chlorotoluene	94		93		70-130	1		20
1,2-Dibromo-3-chloropropane	74		78		70-130	5		20
Hexachlorobutadiene	86		85		70-130	1		20
Isopropylbenzene	94		90		70-130	4		20
p-Isopropyltoluene	95		92		70-130	3		20
Naphthalene	82		83		70-130	1		20
n-Propylbenzene	95		93		70-130	2		20
1,2,3-Trichlorobenzene	87		86		70-130	1		20
1,2,4-Trichlorobenzene	92		90		70-130	2		20
1,3,5-Trimethylbenzene	94		92		70-130	2		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20
Diethyl ether	80		80		70-130	0		20
Diisopropyl Ether	102		101		70-130	1		20
Ethyl-Tert-Butyl-Ether	86		85		70-130	1		20

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 27,44-45 Batch: WG1284565-3 WG1284565-4								
Tertiary-Amyl Methyl Ether	77		76		70-130	1		20
1,4-Dioxane	96		98		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		100		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	95		97		70-130



Lab Control Sample Analysis

Batch Quality Control

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Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12,50,113 Batch: WG1284596-3 WG1284596-4								
Methylene chloride	89		91		70-130	2		20
1,1-Dichloroethane	104		105		70-130	1		20
Chloroform	101		103		70-130	2		20
Carbon tetrachloride	102		102		70-130	0		20
1,2-Dichloropropane	100		102		70-130	2		20
Dibromochloromethane	98		102		70-130	4		20
1,1,2-Trichloroethane	93		96		70-130	3		20
Tetrachloroethene	98		99		70-130	1		20
Chlorobenzene	99		101		70-130	2		20
Trichlorofluoromethane	103		103		70-130	0		20
1,2-Dichloroethane	100		104		70-130	4		20
1,1,1-Trichloroethane	105		106		70-130	1		20
Bromodichloromethane	101		103		70-130	2		20
trans-1,3-Dichloropropene	99		101		70-130	2		20
cis-1,3-Dichloropropene	98		100		70-130	2		20
1,1-Dichloropropene	101		101		70-130	0		20
Bromoform	87		90		70-130	3		20
1,1,2,2-Tetrachloroethane	96		99		70-130	3		20
Benzene	98		100		70-130	2		20
Toluene	99		98		70-130	1		20
Ethylbenzene	100		102		70-130	2		20
Chloromethane	128		127		70-130	1		20
Bromomethane	96		94		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

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Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12,50,113 Batch: WG1284596-3 WG1284596-4								
Vinyl chloride	104		107		70-130	3		20
Chloroethane	96		95		70-130	1		20
1,1-Dichloroethene	98		98		70-130	0		20
trans-1,2-Dichloroethene	98		99		70-130	1		20
Trichloroethene	100		102		70-130	2		20
1,2-Dichlorobenzene	97		100		70-130	3		20
1,3-Dichlorobenzene	99		102		70-130	3		20
1,4-Dichlorobenzene	100		102		70-130	2		20
Methyl tert butyl ether	90		91		70-130	1		20
p/m-Xylene	101		103		70-130	2		20
o-Xylene	98		101		70-130	3		20
cis-1,2-Dichloroethene	97		97		70-130	0		20
Dibromomethane	94		97		70-130	3		20
1,2,3-Trichloropropane	93		98		70-130	5		20
Styrene	100		102		70-130	2		20
Dichlorodifluoromethane	110		109		70-130	1		20
Acetone	121		118		70-130	3		20
Carbon disulfide	96		95		70-130	1		20
Methyl ethyl ketone	104		114		70-130	9		20
Methyl isobutyl ketone	96		99		70-130	3		20
2-Hexanone	107		110		70-130	3		20
Bromochloromethane	97		96		70-130	1		20
Tetrahydrofuran	110		116		70-130	5		20

Lab Control Sample Analysis

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Lab Number: L1940717

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Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12,50,113 Batch: WG1284596-3 WG1284596-4								
2,2-Dichloropropane	100		101		70-130	1		20
1,2-Dibromoethane	95		99		70-130	4		20
1,3-Dichloropropane	94		98		70-130	4		20
1,1,1,2-Tetrachloroethane	101		102		70-130	1		20
Bromobenzene	92		95		70-130	3		20
n-Butylbenzene	108		111		70-130	3		20
sec-Butylbenzene	102		105		70-130	3		20
tert-Butylbenzene	100		102		70-130	2		20
o-Chlorotoluene	102		105		70-130	3		20
p-Chlorotoluene	103		106		70-130	3		20
1,2-Dibromo-3-chloropropane	84		91		70-130	8		20
Hexachlorobutadiene	91		93		70-130	2		20
Isopropylbenzene	101		103		70-130	2		20
p-Isopropyltoluene	104		106		70-130	2		20
Naphthalene	91		97		70-130	6		20
n-Propylbenzene	104		106		70-130	2		20
1,2,3-Trichlorobenzene	96		97		70-130	1		20
1,2,4-Trichlorobenzene	98		100		70-130	2		20
1,3,5-Trimethylbenzene	102		104		70-130	2		20
1,2,4-Trimethylbenzene	103		105		70-130	2		20
Diethyl ether	89		92		70-130	3		20
Diisopropyl Ether	118		120		70-130	2		20
Ethyl-Tert-Butyl-Ether	97		100		70-130	3		20

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
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Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12,50,113 Batch: WG1284596-3 WG1284596-4								
Tertiary-Amyl Methyl Ether	86		88		70-130	2		20
1,4-Dioxane	88		95		70-130	8		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		103		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	97		98		70-130



Lab Control Sample Analysis

Batch Quality Control

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Parameter	LCS	Qual	LCS	Qual	%Recovery	RPD	Qual	RPD
	%Recovery		%Recovery		Limits			Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11,55-56,101,115,138-139,143 Batch: WG1284598-3 WG1284598-4								
Methylene chloride	89		91		70-130	2		20
1,1-Dichloroethane	104		105		70-130	1		20
Chloroform	101		103		70-130	2		20
Carbon tetrachloride	102		102		70-130	0		20
1,2-Dichloropropane	100		102		70-130	2		20
Dibromochloromethane	98		102		70-130	4		20
1,1,2-Trichloroethane	93		96		70-130	3		20
Tetrachloroethene	98		99		70-130	1		20
Chlorobenzene	99		101		70-130	2		20
Trichlorofluoromethane	103		103		70-130	0		20
1,2-Dichloroethane	100		104		70-130	4		20
1,1,1-Trichloroethane	105		106		70-130	1		20
Bromodichloromethane	101		103		70-130	2		20
trans-1,3-Dichloropropene	99		101		70-130	2		20
cis-1,3-Dichloropropene	98		100		70-130	2		20
1,1-Dichloropropene	101		101		70-130	0		20
Bromoform	87		90		70-130	3		20
1,1,2,2-Tetrachloroethane	96		99		70-130	3		20
Benzene	98		100		70-130	2		20
Toluene	99		98		70-130	1		20
Ethylbenzene	100		102		70-130	2		20
Chloromethane	128		127		70-130	1		20
Bromomethane	96		94		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11,55-56,101,115,138-139,143 Batch: WG1284598-3 WG1284598-4								
Vinyl chloride	104		107		70-130	3		20
Chloroethane	96		95		70-130	1		20
1,1-Dichloroethene	98		98		70-130	0		20
trans-1,2-Dichloroethene	98		99		70-130	1		20
Trichloroethene	100		102		70-130	2		20
1,2-Dichlorobenzene	97		100		70-130	3		20
1,3-Dichlorobenzene	99		102		70-130	3		20
1,4-Dichlorobenzene	100		102		70-130	2		20
Methyl tert butyl ether	90		91		70-130	1		20
p/m-Xylene	101		103		70-130	2		20
o-Xylene	98		101		70-130	3		20
cis-1,2-Dichloroethene	97		97		70-130	0		20
Dibromomethane	94		97		70-130	3		20
1,2,3-Trichloropropane	93		98		70-130	5		20
Styrene	100		102		70-130	2		20
Dichlorodifluoromethane	110		109		70-130	1		20
Acetone	121		118		70-130	3		20
Carbon disulfide	96		95		70-130	1		20
Methyl ethyl ketone	104		114		70-130	9		20
Methyl isobutyl ketone	96		99		70-130	3		20
2-Hexanone	107		110		70-130	3		20
Bromochloromethane	97		96		70-130	1		20
Tetrahydrofuran	110		116		70-130	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11,55-56,101,115,138-139,143 Batch: WG1284598-3 WG1284598-4								
2,2-Dichloropropane	100		101		70-130	1		20
1,2-Dibromoethane	95		99		70-130	4		20
1,3-Dichloropropane	94		98		70-130	4		20
1,1,1,2-Tetrachloroethane	101		102		70-130	1		20
Bromobenzene	92		95		70-130	3		20
n-Butylbenzene	108		111		70-130	3		20
sec-Butylbenzene	102		105		70-130	3		20
tert-Butylbenzene	100		102		70-130	2		20
o-Chlorotoluene	102		105		70-130	3		20
p-Chlorotoluene	103		106		70-130	3		20
1,2-Dibromo-3-chloropropane	84		91		70-130	8		20
Hexachlorobutadiene	91		93		70-130	2		20
Isopropylbenzene	101		103		70-130	2		20
p-Isopropyltoluene	104		106		70-130	2		20
Naphthalene	91		97		70-130	6		20
n-Propylbenzene	104		106		70-130	2		20
1,2,3-Trichlorobenzene	96		97		70-130	1		20
1,2,4-Trichlorobenzene	98		100		70-130	2		20
1,3,5-Trimethylbenzene	102		104		70-130	2		20
1,2,4-Trimethylbenzene	103		105		70-130	2		20
Diethyl ether	89		92		70-130	3		20
Diisopropyl Ether	118		120		70-130	2		20
Ethyl-Tert-Butyl-Ether	97		100		70-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11,55-56,101,115,138-139,143 Batch: WG1284598-3 WG1284598-4								
Tertiary-Amyl Methyl Ether	86		88		70-130	2		20
1,4-Dioxane	88		95		70-130	8		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		103		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 44 Batch: WG1284780-3 WG1284780-4								
Methylene chloride	90		93		70-130	3		20
1,1-Dichloroethane	107		108		70-130	1		20
Chloroform	105		107		70-130	2		20
Carbon tetrachloride	107		109		70-130	2		20
1,2-Dichloropropane	104		106		70-130	2		20
Dibromochloromethane	104		106		70-130	2		20
1,1,2-Trichloroethane	98		100		70-130	2		20
Tetrachloroethene	102		103		70-130	1		20
Chlorobenzene	103		104		70-130	1		20
Trichlorofluoromethane	106		106		70-130	0		20
1,2-Dichloroethane	105		108		70-130	3		20
1,1,1-Trichloroethane	109		111		70-130	2		20
Bromodichloromethane	106		110		70-130	4		20
trans-1,3-Dichloropropene	103		105		70-130	2		20
cis-1,3-Dichloropropene	102		104		70-130	2		20
1,1-Dichloropropene	104		108		70-130	4		20
Bromoform	91		95		70-130	4		20
1,1,1,2-Tetrachloroethane	100		104		70-130	4		20
Benzene	101		103		70-130	2		20
Toluene	101		103		70-130	2		20
Ethylbenzene	105		107		70-130	2		20
Chloromethane	113		113		70-130	0		20
Bromomethane	93		89		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 44 Batch: WG1284780-3 WG1284780-4								
Vinyl chloride	96		100		70-130	4		20
Chloroethane	94		94		70-130	0		20
1,1-Dichloroethene	100		101		70-130	1		20
trans-1,2-Dichloroethene	101		102		70-130	1		20
Trichloroethene	104		105		70-130	1		20
1,2-Dichlorobenzene	100		102		70-130	2		20
1,3-Dichlorobenzene	102		105		70-130	3		20
1,4-Dichlorobenzene	102		104		70-130	2		20
Methyl tert butyl ether	92		94		70-130	2		20
p/m-Xylene	106		107		70-130	1		20
o-Xylene	102		104		70-130	2		20
cis-1,2-Dichloroethene	98		100		70-130	2		20
Dibromomethane	98		102		70-130	4		20
1,2,3-Trichloropropane	97		102		70-130	5		20
Styrene	104		106		70-130	2		20
Dichlorodifluoromethane	84		83		70-130	1		20
Acetone	121		134	Q	70-130	10		20
Carbon disulfide	94		96		70-130	2		20
Methyl ethyl ketone	112		112		70-130	0		20
Methyl isobutyl ketone	97		102		70-130	5		20
2-Hexanone	110		114		70-130	4		20
Bromochloromethane	100		102		70-130	2		20
Tetrahydrofuran	116		120		70-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 44 Batch: WG1284780-3 WG1284780-4								
2,2-Dichloropropane	103		105		70-130	2		20
1,2-Dibromoethane	100		102		70-130	2		20
1,3-Dichloropropane	99		101		70-130	2		20
1,1,1,2-Tetrachloroethane	106		108		70-130	2		20
Bromobenzene	95		98		70-130	3		20
n-Butylbenzene	109		112		70-130	3		20
sec-Butylbenzene	105		108		70-130	3		20
tert-Butylbenzene	102		105		70-130	3		20
o-Chlorotoluene	104		107		70-130	3		20
p-Chlorotoluene	106		109		70-130	3		20
1,2-Dibromo-3-chloropropane	88		93		70-130	6		20
Hexachlorobutadiene	88		90		70-130	2		20
Isopropylbenzene	104		107		70-130	3		20
p-Isopropyltoluene	105		108		70-130	3		20
Naphthalene	96		99		70-130	3		20
n-Propylbenzene	107		109		70-130	2		20
1,2,3-Trichlorobenzene	97		98		70-130	1		20
1,2,4-Trichlorobenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	104		107		70-130	3		20
1,2,4-Trimethylbenzene	105		108		70-130	3		20
Diethyl ether	92		93		70-130	1		20
Diisopropyl Ether	122		124		70-130	2		20
Ethyl-Tert-Butyl-Ether	100		103		70-130	3		20

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 44 Batch: WG1284780-3 WG1284780-4								
Tertiary-Amyl Methyl Ether	90		94		70-130	4		20
1,4-Dioxane	88		90		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		104		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18,105,140 Batch: WG1284781-3 WG1284781-4								
Methylene chloride	90		93		70-130	3		20
1,1-Dichloroethane	107		108		70-130	1		20
Chloroform	105		107		70-130	2		20
Carbon tetrachloride	107		109		70-130	2		20
1,2-Dichloropropane	104		106		70-130	2		20
Dibromochloromethane	104		106		70-130	2		20
1,1,2-Trichloroethane	98		100		70-130	2		20
Tetrachloroethene	102		103		70-130	1		20
Chlorobenzene	103		104		70-130	1		20
Trichlorofluoromethane	106		106		70-130	0		20
1,2-Dichloroethane	105		108		70-130	3		20
1,1,1-Trichloroethane	109		111		70-130	2		20
Bromodichloromethane	106		110		70-130	4		20
trans-1,3-Dichloropropene	103		105		70-130	2		20
cis-1,3-Dichloropropene	102		104		70-130	2		20
1,1-Dichloropropene	104		108		70-130	4		20
Bromoform	91		95		70-130	4		20
1,1,2,2-Tetrachloroethane	100		104		70-130	4		20
Benzene	101		103		70-130	2		20
Toluene	101		103		70-130	2		20
Ethylbenzene	105		107		70-130	2		20
Chloromethane	113		113		70-130	0		20
Bromomethane	93		89		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18,105,140 Batch: WG1284781-3 WG1284781-4								
Vinyl chloride	96		100		70-130	4		20
Chloroethane	94		94		70-130	0		20
1,1-Dichloroethene	100		101		70-130	1		20
trans-1,2-Dichloroethene	101		102		70-130	1		20
Trichloroethene	104		105		70-130	1		20
1,2-Dichlorobenzene	100		102		70-130	2		20
1,3-Dichlorobenzene	102		105		70-130	3		20
1,4-Dichlorobenzene	102		104		70-130	2		20
Methyl tert butyl ether	92		94		70-130	2		20
p/m-Xylene	106		107		70-130	1		20
o-Xylene	102		104		70-130	2		20
cis-1,2-Dichloroethene	98		100		70-130	2		20
Dibromomethane	98		102		70-130	4		20
1,2,3-Trichloropropane	97		102		70-130	5		20
Styrene	104		106		70-130	2		20
Dichlorodifluoromethane	84		83		70-130	1		20
Acetone	121		134	Q	70-130	10		20
Carbon disulfide	94		96		70-130	2		20
Methyl ethyl ketone	112		112		70-130	0		20
Methyl isobutyl ketone	97		102		70-130	5		20
2-Hexanone	110		114		70-130	4		20
Bromochloromethane	100		102		70-130	2		20
Tetrahydrofuran	116		120		70-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18,105,140 Batch: WG1284781-3 WG1284781-4								
2,2-Dichloropropane	103		105		70-130	2		20
1,2-Dibromoethane	100		102		70-130	2		20
1,3-Dichloropropane	99		101		70-130	2		20
1,1,1,2-Tetrachloroethane	106		108		70-130	2		20
Bromobenzene	95		98		70-130	3		20
n-Butylbenzene	109		112		70-130	3		20
sec-Butylbenzene	105		108		70-130	3		20
tert-Butylbenzene	102		105		70-130	3		20
o-Chlorotoluene	104		107		70-130	3		20
p-Chlorotoluene	106		109		70-130	3		20
1,2-Dibromo-3-chloropropane	88		93		70-130	6		20
Hexachlorobutadiene	88		90		70-130	2		20
Isopropylbenzene	104		107		70-130	3		20
p-Isopropyltoluene	105		108		70-130	3		20
Naphthalene	96		99		70-130	3		20
n-Propylbenzene	107		109		70-130	2		20
1,2,3-Trichlorobenzene	97		98		70-130	1		20
1,2,4-Trichlorobenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	104		107		70-130	3		20
1,2,4-Trimethylbenzene	105		108		70-130	3		20
Diethyl ether	92		93		70-130	1		20
Diisopropyl Ether	122		124		70-130	2		20
Ethyl-Tert-Butyl-Ether	100		103		70-130	3		20

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18,105,140 Batch: WG1284781-3 WG1284781-4								
Tertiary-Amyl Methyl Ether	90		94		70-130	4		20
1,4-Dioxane	88		90		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		104		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	97		96		70-130
Dibromofluoromethane	97		98		70-130



Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

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Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 138,143 Batch: WG1284929-3 WG1284929-4								
Methylene chloride	92		92		70-130	0		20
1,1-Dichloroethane	110		109		70-130	1		20
Chloroform	107		106		70-130	1		20
Carbon tetrachloride	108		109		70-130	1		20
1,2-Dichloropropane	101		104		70-130	3		20
Dibromochloromethane	100		100		70-130	0		20
1,1,2-Trichloroethane	96		97		70-130	1		20
Tetrachloroethene	103		103		70-130	0		20
Chlorobenzene	103		103		70-130	0		20
Trichlorofluoromethane	112		110		70-130	2		20
1,2-Dichloroethane	103		104		70-130	1		20
1,1,1-Trichloroethane	111		110		70-130	1		20
Bromodichloromethane	105		105		70-130	0		20
trans-1,3-Dichloropropene	99		101		70-130	2		20
cis-1,3-Dichloropropene	99		101		70-130	2		20
1,1-Dichloropropene	109		108		70-130	1		20
Bromoform	85		86		70-130	1		20
1,1,2,2-Tetrachloroethane	97		99		70-130	2		20
Benzene	104		103		70-130	1		20
Toluene	103		104		70-130	1		20
Ethylbenzene	107		106		70-130	1		20
Chloromethane	137	Q	138	Q	70-130	1		20
Bromomethane	104		98		70-130	6		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 138,143 Batch: WG1284929-3 WG1284929-4								
Vinyl chloride	116		113		70-130	3		20
Chloroethane	103		102		70-130	1		20
1,1-Dichloroethene	106		106		70-130	0		20
trans-1,2-Dichloroethene	106		104		70-130	2		20
Trichloroethene	106		106		70-130	0		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	103		103		70-130	0		20
1,4-Dichlorobenzene	102		102		70-130	0		20
Methyl tert butyl ether	88		89		70-130	1		20
p/m-Xylene	106		107		70-130	1		20
o-Xylene	103		103		70-130	0		20
cis-1,2-Dichloroethene	101		102		70-130	1		20
Dibromomethane	95		96		70-130	1		20
1,2,3-Trichloropropane	95		98		70-130	3		20
Styrene	103		103		70-130	0		20
Dichlorodifluoromethane	119		118		70-130	1		20
Acetone	133	Q	137	Q	70-130	3		20
Carbon disulfide	103		102		70-130	1		20
Methyl ethyl ketone	113		116		70-130	3		20
Methyl isobutyl ketone	95		97		70-130	2		20
2-Hexanone	107		112		70-130	5		20
Bromochloromethane	97		96		70-130	1		20
Tetrahydrofuran	113		118		70-130	4		20

Lab Control Sample Analysis

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Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 138,143 Batch: WG1284929-3 WG1284929-4								
2,2-Dichloropropane	106		105		70-130	1		20
1,2-Dibromoethane	95		96		70-130	1		20
1,3-Dichloropropane	95		96		70-130	1		20
1,1,1,2-Tetrachloroethane	103		103		70-130	0		20
Bromobenzene	96		97		70-130	1		20
n-Butylbenzene	115		116		70-130	1		20
sec-Butylbenzene	111		111		70-130	0		20
tert-Butylbenzene	105		106		70-130	1		20
o-Chlorotoluene	107		108		70-130	1		20
p-Chlorotoluene	107		109		70-130	2		20
1,2-Dibromo-3-chloropropane	85		91		70-130	7		20
Hexachlorobutadiene	97		100		70-130	3		20
Isopropylbenzene	107		107		70-130	0		20
p-Isopropyltoluene	109		110		70-130	1		20
Naphthalene	91		94		70-130	3		20
n-Propylbenzene	110		110		70-130	0		20
1,2,3-Trichlorobenzene	94		94		70-130	0		20
1,2,4-Trichlorobenzene	97		98		70-130	1		20
1,3,5-Trimethylbenzene	108		108		70-130	0		20
1,2,4-Trimethylbenzene	107		108		70-130	1		20
Diethyl ether	90		91		70-130	1		20
Diisopropyl Ether	120		120		70-130	0		20
Ethyl-Tert-Butyl-Ether	97		98		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 138,143 Batch: WG1284929-3 WG1284929-4								
Tertiary-Amyl Methyl Ether	85		86		70-130	1		20
1,4-Dioxane	94		97		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		102		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	97		95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 27 Batch: WG1285102-3 WG1285102-4								
Methylene chloride	93		94		70-130	1		20
1,1-Dichloroethane	99		99		70-130	0		20
Chloroform	97		98		70-130	1		20
Carbon tetrachloride	98		99		70-130	1		20
1,2-Dichloropropane	95		96		70-130	1		20
Dibromochloromethane	94		96		70-130	2		20
1,1,2-Trichloroethane	88		91		70-130	3		20
Tetrachloroethene	97		95		70-130	2		20
Chlorobenzene	94		96		70-130	2		20
Trichlorofluoromethane	99		98		70-130	1		20
1,2-Dichloroethane	97		98		70-130	1		20
1,1,1-Trichloroethane	102		102		70-130	0		20
Bromodichloromethane	97		99		70-130	2		20
trans-1,3-Dichloropropene	93		95		70-130	2		20
cis-1,3-Dichloropropene	94		96		70-130	2		20
1,1-Dichloropropene	98		98		70-130	0		20
Bromoform	84		85		70-130	1		20
1,1,2,2-Tetrachloroethane	89		91		70-130	2		20
Benzene	94		95		70-130	1		20
Toluene	92		94		70-130	2		20
Ethylbenzene	96		96		70-130	0		20
Chloromethane	118		118		70-130	0		20
Bromomethane	90		89		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 27 Batch: WG1285102-3 WG1285102-4								
Vinyl chloride	99		98		70-130	1		20
Chloroethane	92		89		70-130	3		20
1,1-Dichloroethene	96		96		70-130	0		20
trans-1,2-Dichloroethene	96		96		70-130	0		20
Trichloroethene	96		97		70-130	1		20
1,2-Dichlorobenzene	92		93		70-130	1		20
1,3-Dichlorobenzene	94		95		70-130	1		20
1,4-Dichlorobenzene	94		94		70-130	0		20
Methyl tert butyl ether	86		88		70-130	2		20
p/m-Xylene	97		98		70-130	1		20
o-Xylene	94		95		70-130	1		20
cis-1,2-Dichloroethene	93		94		70-130	1		20
Dibromomethane	93		92		70-130	1		20
1,2,3-Trichloropropane	88		89		70-130	1		20
Styrene	94		96		70-130	2		20
Dichlorodifluoromethane	102		100		70-130	2		20
Acetone	112		115		70-130	3		20
Carbon disulfide	93		93		70-130	0		20
Methyl ethyl ketone	99		104		70-130	5		20
Methyl isobutyl ketone	89		92		70-130	3		20
2-Hexanone	100		102		70-130	2		20
Bromochloromethane	95		95		70-130	0		20
Tetrahydrofuran	104		109		70-130	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 27 Batch: WG1285102-3 WG1285102-4								
2,2-Dichloropropane	97		97		70-130	0		20
1,2-Dibromoethane	92		94		70-130	2		20
1,3-Dichloropropane	89		91		70-130	2		20
1,1,1,2-Tetrachloroethane	97		98		70-130	1		20
Bromobenzene	88		89		70-130	1		20
n-Butylbenzene	97		97		70-130	0		20
sec-Butylbenzene	94		95		70-130	1		20
tert-Butylbenzene	93		93		70-130	0		20
o-Chlorotoluene	94		95		70-130	1		20
p-Chlorotoluene	96		96		70-130	0		20
1,2-Dibromo-3-chloropropane	84		85		70-130	1		20
Hexachlorobutadiene	83		83		70-130	0		20
Isopropylbenzene	95		94		70-130	1		20
p-Isopropyltoluene	94		95		70-130	1		20
Naphthalene	88		89		70-130	1		20
n-Propylbenzene	96		97		70-130	1		20
1,2,3-Trichlorobenzene	88		90		70-130	2		20
1,2,4-Trichlorobenzene	92		92		70-130	0		20
1,3,5-Trimethylbenzene	95		95		70-130	0		20
1,2,4-Trimethylbenzene	95		96		70-130	1		20
Diethyl ether	88		88		70-130	0		20
Diisopropyl Ether	110		111		70-130	1		20
Ethyl-Tert-Butyl-Ether	93		95		70-130	2		20

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 27 Batch: WG1285102-3 WG1285102-4								
Tertiary-Amyl Methyl Ether	83		85		70-130	2		20
1,4-Dioxane	95		102		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		101		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	96		98		70-130



PETROLEUM HYDROCARBONS

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-101
 Client ID: B-09 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:54
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 08:56
 Analyst: MEO
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	14.1	--	2
C19-C36 Aliphatics	115		mg/kg	14.1	--	2
C11-C22 Aromatics	371		mg/kg	14.1	--	2
C11-C22 Aromatics, Adjusted	245		mg/kg	14.1	--	2
Naphthalene	ND		mg/kg	0.706	--	2
2-Methylnaphthalene	ND		mg/kg	0.706	--	2
Acenaphthylene	ND		mg/kg	0.706	--	2
Acenaphthene	1.02		mg/kg	0.706	--	2
Fluorene	1.14		mg/kg	0.706	--	2
Phenanthrene	13.2		mg/kg	0.706	--	2
Anthracene	3.58		mg/kg	0.706	--	2
Fluoranthene	22.8		mg/kg	0.706	--	2
Pyrene	19.1		mg/kg	0.706	--	2
Benzo(a)anthracene	10.3		mg/kg	0.706	--	2
Chrysene	10.8		mg/kg	0.706	--	2
Benzo(b)fluoranthene	9.48		mg/kg	0.706	--	2
Benzo(k)fluoranthene	9.16		mg/kg	0.706	--	2
Benzo(a)pyrene	10.0		mg/kg	0.706	--	2
Indeno(1,2,3-cd)Pyrene	6.97		mg/kg	0.706	--	2
Dibenzo(a,h)anthracene	1.90		mg/kg	0.706	--	2
Benzo(ghi)perylene	6.04		mg/kg	0.706	--	2

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-101

Date Collected: 09/05/19 09:54

Client ID: B-09 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	69		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	87		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-105 D
 Client ID: B-09 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:02
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/16/19 16:38
 Analyst: MEO
 Percent Solids: 92%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	27.5	--	4
C19-C36 Aliphatics	136		mg/kg	27.5	--	4
C11-C22 Aromatics	503		mg/kg	27.5	--	4
C11-C22 Aromatics, Adjusted	315		mg/kg	27.5	--	4
Naphthalene	ND		mg/kg	1.37	--	4
2-Methylnaphthalene	ND		mg/kg	1.37	--	4
Acenaphthylene	ND		mg/kg	1.37	--	4
Acenaphthene	2.13		mg/kg	1.37	--	4
Fluorene	2.42		mg/kg	1.37	--	4
Phenanthrene	21.7		mg/kg	1.37	--	4
Anthracene	6.27		mg/kg	1.37	--	4
Fluoranthene	34.7		mg/kg	1.37	--	4
Pyrene	28.9		mg/kg	1.37	--	4
Benzo(a)anthracene	15.5		mg/kg	1.37	--	4
Chrysene	15.9		mg/kg	1.37	--	4
Benzo(b)fluoranthene	13.7		mg/kg	1.37	--	4
Benzo(k)fluoranthene	13.1		mg/kg	1.37	--	4
Benzo(a)pyrene	13.8		mg/kg	1.37	--	4
Indeno(1,2,3-cd)Pyrene	9.12		mg/kg	1.37	--	4
Dibenzo(a,h)anthracene	2.60		mg/kg	1.37	--	4
Benzo(ghi)perylene	7.64		mg/kg	1.37	--	4



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-105 D

Date Collected: 09/05/19 10:02

Client ID: B-09 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	54		40-140
o-Terphenyl	64		40-140
2-Fluorobiphenyl	77		40-140
2-Bromonaphthalene	76		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-11
 Client ID: SB-4 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:50
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 03:15
 Analyst: MEO
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.74	--	1
C19-C36 Aliphatics	ND		mg/kg	6.74	--	1
C11-C22 Aromatics	12.6		mg/kg	6.74	--	1
C11-C22 Aromatics, Adjusted	11.7		mg/kg	6.74	--	1
Naphthalene	ND		mg/kg	0.337	--	1
2-Methylnaphthalene	ND		mg/kg	0.337	--	1
Acenaphthylene	ND		mg/kg	0.337	--	1
Acenaphthene	ND		mg/kg	0.337	--	1
Fluorene	ND		mg/kg	0.337	--	1
Phenanthrene	ND		mg/kg	0.337	--	1
Anthracene	ND		mg/kg	0.337	--	1
Fluoranthene	0.418		mg/kg	0.337	--	1
Pyrene	0.395		mg/kg	0.337	--	1
Benzo(a)anthracene	ND		mg/kg	0.337	--	1
Chrysene	ND		mg/kg	0.337	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.337	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.337	--	1
Benzo(a)pyrene	ND		mg/kg	0.337	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.337	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.337	--	1
Benzo(ghi)perylene	ND		mg/kg	0.337	--	1



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-11

Date Collected: 09/04/19 08:50

Client ID: SB-4 (1-2)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	56		40-140
o-Terphenyl	58		40-140
2-Fluorobiphenyl	74		40-140
2-Bromonaphthalene	73		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-113 D
 Client ID: B-05 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:54
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/16/19 15:20
 Analyst: MEO
 Percent Solids: 87%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:55
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	36.4	--	5
C19-C36 Aliphatics	57.2		mg/kg	36.4	--	5
C11-C22 Aromatics	408		mg/kg	36.4	--	5
C11-C22 Aromatics, Adjusted	252		mg/kg	36.4	--	5
Naphthalene	ND		mg/kg	1.82	--	5
2-Methylnaphthalene	ND		mg/kg	1.82	--	5
Acenaphthylene	ND		mg/kg	1.82	--	5
Acenaphthene	2.25		mg/kg	1.82	--	5
Fluorene	2.56		mg/kg	1.82	--	5
Phenanthrene	26.6		mg/kg	1.82	--	5
Anthracene	7.11		mg/kg	1.82	--	5
Fluoranthene	29.9		mg/kg	1.82	--	5
Pyrene	24.4		mg/kg	1.82	--	5
Benzo(a)anthracene	12.7		mg/kg	1.82	--	5
Chrysene	12.5		mg/kg	1.82	--	5
Benzo(b)fluoranthene	8.56		mg/kg	1.82	--	5
Benzo(k)fluoranthene	8.82		mg/kg	1.82	--	5
Benzo(a)pyrene	9.76		mg/kg	1.82	--	5
Indeno(1,2,3-cd)Pyrene	5.97		mg/kg	1.82	--	5
Dibenzo(a,h)anthracene	ND		mg/kg	1.82	--	5
Benzo(ghi)perylene	5.06		mg/kg	1.82	--	5



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-113 D

Date Collected: 09/05/19 10:54

Client ID: B-05 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	74		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	82		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-115
 Client ID: B-05 (3-5)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:57
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 05:08
 Analyst: MEO
 Percent Solids: 69%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:55
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.33	--	1
C19-C36 Aliphatics	ND		mg/kg	9.33	--	1
C11-C22 Aromatics	64.4		mg/kg	9.33	--	1
C11-C22 Aromatics, Adjusted	48.8		mg/kg	9.33	--	1
Naphthalene	ND		mg/kg	0.466	--	1
2-Methylnaphthalene	ND		mg/kg	0.466	--	1
Acenaphthylene	ND		mg/kg	0.466	--	1
Acenaphthene	0.500		mg/kg	0.466	--	1
Fluorene	ND		mg/kg	0.466	--	1
Phenanthrene	2.60		mg/kg	0.466	--	1
Anthracene	0.490		mg/kg	0.466	--	1
Fluoranthene	2.74		mg/kg	0.466	--	1
Pyrene	2.34		mg/kg	0.466	--	1
Benzo(a)anthracene	1.14		mg/kg	0.466	--	1
Chrysene	1.33		mg/kg	0.466	--	1
Benzo(b)fluoranthene	1.04		mg/kg	0.466	--	1
Benzo(k)fluoranthene	1.07		mg/kg	0.466	--	1
Benzo(a)pyrene	1.07		mg/kg	0.466	--	1
Indeno(1,2,3-cd)Pyrene	0.719		mg/kg	0.466	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.466	--	1
Benzo(ghi)perylene	0.580		mg/kg	0.466	--	1



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-115

Date Collected: 09/05/19 10:57

Client ID: B-05 (3-5)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	62		40-140
o-Terphenyl	61		40-140
2-Fluorobiphenyl	70		40-140
2-Bromonaphthalene	69		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-12
 Client ID: SB-4 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:40
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 03:52
 Analyst: MEO
 Percent Solids: 93%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	6.80	--	1
C19-C36 Aliphatics	16.6		mg/kg	6.80	--	1
C11-C22 Aromatics	48.6		mg/kg	6.80	--	1
C11-C22 Aromatics, Adjusted	35.0		mg/kg	6.80	--	1
Naphthalene	ND		mg/kg	0.340	--	1
2-Methylnaphthalene	ND		mg/kg	0.340	--	1
Acenaphthylene	ND		mg/kg	0.340	--	1
Acenaphthene	ND		mg/kg	0.340	--	1
Fluorene	ND		mg/kg	0.340	--	1
Phenanthrene	0.759		mg/kg	0.340	--	1
Anthracene	ND		mg/kg	0.340	--	1
Fluoranthene	1.98		mg/kg	0.340	--	1
Pyrene	1.82		mg/kg	0.340	--	1
Benzo(a)anthracene	1.38		mg/kg	0.340	--	1
Chrysene	1.38		mg/kg	0.340	--	1
Benzo(b)fluoranthene	1.29		mg/kg	0.340	--	1
Benzo(k)fluoranthene	1.34		mg/kg	0.340	--	1
Benzo(a)pyrene	1.52		mg/kg	0.340	--	1
Indeno(1,2,3-cd)Pyrene	1.06		mg/kg	0.340	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.340	--	1
Benzo(ghi)perylene	0.982		mg/kg	0.340	--	1



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-12

Date Collected: 09/04/19 08:40

Client ID: SB-4 (2-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	59		40-140
o-Terphenyl	57		40-140
2-Fluorobiphenyl	68		40-140
2-Bromonaphthalene	67		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
 Client ID: SB-1 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 09:34
 Analyst: MEO
 Percent Solids: 92%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:55
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	13.8	--	2
C19-C36 Aliphatics	113		mg/kg	13.8	--	2
C11-C22 Aromatics	284		mg/kg	13.8	--	2
C11-C22 Aromatics, Adjusted	203		mg/kg	13.8	--	2
Naphthalene	ND		mg/kg	0.690	--	2
2-Methylnaphthalene	ND		mg/kg	0.690	--	2
Acenaphthylene	ND		mg/kg	0.690	--	2
Acenaphthene	1.31		mg/kg	0.690	--	2
Fluorene	1.10		mg/kg	0.690	--	2
Phenanthrene	12.3		mg/kg	0.690	--	2
Anthracene	2.75		mg/kg	0.690	--	2
Fluoranthene	14.6		mg/kg	0.690	--	2
Pyrene	12.6		mg/kg	0.690	--	2
Benzo(a)anthracene	6.30		mg/kg	0.690	--	2
Chrysene	6.78		mg/kg	0.690	--	2
Benzo(b)fluoranthene	4.96		mg/kg	0.690	--	2
Benzo(k)fluoranthene	5.25		mg/kg	0.690	--	2
Benzo(a)pyrene	5.73		mg/kg	0.690	--	2
Indeno(1,2,3-cd)Pyrene	3.58		mg/kg	0.690	--	2
Dibenzo(a,h)anthracene	1.11		mg/kg	0.690	--	2
Benzo(ghi)perylene	3.06		mg/kg	0.690	--	2

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-138

Date Collected: 09/05/19 13:36

Client ID: SB-1 (1-2)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	59		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	74		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-139 D
 Client ID: SB-1 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:39
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/16/19 15:59
 Analyst: MEO
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:55
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	71.7	--	10
C19-C36 Aliphatics	ND		mg/kg	71.7	--	10
C11-C22 Aromatics	460		mg/kg	71.7	--	10
C11-C22 Aromatics, Adjusted	271		mg/kg	71.7	--	10
Naphthalene	ND		mg/kg	3.58	--	10
2-Methylnaphthalene	ND		mg/kg	3.58	--	10
Acenaphthylene	ND		mg/kg	3.58	--	10
Acenaphthene	ND		mg/kg	3.58	--	10
Fluorene	ND		mg/kg	3.58	--	10
Phenanthrene	40.9		mg/kg	3.58	--	10
Anthracene	7.37		mg/kg	3.58	--	10
Fluoranthene	37.2		mg/kg	3.58	--	10
Pyrene	28.6		mg/kg	3.58	--	10
Benzo(a)anthracene	14.2		mg/kg	3.58	--	10
Chrysene	13.8		mg/kg	3.58	--	10
Benzo(b)fluoranthene	10.5		mg/kg	3.58	--	10
Benzo(k)fluoranthene	11.5		mg/kg	3.58	--	10
Benzo(a)pyrene	11.9		mg/kg	3.58	--	10
Indeno(1,2,3-cd)Pyrene	7.27		mg/kg	3.58	--	10
Dibenzo(a,h)anthracene	ND		mg/kg	3.58	--	10
Benzo(ghi)perylene	6.20		mg/kg	3.58	--	10



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-139 D

Date Collected: 09/05/19 13:39

Client ID: SB-1 (2-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	68		40-140
o-Terphenyl	74		40-140
2-Fluorobiphenyl	68		40-140
2-Bromonaphthalene	67		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-140
 Client ID: SB-DUP-1
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 12:46
 Analyst: MEO
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:55
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	13.9	--	2
C19-C36 Aliphatics	199		mg/kg	13.9	--	2
C11-C22 Aromatics	457		mg/kg	13.9	--	2
C11-C22 Aromatics, Adjusted	315		mg/kg	13.9	--	2
Naphthalene	0.919		mg/kg	0.696	--	2
2-Methylnaphthalene	ND		mg/kg	0.696	--	2
Acenaphthylene	ND		mg/kg	0.696	--	2
Acenaphthene	1.97		mg/kg	0.696	--	2
Fluorene	1.76		mg/kg	0.696	--	2
Phenanthrene	21.4		mg/kg	0.696	--	2
Anthracene	4.66		mg/kg	0.696	--	2
Fluoranthene	25.9		mg/kg	0.696	--	2
Pyrene	21.8		mg/kg	0.696	--	2
Benzo(a)anthracene	10.2		mg/kg	0.696	--	2
Chrysene	11.8		mg/kg	0.696	--	2
Benzo(b)fluoranthene	8.91		mg/kg	0.696	--	2
Benzo(k)fluoranthene	8.80		mg/kg	0.696	--	2
Benzo(a)pyrene	9.72		mg/kg	0.696	--	2
Indeno(1,2,3-cd)Pyrene	6.32		mg/kg	0.696	--	2
Dibenzo(a,h)anthracene	1.84		mg/kg	0.696	--	2
Benzo(ghi)perylene	5.53		mg/kg	0.696	--	2



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-140
 Client ID: SB-DUP-1
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	63		40-140
o-Terphenyl	84		40-140
2-Fluorobiphenyl	91		40-140
2-Bromonaphthalene	90		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
 Client ID: SB-1 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 20:54
 Analyst: SR
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 09/12/19 22:36
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/13/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.22	--	1
C19-C36 Aliphatics	98.5		mg/kg	8.22	--	1
C11-C22 Aromatics	79.3		mg/kg	8.22	--	1
C11-C22 Aromatics, Adjusted	59.3		mg/kg	8.22	--	1
Naphthalene	ND		mg/kg	0.411	--	1
2-Methylnaphthalene	ND		mg/kg	0.411	--	1
Acenaphthylene	ND		mg/kg	0.411	--	1
Acenaphthene	ND		mg/kg	0.411	--	1
Fluorene	ND		mg/kg	0.411	--	1
Phenanthrene	2.98		mg/kg	0.411	--	1
Anthracene	0.720		mg/kg	0.411	--	1
Fluoranthene	3.67		mg/kg	0.411	--	1
Pyrene	2.97		mg/kg	0.411	--	1
Benzo(a)anthracene	1.68		mg/kg	0.411	--	1
Chrysene	1.80		mg/kg	0.411	--	1
Benzo(b)fluoranthene	1.40		mg/kg	0.411	--	1
Benzo(k)fluoranthene	1.40		mg/kg	0.411	--	1
Benzo(a)pyrene	1.47		mg/kg	0.411	--	1
Indeno(1,2,3-cd)Pyrene	1.06		mg/kg	0.411	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.411	--	1
Benzo(ghi)perylene	0.901		mg/kg	0.411	--	1

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-143
 Client ID: SB-1 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	40		40-140
o-Terphenyl	57		40-140
2-Fluorobiphenyl	76		40-140
2-Bromonaphthalene	76		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
 Client ID: SB-4 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 05:46
 Analyst: MEO
 Percent Solids: 75%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.54	--	1
C19-C36 Aliphatics	18.1		mg/kg	8.54	--	1
C11-C22 Aromatics	21.9		mg/kg	8.54	--	1
C11-C22 Aromatics, Adjusted	21.9		mg/kg	8.54	--	1
Naphthalene	ND		mg/kg	0.427	--	1
2-Methylnaphthalene	ND		mg/kg	0.427	--	1
Acenaphthylene	ND		mg/kg	0.427	--	1
Acenaphthene	ND		mg/kg	0.427	--	1
Fluorene	ND		mg/kg	0.427	--	1
Phenanthrene	ND		mg/kg	0.427	--	1
Anthracene	ND		mg/kg	0.427	--	1
Fluoranthene	ND		mg/kg	0.427	--	1
Pyrene	ND		mg/kg	0.427	--	1
Benzo(a)anthracene	ND		mg/kg	0.427	--	1
Chrysene	ND		mg/kg	0.427	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.427	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.427	--	1
Benzo(a)pyrene	ND		mg/kg	0.427	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.427	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.427	--	1
Benzo(ghi)perylene	ND		mg/kg	0.427	--	1



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-15

Date Collected: 09/04/19 09:10

Client ID: SB-4 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	65		40-140
o-Terphenyl	61		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	74		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-17
 Client ID: SB-3 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:25
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 11:29
 Analyst: MEO
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	13.8	--	2
C19-C36 Aliphatics	90.0		mg/kg	13.8	--	2
C11-C22 Aromatics	149		mg/kg	13.8	--	2
C11-C22 Aromatics, Adjusted	130		mg/kg	13.8	--	2
Naphthalene	ND		mg/kg	0.689	--	2
2-Methylnaphthalene	ND		mg/kg	0.689	--	2
Acenaphthylene	ND		mg/kg	0.689	--	2
Acenaphthene	ND		mg/kg	0.689	--	2
Fluorene	ND		mg/kg	0.689	--	2
Phenanthrene	1.97		mg/kg	0.689	--	2
Anthracene	ND		mg/kg	0.689	--	2
Fluoranthene	3.15		mg/kg	0.689	--	2
Pyrene	2.77		mg/kg	0.689	--	2
Benzo(a)anthracene	1.54		mg/kg	0.689	--	2
Chrysene	1.80		mg/kg	0.689	--	2
Benzo(b)fluoranthene	1.54		mg/kg	0.689	--	2
Benzo(k)fluoranthene	1.62		mg/kg	0.689	--	2
Benzo(a)pyrene	1.65		mg/kg	0.689	--	2
Indeno(1,2,3-cd)Pyrene	1.17		mg/kg	0.689	--	2
Dibenzo(a,h)anthracene	ND		mg/kg	0.689	--	2
Benzo(ghi)perylene	1.01		mg/kg	0.689	--	2

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-17

Date Collected: 09/04/19 09:25

Client ID: SB-3 (1-2)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	56		40-140
o-Terphenyl	66		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	74		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-18
 Client ID: SB-3 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 08:18
 Analyst: MEO
 Percent Solids: 95%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	14.0	--	2
C19-C36 Aliphatics	50.9		mg/kg	14.0	--	2
C11-C22 Aromatics	195		mg/kg	14.0	--	2
C11-C22 Aromatics, Adjusted	137		mg/kg	14.0	--	2
Naphthalene	ND		mg/kg	0.699	--	2
2-Methylnaphthalene	ND		mg/kg	0.699	--	2
Acenaphthylene	ND		mg/kg	0.699	--	2
Acenaphthene	0.973		mg/kg	0.699	--	2
Fluorene	0.752		mg/kg	0.699	--	2
Phenanthrene	7.18		mg/kg	0.699	--	2
Anthracene	1.77		mg/kg	0.699	--	2
Fluoranthene	10.3		mg/kg	0.699	--	2
Pyrene	8.53		mg/kg	0.699	--	2
Benzo(a)anthracene	4.62		mg/kg	0.699	--	2
Chrysene	4.72		mg/kg	0.699	--	2
Benzo(b)fluoranthene	4.07		mg/kg	0.699	--	2
Benzo(k)fluoranthene	3.89		mg/kg	0.699	--	2
Benzo(a)pyrene	4.45		mg/kg	0.699	--	2
Indeno(1,2,3-cd)Pyrene	3.14		mg/kg	0.699	--	2
Dibenzo(a,h)anthracene	0.818		mg/kg	0.699	--	2
Benzo(ghi)perylene	2.82		mg/kg	0.699	--	2



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-18

Date Collected: 09/04/19 09:30

Client ID: SB-3 (2-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	62		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	71		40-140
2-Bromonaphthalene	71		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-21
 Client ID: SB-3 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:40
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 10:12
 Analyst: MEO
 Percent Solids: 83%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	15.8	--	2
C19-C36 Aliphatics	215		mg/kg	15.8	--	2
C11-C22 Aromatics	164		mg/kg	15.8	--	2
C11-C22 Aromatics, Adjusted	147		mg/kg	15.8	--	2
Naphthalene	ND		mg/kg	0.788	--	2
2-Methylnaphthalene	ND		mg/kg	0.788	--	2
Acenaphthylene	ND		mg/kg	0.788	--	2
Acenaphthene	ND		mg/kg	0.788	--	2
Fluorene	ND		mg/kg	0.788	--	2
Phenanthrene	2.01		mg/kg	0.788	--	2
Anthracene	ND		mg/kg	0.788	--	2
Fluoranthene	2.78		mg/kg	0.788	--	2
Pyrene	2.46		mg/kg	0.788	--	2
Benzo(a)anthracene	1.33		mg/kg	0.788	--	2
Chrysene	1.55		mg/kg	0.788	--	2
Benzo(b)fluoranthene	1.30		mg/kg	0.788	--	2
Benzo(k)fluoranthene	1.44		mg/kg	0.788	--	2
Benzo(a)pyrene	1.39		mg/kg	0.788	--	2
Indeno(1,2,3-cd)Pyrene	1.05		mg/kg	0.788	--	2
Dibenzo(a,h)anthracene	ND		mg/kg	0.788	--	2
Benzo(ghi)perylene	0.935		mg/kg	0.788	--	2

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-21

Date Collected: 09/04/19 09:40

Client ID: SB-3 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	62		40-140
o-Terphenyl	61		40-140
2-Fluorobiphenyl	69		40-140
2-Bromonaphthalene	68		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23
 Client ID: SB-2 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 13:25
 Analyst: MEO
 Percent Solids: 90%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	14.6	--	2
C19-C36 Aliphatics	418		mg/kg	14.6	--	2
C11-C22 Aromatics	305		mg/kg	14.6	--	2
C11-C22 Aromatics, Adjusted	265		mg/kg	14.6	--	2
Naphthalene	ND		mg/kg	0.728	--	2
2-Methylnaphthalene	ND		mg/kg	0.728	--	2
Acenaphthylene	ND		mg/kg	0.728	--	2
Acenaphthene	ND		mg/kg	0.728	--	2
Fluorene	ND		mg/kg	0.728	--	2
Phenanthrene	5.13		mg/kg	0.728	--	2
Anthracene	1.24		mg/kg	0.728	--	2
Fluoranthene	7.38		mg/kg	0.728	--	2
Pyrene	6.52		mg/kg	0.728	--	2
Benzo(a)anthracene	3.49		mg/kg	0.728	--	2
Chrysene	3.46		mg/kg	0.728	--	2
Benzo(b)fluoranthene	2.96		mg/kg	0.728	--	2
Benzo(k)fluoranthene	2.89		mg/kg	0.728	--	2
Benzo(a)pyrene	3.21		mg/kg	0.728	--	2
Indeno(1,2,3-cd)Pyrene	2.11		mg/kg	0.728	--	2
Dibenzo(a,h)anthracene	ND		mg/kg	0.728	--	2
Benzo(ghi)perylene	1.83		mg/kg	0.728	--	2



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-23

Date Collected: 09/04/19 10:05

Client ID: SB-2 (1-2)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	62		40-140
2-Fluorobiphenyl	69		40-140
2-Bromonaphthalene	67		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-24
 Client ID: SB-2 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:07
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 04:30
 Analyst: MEO
 Percent Solids: 89%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	7.07	--	1
C19-C36 Aliphatics	17.0		mg/kg	7.07	--	1
C11-C22 Aromatics	162		mg/kg	7.07	--	1
C11-C22 Aromatics, Adjusted	102		mg/kg	7.07	--	1
Naphthalene	ND		mg/kg	0.353	--	1
2-Methylnaphthalene	ND		mg/kg	0.353	--	1
Acenaphthylene	ND		mg/kg	0.353	--	1
Acenaphthene	0.930		mg/kg	0.353	--	1
Fluorene	0.689		mg/kg	0.353	--	1
Phenanthrene	7.08		mg/kg	0.353	--	1
Anthracene	1.44		mg/kg	0.353	--	1
Fluoranthene	10.3		mg/kg	0.353	--	1
Pyrene	8.71		mg/kg	0.353	--	1
Benzo(a)anthracene	5.54		mg/kg	0.353	--	1
Chrysene	5.61		mg/kg	0.353	--	1
Benzo(b)fluoranthene	4.36		mg/kg	0.353	--	1
Benzo(k)fluoranthene	4.34		mg/kg	0.353	--	1
Benzo(a)pyrene	4.63		mg/kg	0.353	--	1
Indeno(1,2,3-cd)Pyrene	2.77		mg/kg	0.353	--	1
Dibenzo(a,h)anthracene	0.775		mg/kg	0.353	--	1
Benzo(ghi)perylene	2.30		mg/kg	0.353	--	1



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-24

Date Collected: 09/04/19 10:07

Client ID: SB-2 (2-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	49		40-140
o-Terphenyl	46		40-140
2-Fluorobiphenyl	66		40-140
2-Bromonaphthalene	66		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27 D
 Client ID: SB-2 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/17/19 03:19
 Analyst: MEO
 Percent Solids: 81%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	319	--	40
C19-C36 Aliphatics	56800		mg/kg	319	--	40
C11-C22 Aromatics	1200		mg/kg	319	--	40
C11-C22 Aromatics, Adjusted	1120		mg/kg	319	--	40
Naphthalene	ND		mg/kg	15.9	--	40
2-Methylnaphthalene	ND		mg/kg	15.9	--	40
Acenaphthylene	ND		mg/kg	15.9	--	40
Acenaphthene	ND		mg/kg	15.9	--	40
Fluorene	ND		mg/kg	15.9	--	40
Phenanthrene	24.0		mg/kg	15.9	--	40
Anthracene	ND		mg/kg	15.9	--	40
Fluoranthene	25.2		mg/kg	15.9	--	40
Pyrene	22.3		mg/kg	15.9	--	40
Benzo(a)anthracene	ND		mg/kg	15.9	--	40
Chrysene	ND		mg/kg	15.9	--	40
Benzo(b)fluoranthene	ND		mg/kg	15.9	--	40
Benzo(k)fluoranthene	ND		mg/kg	15.9	--	40
Benzo(a)pyrene	ND		mg/kg	15.9	--	40
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	15.9	--	40
Dibenzo(a,h)anthracene	ND		mg/kg	15.9	--	40
Benzo(ghi)perylene	ND		mg/kg	15.9	--	40



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-27 D

Date Collected: 09/04/19 10:20

Client ID: SB-2 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	0	Q	40-140
o-Terphenyl	0	Q	40-140
2-Fluorobiphenyl	86		40-140
2-Bromonaphthalene	85		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44 D
 Client ID: D-07 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/17/19 03:51
 Analyst: MEO
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 09/11/19 00:54
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/11/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	141	--	20
C19-C36 Aliphatics	240		mg/kg	141	--	20
C11-C22 Aromatics	2140		mg/kg	141	--	20
C11-C22 Aromatics, Adjusted	1330		mg/kg	141	--	20
Naphthalene	ND		mg/kg	7.07	--	20
2-Methylnaphthalene	ND		mg/kg	7.07	--	20
Acenaphthylene	ND		mg/kg	7.07	--	20
Acenaphthene	10.2		mg/kg	7.07	--	20
Fluorene	12.2		mg/kg	7.07	--	20
Phenanthrene	110		mg/kg	7.07	--	20
Anthracene	29.5		mg/kg	7.07	--	20
Fluoranthene	130		mg/kg	7.07	--	20
Pyrene	107		mg/kg	7.07	--	20
Benzo(a)anthracene	64.9		mg/kg	7.07	--	20
Chrysene	71.8		mg/kg	7.07	--	20
Benzo(b)fluoranthene	58.0		mg/kg	7.07	--	20
Benzo(k)fluoranthene	48.8		mg/kg	7.07	--	20
Benzo(a)pyrene	64.4		mg/kg	7.07	--	20
Indeno(1,2,3-cd)Pyrene	49.3		mg/kg	7.07	--	20
Dibenzo(a,h)anthracene	12.9		mg/kg	7.07	--	20
Benzo(ghi)perylene	44.4		mg/kg	7.07	--	20



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-44 D

Date Collected: 09/04/19 12:16

Client ID: D-07 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	0	Q	40-140
o-Terphenyl	0	Q	40-140
2-Fluorobiphenyl	86		40-140
2-Bromonaphthalene	86		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-45
 Client ID: D-07 (7-9)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/14/19 18:13
 Analyst: SR
 Percent Solids: 78%

Extraction Method: EPA 3546
 Extraction Date: 09/12/19 22:36
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/13/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	8.58	--	1
C19-C36 Aliphatics	18.5		mg/kg	8.58	--	1
C11-C22 Aromatics	73.4		mg/kg	8.58	--	1
C11-C22 Aromatics, Adjusted	51.7		mg/kg	8.58	--	1
Naphthalene	ND		mg/kg	0.429	--	1
2-Methylnaphthalene	ND		mg/kg	0.429	--	1
Acenaphthylene	ND		mg/kg	0.429	--	1
Acenaphthene	1.66		mg/kg	0.429	--	1
Fluorene	ND		mg/kg	0.429	--	1
Phenanthrene	2.46		mg/kg	0.429	--	1
Anthracene	0.843		mg/kg	0.429	--	1
Fluoranthene	3.73		mg/kg	0.429	--	1
Pyrene	3.03		mg/kg	0.429	--	1
Benzo(a)anthracene	1.60		mg/kg	0.429	--	1
Chrysene	1.87		mg/kg	0.429	--	1
Benzo(b)fluoranthene	1.34		mg/kg	0.429	--	1
Benzo(k)fluoranthene	1.40		mg/kg	0.429	--	1
Benzo(a)pyrene	1.60		mg/kg	0.429	--	1
Indeno(1,2,3-cd)Pyrene	1.10		mg/kg	0.429	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.429	--	1
Benzo(ghi)perylene	1.04		mg/kg	0.429	--	1

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-45

Date Collected: 09/04/19 12:30

Client ID: D-07 (7-9)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	58		40-140
o-Terphenyl	76		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	81		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-50 D
 Client ID: SB-DUP-5
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/17/19 01:10
 Analyst: MEO
 Percent Solids: 91%

Extraction Method: EPA 3546
 Extraction Date: 09/12/19 22:36
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/13/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	43.6	--	6
C19-C36 Aliphatics	223		mg/kg	43.6	--	6
C11-C22 Aromatics	1160		mg/kg	43.6	--	6
C11-C22 Aromatics, Adjusted	713		mg/kg	43.6	--	6
Naphthalene	2.63		mg/kg	2.18	--	6
2-Methylnaphthalene	ND		mg/kg	2.18	--	6
Acenaphthylene	ND		mg/kg	2.18	--	6
Acenaphthene	5.69		mg/kg	2.18	--	6
Fluorene	6.74		mg/kg	2.18	--	6
Phenanthrene	61.8		mg/kg	2.18	--	6
Anthracene	15.7		mg/kg	2.18	--	6
Fluoranthene	79.0		mg/kg	2.18	--	6
Pyrene	66.4		mg/kg	2.18	--	6
Benzo(a)anthracene	37.2		mg/kg	2.18	--	6
Chrysene	38.3		mg/kg	2.18	--	6
Benzo(b)fluoranthene	30.8		mg/kg	2.18	--	6
Benzo(k)fluoranthene	27.4		mg/kg	2.18	--	6
Benzo(a)pyrene	31.6		mg/kg	2.18	--	6
Indeno(1,2,3-cd)Pyrene	21.3		mg/kg	2.18	--	6
Dibenzo(a,h)anthracene	6.06		mg/kg	2.18	--	6
Benzo(ghi)perylene	17.6		mg/kg	2.18	--	6



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-50 D

Date Collected: 09/04/19 00:00

Client ID: SB-DUP-5

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	74		40-140
o-Terphenyl	250	Q	40-140
2-Fluorobiphenyl	81		40-140
2-Bromonaphthalene	81		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-55 D
 Client ID: E-06 (1-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:24
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/17/19 01:42
 Analyst: MEO
 Percent Solids: 94%

Extraction Method: EPA 3546
 Extraction Date: 09/12/19 22:36
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/13/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	35.0	--	5
C19-C36 Aliphatics	236		mg/kg	35.0	--	5
C11-C22 Aromatics	385		mg/kg	35.0	--	5
C11-C22 Aromatics, Adjusted	273		mg/kg	35.0	--	5
Naphthalene	ND		mg/kg	1.75	--	5
2-Methylnaphthalene	ND		mg/kg	1.75	--	5
Acenaphthylene	ND		mg/kg	1.75	--	5
Acenaphthene	ND		mg/kg	1.75	--	5
Fluorene	ND		mg/kg	1.75	--	5
Phenanthrene	12.0		mg/kg	1.75	--	5
Anthracene	3.43		mg/kg	1.75	--	5
Fluoranthene	19.5		mg/kg	1.75	--	5
Pyrene	17.1		mg/kg	1.75	--	5
Benzo(a)anthracene	9.22		mg/kg	1.75	--	5
Chrysene	10.4		mg/kg	1.75	--	5
Benzo(b)fluoranthene	8.87		mg/kg	1.75	--	5
Benzo(k)fluoranthene	7.56		mg/kg	1.75	--	5
Benzo(a)pyrene	9.54		mg/kg	1.75	--	5
Indeno(1,2,3-cd)Pyrene	7.12		mg/kg	1.75	--	5
Dibenzo(a,h)anthracene	1.88		mg/kg	1.75	--	5
Benzo(ghi)perylene	5.94		mg/kg	1.75	--	5



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-55 D

Date Collected: 09/04/19 13:24

Client ID: E-06 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	111		40-140
2-Fluorobiphenyl	79		40-140
2-Bromonaphthalene	80		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-56 D
 Client ID: E-06 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:35
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/17/19 02:14
 Analyst: MEO
 Percent Solids: 79%

Extraction Method: EPA 3546
 Extraction Date: 09/12/19 22:36
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/13/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	161	--	20
C19-C36 Aliphatics	303		mg/kg	161	--	20
C11-C22 Aromatics	1500		mg/kg	161	--	20
C11-C22 Aromatics, Adjusted	853		mg/kg	161	--	20
Naphthalene	11.9		mg/kg	8.06	--	20
2-Methylnaphthalene	ND		mg/kg	8.06	--	20
Acenaphthylene	ND		mg/kg	8.06	--	20
Acenaphthene	13.7		mg/kg	8.06	--	20
Fluorene	24.1		mg/kg	8.06	--	20
Phenanthrene	145		mg/kg	8.06	--	20
Anthracene	40.6		mg/kg	8.06	--	20
Fluoranthene	125		mg/kg	8.06	--	20
Pyrene	94.0		mg/kg	8.06	--	20
Benzo(a)anthracene	46.4		mg/kg	8.06	--	20
Chrysene	42.9		mg/kg	8.06	--	20
Benzo(b)fluoranthene	25.0		mg/kg	8.06	--	20
Benzo(k)fluoranthene	28.2		mg/kg	8.06	--	20
Benzo(a)pyrene	28.4		mg/kg	8.06	--	20
Indeno(1,2,3-cd)Pyrene	13.8		mg/kg	8.06	--	20
Dibenzo(a,h)anthracene	ND		mg/kg	8.06	--	20
Benzo(ghi)perylene	10.2		mg/kg	8.06	--	20

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-56 D

Date Collected: 09/04/19 13:35

Client ID: E-06 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	0	Q	40-140
o-Terphenyl	0	Q	40-140
2-Fluorobiphenyl	73		40-140
2-Bromonaphthalene	74		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/14/19 02:37
Analyst: MEO

Extraction Method: EPA 3546
Extraction Date: 09/11/19 00:54
Cleanup Method: EPH-04-1
Cleanup Date: 09/11/19

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 11-12,15,17-18,21,23-24,27,44,101,105,113,115,138-140 Batch: WG1282535-1					
C9-C18 Aliphatics	ND		mg/kg	6.50	--
C19-C36 Aliphatics	ND		mg/kg	6.50	--
C11-C22 Aromatics	ND		mg/kg	6.50	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.50	--
Naphthalene	ND		mg/kg	0.325	--
2-Methylnaphthalene	ND		mg/kg	0.325	--
Acenaphthylene	ND		mg/kg	0.325	--
Acenaphthene	ND		mg/kg	0.325	--
Fluorene	ND		mg/kg	0.325	--
Phenanthrene	ND		mg/kg	0.325	--
Anthracene	ND		mg/kg	0.325	--
Fluoranthene	ND		mg/kg	0.325	--
Pyrene	ND		mg/kg	0.325	--
Benzo(a)anthracene	ND		mg/kg	0.325	--
Chrysene	ND		mg/kg	0.325	--
Benzo(b)fluoranthene	ND		mg/kg	0.325	--
Benzo(k)fluoranthene	ND		mg/kg	0.325	--
Benzo(a)pyrene	ND		mg/kg	0.325	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.325	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.325	--
Benzo(ghi)perylene	ND		mg/kg	0.325	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/14/19 02:37
Analyst: MEO

Extraction Method: EPA 3546
Extraction Date: 09/11/19 00:54
Cleanup Method: EPH-04-1
Cleanup Date: 09/11/19

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 11-12,15,17-18,21,23-24,27,44,101,105,113,115,138-140 Batch: WG1282535-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	69		40-140
o-Terphenyl	64		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	74		40-140

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/14/19 13:22
Analyst: SR

Extraction Method: EPA 3546
Extraction Date: 09/12/19 22:36
Cleanup Method: EPH-04-1
Cleanup Date: 09/13/19

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 45,50,55-56,143 Batch: WG1283558-1					
C9-C18 Aliphatics	ND		mg/kg	6.43	--
C19-C36 Aliphatics	ND		mg/kg	6.43	--
C11-C22 Aromatics	ND		mg/kg	6.43	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.43	--
Naphthalene	ND		mg/kg	0.322	--
2-Methylnaphthalene	ND		mg/kg	0.322	--
Acenaphthylene	ND		mg/kg	0.322	--
Acenaphthene	ND		mg/kg	0.322	--
Fluorene	ND		mg/kg	0.322	--
Phenanthrene	ND		mg/kg	0.322	--
Anthracene	ND		mg/kg	0.322	--
Fluoranthene	ND		mg/kg	0.322	--
Pyrene	ND		mg/kg	0.322	--
Benzo(a)anthracene	ND		mg/kg	0.322	--
Chrysene	ND		mg/kg	0.322	--
Benzo(b)fluoranthene	ND		mg/kg	0.322	--
Benzo(k)fluoranthene	ND		mg/kg	0.322	--
Benzo(a)pyrene	ND		mg/kg	0.322	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.322	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.322	--
Benzo(ghi)perylene	ND		mg/kg	0.322	--

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/14/19 13:22
Analyst: SR

Extraction Method: EPA 3546
Extraction Date: 09/12/19 22:36
Cleanup Method: EPH-04-1
Cleanup Date: 09/13/19

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 45,50,55-56,143 Batch: WG1283558-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	63		40-140
o-Terphenyl	79		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	83		40-140

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44,101,105,113,115,138-140 Batch: WG1282535-2 WG1282535-3								
C9-C18 Aliphatics	56		68		40-140	19		25
C19-C36 Aliphatics	64		79		40-140	21		25
C11-C22 Aromatics	54		58		40-140	7		25
Naphthalene	45		48		40-140	6		25
2-Methylnaphthalene	44		47		40-140	7		25
Acenaphthylene	47		51		40-140	8		25
Acenaphthene	51		56		40-140	9		25
Fluorene	49		55		40-140	12		25
Phenanthrene	54		60		40-140	11		25
Anthracene	54		59		40-140	9		25
Fluoranthene	54		58		40-140	7		25
Pyrene	56		60		40-140	7		25
Benzo(a)anthracene	54		58		40-140	7		25
Chrysene	55		58		40-140	5		25
Benzo(b)fluoranthene	53		57		40-140	7		25
Benzo(k)fluoranthene	53		56		40-140	6		25
Benzo(a)pyrene	52		55		40-140	6		25
Indeno(1,2,3-cd)Pyrene	50		52		40-140	4		25
Dibenzo(a,h)anthracene	51		52		40-140	2		25
Benzo(ghi)perylene	47		48		40-140	2		25
Nonane (C9)	44		54		30-140	20		25
Decane (C10)	49		59		40-140	19		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44,101,105,113,115,138-140 Batch: WG1282535-2 WG1282535-3								
Dodecane (C12)	50		60		40-140	18		25
Tetradecane (C14)	50		62		40-140	21		25
Hexadecane (C16)	53		68		40-140	25		25
Octadecane (C18)	57		71		40-140	22		25
Nonadecane (C19)	57		71		40-140	22		25
Eicosane (C20)	59		72		40-140	20		25
Docosane (C22)	60		73		40-140	20		25
Tetracosane (C24)	61		74		40-140	19		25
Hexacosane (C26)	62		77		40-140	22		25
Octacosane (C28)	64		78		40-140	20		25
Triacosane (C30)	65		80		40-140	21		25
Hexatriacontane (C36)	66		79		40-140	18		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Chloro-Octadecane	57		68		40-140
o-Terphenyl	52		57		40-140
2-Fluorobiphenyl	73		66		40-140
2-Bromonaphthalene	72		66		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		



Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 45,50,55-56,143 Batch: WG1283558-2 WG1283558-3								
C9-C18 Aliphatics	57		75		40-140	27	Q	25
C19-C36 Aliphatics	70		79		40-140	12		25
C11-C22 Aromatics	77		91		40-140	17		25
Naphthalene	54		72		40-140	29	Q	25
2-Methylnaphthalene	55		73		40-140	28	Q	25
Acenaphthylene	62		81		40-140	27	Q	25
Acenaphthene	63		83		40-140	27	Q	25
Fluorene	69		86		40-140	22		25
Phenanthrene	76		89		40-140	16		25
Anthracene	79		92		40-140	15		25
Fluoranthene	80		92		40-140	14		25
Pyrene	82		94		40-140	14		25
Benzo(a)anthracene	81		92		40-140	13		25
Chrysene	83		91		40-140	9		25
Benzo(b)fluoranthene	82		94		40-140	14		25
Benzo(k)fluoranthene	82		91		40-140	10		25
Benzo(a)pyrene	80		90		40-140	12		25
Indeno(1,2,3-cd)Pyrene	80		92		40-140	14		25
Dibenzo(a,h)anthracene	83		91		40-140	9		25
Benzo(ghi)perylene	76		85		40-140	11		25
Nonane (C9)	45		63		30-140	33	Q	25
Decane (C10)	50		68		40-140	31	Q	25
Dodecane (C12)	49		67		40-140	31	Q	25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS		LCS D		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 45,50,55-56,143 Batch: WG1283558-2 WG1283558-3								
Tetradecane (C14)	51		69		40-140	30	Q	25
Hexadecane (C16)	58		73		40-140	23		25
Octadecane (C18)	66		77		40-140	15		25
Nonadecane (C19)	65		75		40-140	14		25
Eicosane (C20)	67		77		40-140	14		25
Docosane (C22)	68		78		40-140	14		25
Tetracosane (C24)	67		77		40-140	14		25
Hexacosane (C26)	68		77		40-140	12		25
Octacosane (C28)	68		77		40-140	12		25
triacontane (C30)	69		77		40-140	11		25
Hexatriacontane (C36)	72		81		40-140	12		25

Surrogate	LCS		LCS D		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Chloro-Octadecane	59		67		40-140
o-Terphenyl	72		83		40-140
2-Fluorobiphenyl	74		81		40-140
2-Bromonaphthalene	74		82		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		



PCBS

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-01
 Client ID: AS-5
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 15:20
 Analyst: AWS
 Percent Solids: 100%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	54.8	--	1	A
Aroclor 1221	ND		ug/kg	54.8	--	1	A
Aroclor 1232	ND		ug/kg	54.8	--	1	A
Aroclor 1242	ND		ug/kg	54.8	--	1	A
Aroclor 1248	ND		ug/kg	36.6	--	1	A
Aroclor 1254	ND		ug/kg	54.8	--	1	A
Aroclor 1260	38.4		ug/kg	36.6	--	1	B
Aroclor 1262	ND		ug/kg	18.3	--	1	A
Aroclor 1268	ND		ug/kg	18.3	--	1	A
PCBs, Total	38.4		ug/kg	18.3	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	60		30-150	B
2,4,5,6-Tetrachloro-m-xylene	73		30-150	A
Decachlorobiphenyl	54		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-02 D
 Client ID: AS-6
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:15
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/14/19 00:29
 Analyst: AWS
 Percent Solids: 100%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	590	--	10	A
Aroclor 1221	ND		ug/kg	590	--	10	A
Aroclor 1232	ND		ug/kg	590	--	10	A
Aroclor 1242	ND		ug/kg	590	--	10	A
Aroclor 1248	ND		ug/kg	394	--	10	A
Aroclor 1254	ND		ug/kg	590	--	10	A
Aroclor 1260	7100		ug/kg	394	--	10	B
Aroclor 1262	ND		ug/kg	197	--	10	A
Aroclor 1268	ND		ug/kg	197	--	10	A
PCBs, Total	7100		ug/kg	197	--	10	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-03
 Client ID: AS-7
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:20
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 15:32
 Analyst: AWS
 Percent Solids: 99%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	54.7	--	1	A
Aroclor 1221	ND		ug/kg	54.7	--	1	A
Aroclor 1232	ND		ug/kg	54.7	--	1	A
Aroclor 1242	ND		ug/kg	54.7	--	1	A
Aroclor 1248	ND		ug/kg	36.5	--	1	B
Aroclor 1254	ND		ug/kg	54.7	--	1	A
Aroclor 1260	ND		ug/kg	36.5	--	1	B
Aroclor 1262	ND		ug/kg	18.2	--	1	A
Aroclor 1268	ND		ug/kg	18.2	--	1	A
PCBs, Total	ND		ug/kg	18.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	60		30-150	B
2,4,5,6-Tetrachloro-m-xylene	83		30-150	A
Decachlorobiphenyl	59		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-04
 Client ID: AS-8
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:25
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 15:43
 Analyst: AWS
 Percent Solids: 100%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	55.6	--	1	A
Aroclor 1221	ND		ug/kg	55.6	--	1	A
Aroclor 1232	ND		ug/kg	55.6	--	1	A
Aroclor 1242	ND		ug/kg	55.6	--	1	A
Aroclor 1248	ND		ug/kg	37.0	--	1	A
Aroclor 1254	ND		ug/kg	55.6	--	1	A
Aroclor 1260	ND		ug/kg	37.0	--	1	B
Aroclor 1262	ND		ug/kg	18.5	--	1	A
Aroclor 1268	ND		ug/kg	18.5	--	1	A
PCBs, Total	ND		ug/kg	18.5	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	55		30-150	B
2,4,5,6-Tetrachloro-m-xylene	78		30-150	A
Decachlorobiphenyl	51		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-05
 Client ID: AS-1
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:45
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 15:55
 Analyst: AWS
 Percent Solids: 99%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	56.0	--	1	A
Aroclor 1221	ND		ug/kg	56.0	--	1	A
Aroclor 1232	ND		ug/kg	56.0	--	1	A
Aroclor 1242	ND		ug/kg	56.0	--	1	A
Aroclor 1248	ND		ug/kg	37.3	--	1	A
Aroclor 1254	ND		ug/kg	56.0	--	1	A
Aroclor 1260	986		ug/kg	37.3	--	1	B
Aroclor 1262	ND		ug/kg	18.7	--	1	A
Aroclor 1268	ND		ug/kg	18.7	--	1	A
PCBs, Total	986		ug/kg	18.7	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	60		30-150	B
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	60		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-06
 Client ID: AS-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:50
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:07
 Analyst: AWS
 Percent Solids: 100%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	51.5	--	1	A
Aroclor 1221	ND		ug/kg	51.5	--	1	A
Aroclor 1232	ND		ug/kg	51.5	--	1	A
Aroclor 1242	ND		ug/kg	51.5	--	1	A
Aroclor 1248	ND		ug/kg	34.3	--	1	A
Aroclor 1254	ND		ug/kg	51.5	--	1	A
Aroclor 1260	508		ug/kg	34.3	--	1	B
Aroclor 1262	ND		ug/kg	17.2	--	1	A
Aroclor 1268	ND		ug/kg	17.2	--	1	A
PCBs, Total	508		ug/kg	17.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	51		30-150	B
2,4,5,6-Tetrachloro-m-xylene	80		30-150	A
Decachlorobiphenyl	48		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-07
 Client ID: AS-3
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:55
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:19
 Analyst: AWS
 Percent Solids: 100%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	57.2	--	1	A
Aroclor 1221	ND		ug/kg	57.2	--	1	A
Aroclor 1232	ND		ug/kg	57.2	--	1	A
Aroclor 1242	ND		ug/kg	57.2	--	1	A
Aroclor 1248	ND		ug/kg	38.1	--	1	A
Aroclor 1254	ND		ug/kg	57.2	--	1	A
Aroclor 1260	184		ug/kg	38.1	--	1	B
Aroclor 1262	ND		ug/kg	19.0	--	1	A
Aroclor 1268	ND		ug/kg	19.0	--	1	A
PCBs, Total	184		ug/kg	19.0	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	47		30-150	B
2,4,5,6-Tetrachloro-m-xylene	70		30-150	A
Decachlorobiphenyl	43		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-08
 Client ID: AS-4
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 12:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:31
 Analyst: AWS
 Percent Solids: 100%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 10:25
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	51.4	--	1	A
Aroclor 1221	ND		ug/kg	51.4	--	1	A
Aroclor 1232	ND		ug/kg	51.4	--	1	A
Aroclor 1242	ND		ug/kg	51.4	--	1	A
Aroclor 1248	ND		ug/kg	34.3	--	1	A
Aroclor 1254	ND		ug/kg	51.4	--	1	A
Aroclor 1260	354		ug/kg	34.3	--	1	B
Aroclor 1262	ND		ug/kg	17.2	--	1	A
Aroclor 1268	ND		ug/kg	17.2	--	1	A
PCBs, Total	354		ug/kg	17.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	79		30-150	B
Decachlorobiphenyl	61		30-150	B
2,4,5,6-Tetrachloro-m-xylene	87		30-150	A
Decachlorobiphenyl	56		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-09
Client ID: AS-DUP-1
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Solid
Analytical Method: 97,8082A
Analytical Date: 09/12/19 02:38
Analyst: WR
Percent Solids: 100%

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 10:25
Cleanup Method: EPA 3665A
Cleanup Date: 09/09/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	57.0	--	1	A
Aroclor 1221	ND		ug/kg	57.0	--	1	A
Aroclor 1232	ND		ug/kg	57.0	--	1	A
Aroclor 1242	ND		ug/kg	57.0	--	1	A
Aroclor 1248	ND		ug/kg	38.0	--	1	A
Aroclor 1254	ND		ug/kg	57.0	--	1	A
Aroclor 1260	1610		ug/kg	38.0	--	1	B
Aroclor 1262	ND		ug/kg	19.0	--	1	A
Aroclor 1268	ND		ug/kg	19.0	--	1	A
PCBs, Total	1610		ug/kg	19.0	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	B
Decachlorobiphenyl	101		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	82		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-10
 Client ID: SB-4 (0-0.5)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 05:07
 Analyst: KB
 Percent Solids: 96%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.1	--	1	A
Aroclor 1221	ND		ug/kg	34.1	--	1	A
Aroclor 1232	ND		ug/kg	34.1	--	1	A
Aroclor 1242	ND		ug/kg	34.1	--	1	A
Aroclor 1248	ND		ug/kg	34.1	--	1	A
Aroclor 1254	ND		ug/kg	34.1	--	1	A
Aroclor 1260	53.3		ug/kg	34.1	--	1	B
Aroclor 1262	ND		ug/kg	34.1	--	1	A
Aroclor 1268	ND		ug/kg	34.1	--	1	A
PCBs, Total	53.3		ug/kg	34.1	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	98		30-150	B
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	85		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-11
 Client ID: SB-4 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:50
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 05:18
 Analyst: KB
 Percent Solids: 95%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.8	--	1	A
Aroclor 1221	ND		ug/kg	33.8	--	1	A
Aroclor 1232	ND		ug/kg	33.8	--	1	A
Aroclor 1242	ND		ug/kg	33.8	--	1	A
Aroclor 1248	ND		ug/kg	33.8	--	1	A
Aroclor 1254	ND		ug/kg	33.8	--	1	A
Aroclor 1260	ND		ug/kg	33.8	--	1	B
Aroclor 1262	ND		ug/kg	33.8	--	1	A
Aroclor 1268	ND		ug/kg	33.8	--	1	A
PCBs, Total	ND		ug/kg	33.8	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	79		30-150	B
Decachlorobiphenyl	95		30-150	B
2,4,5,6-Tetrachloro-m-xylene	82		30-150	A
Decachlorobiphenyl	87		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-12
 Client ID: SB-4 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:40
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 05:30
 Analyst: KB
 Percent Solids: 93%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.1	--	1	A
Aroclor 1221	ND		ug/kg	34.1	--	1	A
Aroclor 1232	ND		ug/kg	34.1	--	1	A
Aroclor 1242	ND		ug/kg	34.1	--	1	A
Aroclor 1248	ND		ug/kg	34.1	--	1	A
Aroclor 1254	ND		ug/kg	34.1	--	1	A
Aroclor 1260	ND		ug/kg	34.1	--	1	A
Aroclor 1262	ND		ug/kg	34.1	--	1	A
Aroclor 1268	ND		ug/kg	34.1	--	1	A
PCBs, Total	ND		ug/kg	34.1	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		30-150	B
Decachlorobiphenyl	87		30-150	B
2,4,5,6-Tetrachloro-m-xylene	71		30-150	A
Decachlorobiphenyl	77		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-13
 Client ID: SB-4 (3-5)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 05:42
 Analyst: KB
 Percent Solids: 87%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.5	--	1	A
Aroclor 1221	ND		ug/kg	37.5	--	1	A
Aroclor 1232	ND		ug/kg	37.5	--	1	A
Aroclor 1242	ND		ug/kg	37.5	--	1	A
Aroclor 1248	ND		ug/kg	37.5	--	1	A
Aroclor 1254	ND		ug/kg	37.5	--	1	A
Aroclor 1260	ND		ug/kg	37.5	--	1	A
Aroclor 1262	ND		ug/kg	37.5	--	1	A
Aroclor 1268	ND		ug/kg	37.5	--	1	A
PCBs, Total	ND		ug/kg	37.5	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		30-150	B
Decachlorobiphenyl	90		30-150	B
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	78		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
 Client ID: SB-4 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 00:58
 Analyst: AWS
 Percent Solids: 75%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	104	--	1	A
Aroclor 1221	ND		ug/kg	104	--	1	A
Aroclor 1232	ND		ug/kg	104	--	1	A
Aroclor 1242	ND		ug/kg	104	--	1	A
Aroclor 1248	ND		ug/kg	104	--	1	A
Aroclor 1254	ND		ug/kg	104	--	1	A
Aroclor 1260	ND		ug/kg	104	--	1	A
Aroclor 1262	ND		ug/kg	104	--	1	A
Aroclor 1268	ND		ug/kg	104	--	1	A
PCBs, Total	ND		ug/kg	104	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		30-150	B
Decachlorobiphenyl	50		30-150	B
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	27	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-16 D
 Client ID: SB-3 (0-0.5)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:20
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/15/19 15:13
 Analyst: AWS
 Percent Solids: 95%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	170	--	5	A
Aroclor 1221	ND		ug/kg	170	--	5	A
Aroclor 1232	ND		ug/kg	170	--	5	A
Aroclor 1242	ND		ug/kg	170	--	5	A
Aroclor 1248	ND		ug/kg	170	--	5	A
Aroclor 1254	444		ug/kg	170	--	5	A
Aroclor 1260	ND		ug/kg	170	--	5	A
Aroclor 1262	ND		ug/kg	170	--	5	A
Aroclor 1268	ND		ug/kg	170	--	5	A
PCBs, Total	444		ug/kg	170	--	5	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	49		30-150	B
Decachlorobiphenyl	66		30-150	B
2,4,5,6-Tetrachloro-m-xylene	50		30-150	A
Decachlorobiphenyl	55		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-17
 Client ID: SB-3 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:25
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 23:31
 Analyst: AWS
 Percent Solids: 94%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.0	--	1	A
Aroclor 1221	ND		ug/kg	35.0	--	1	A
Aroclor 1232	ND		ug/kg	35.0	--	1	A
Aroclor 1242	ND		ug/kg	35.0	--	1	A
Aroclor 1248	ND		ug/kg	35.0	--	1	A
Aroclor 1254	72.0		ug/kg	35.0	--	1	B
Aroclor 1260	38.3	IP	ug/kg	35.0	--	1	B
Aroclor 1262	ND		ug/kg	35.0	--	1	A
Aroclor 1268	ND		ug/kg	35.0	--	1	A
PCBs, Total	110		ug/kg	35.0	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	B
Decachlorobiphenyl	62		30-150	B
2,4,5,6-Tetrachloro-m-xylene	66		30-150	A
Decachlorobiphenyl	41		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-18
 Client ID: SB-3 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 23:44
 Analyst: AWS
 Percent Solids: 95%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.4	--	1	A
Aroclor 1221	ND		ug/kg	34.4	--	1	A
Aroclor 1232	ND		ug/kg	34.4	--	1	A
Aroclor 1242	ND		ug/kg	34.4	--	1	A
Aroclor 1248	ND		ug/kg	34.4	--	1	A
Aroclor 1254	ND		ug/kg	34.4	--	1	A
Aroclor 1260	ND		ug/kg	34.4	--	1	B
Aroclor 1262	ND		ug/kg	34.4	--	1	A
Aroclor 1268	ND		ug/kg	34.4	--	1	A
PCBs, Total	ND		ug/kg	34.4	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		30-150	B
Decachlorobiphenyl	59		30-150	B
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	39		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-19
 Client ID: SB-3 (3-5)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:35
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 05:54
 Analyst: KB
 Percent Solids: 85%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.6	--	1	A
Aroclor 1221	ND		ug/kg	38.6	--	1	A
Aroclor 1232	ND		ug/kg	38.6	--	1	A
Aroclor 1242	ND		ug/kg	38.6	--	1	A
Aroclor 1248	ND		ug/kg	38.6	--	1	A
Aroclor 1254	ND		ug/kg	38.6	--	1	A
Aroclor 1260	89.6		ug/kg	38.6	--	1	B
Aroclor 1262	ND		ug/kg	38.6	--	1	A
Aroclor 1268	ND		ug/kg	38.6	--	1	A
PCBs, Total	89.6		ug/kg	38.6	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	80		30-150	B
Decachlorobiphenyl	109		30-150	B
2,4,5,6-Tetrachloro-m-xylene	79		30-150	A
Decachlorobiphenyl	90		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-22
Client ID: SB-2 (0-0.5)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 09/11/19 23:56
Analyst: AWS
Percent Solids: 97%

Extraction Method: EPA 3540C
Extraction Date: 09/08/19 17:20
Cleanup Method: EPA 3665A
Cleanup Date: 09/10/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.9	--	1	A
Aroclor 1221	ND		ug/kg	33.9	--	1	A
Aroclor 1232	ND		ug/kg	33.9	--	1	A
Aroclor 1242	ND		ug/kg	33.9	--	1	A
Aroclor 1248	ND		ug/kg	33.9	--	1	A
Aroclor 1254	40.3		ug/kg	33.9	--	1	A
Aroclor 1260	ND		ug/kg	33.9	--	1	B
Aroclor 1262	ND		ug/kg	33.9	--	1	A
Aroclor 1268	ND		ug/kg	33.9	--	1	A
PCBs, Total	40.3		ug/kg	33.9	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		30-150	B
Decachlorobiphenyl	56		30-150	B
2,4,5,6-Tetrachloro-m-xylene	65		30-150	A
Decachlorobiphenyl	35		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23
 Client ID: SB-2 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 00:09
 Analyst: AWS
 Percent Solids: 90%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.0	--	1	A
Aroclor 1221	ND		ug/kg	35.0	--	1	A
Aroclor 1232	ND		ug/kg	35.0	--	1	A
Aroclor 1242	ND		ug/kg	35.0	--	1	A
Aroclor 1248	ND		ug/kg	35.0	--	1	A
Aroclor 1254	ND		ug/kg	35.0	--	1	A
Aroclor 1260	83.0		ug/kg	35.0	--	1	B
Aroclor 1262	ND		ug/kg	35.0	--	1	A
Aroclor 1268	ND		ug/kg	35.0	--	1	A
PCBs, Total	83.0		ug/kg	35.0	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	53		30-150	B
Decachlorobiphenyl	54		30-150	B
2,4,5,6-Tetrachloro-m-xylene	59		30-150	A
Decachlorobiphenyl	36		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-24
 Client ID: SB-2 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:07
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 00:21
 Analyst: AWS
 Percent Solids: 89%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.3	--	1	A
Aroclor 1221	ND		ug/kg	36.3	--	1	A
Aroclor 1232	ND		ug/kg	36.3	--	1	A
Aroclor 1242	ND		ug/kg	36.3	--	1	A
Aroclor 1248	ND		ug/kg	36.3	--	1	A
Aroclor 1254	ND		ug/kg	36.3	--	1	A
Aroclor 1260	ND		ug/kg	36.3	--	1	B
Aroclor 1262	ND		ug/kg	36.3	--	1	A
Aroclor 1268	ND		ug/kg	36.3	--	1	A
PCBs, Total	ND		ug/kg	36.3	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	50		30-150	B
Decachlorobiphenyl	57		30-150	B
2,4,5,6-Tetrachloro-m-xylene	57		30-150	A
Decachlorobiphenyl	31		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-25
 Client ID: SB-2 (3-5)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:15
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 00:46
 Analyst: AWS
 Percent Solids: 86%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.0	--	1	A
Aroclor 1221	ND		ug/kg	38.0	--	1	A
Aroclor 1232	ND		ug/kg	38.0	--	1	A
Aroclor 1242	ND		ug/kg	38.0	--	1	A
Aroclor 1248	ND		ug/kg	38.0	--	1	A
Aroclor 1254	ND		ug/kg	38.0	--	1	A
Aroclor 1260	ND		ug/kg	38.0	--	1	A
Aroclor 1262	ND		ug/kg	38.0	--	1	A
Aroclor 1268	ND		ug/kg	38.0	--	1	A
PCBs, Total	ND		ug/kg	38.0	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	B
Decachlorobiphenyl	51		30-150	B
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	33		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-32 D
 Client ID: E-08 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 11:25
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/15/19 15:01
 Analyst: AWS
 Percent Solids: 87%

Extraction Method: EPA 3540C
 Extraction Date: 09/08/19 17:20
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	748	--	20	A
Aroclor 1221	ND		ug/kg	748	--	20	A
Aroclor 1232	ND		ug/kg	748	--	20	A
Aroclor 1242	ND		ug/kg	748	--	20	A
Aroclor 1248	782		ug/kg	748	--	20	B
Aroclor 1254	ND		ug/kg	748	--	20	A
Aroclor 1260	6920		ug/kg	748	--	20	B
Aroclor 1262	ND		ug/kg	748	--	20	A
Aroclor 1268	ND		ug/kg	748	--	20	A
PCBs, Total	7700		ug/kg	748	--	20	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-33
 Client ID: E-08 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 11:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 06:06
 Analyst: KB
 Percent Solids: 93%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.6	--	1	A
Aroclor 1221	ND		ug/kg	35.6	--	1	A
Aroclor 1232	ND		ug/kg	35.6	--	1	A
Aroclor 1242	ND		ug/kg	35.6	--	1	A
Aroclor 1248	ND		ug/kg	35.6	--	1	A
Aroclor 1254	ND		ug/kg	35.6	--	1	A
Aroclor 1260	ND		ug/kg	35.6	--	1	A
Aroclor 1262	ND		ug/kg	35.6	--	1	A
Aroclor 1268	ND		ug/kg	35.6	--	1	A
PCBs, Total	ND		ug/kg	35.6	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86		30-150	B
Decachlorobiphenyl	92		30-150	B
2,4,5,6-Tetrachloro-m-xylene	88		30-150	A
Decachlorobiphenyl	113		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-40 D
 Client ID: D-07 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:12
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 16:50
 Analyst: WR
 Percent Solids: 93%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	3460	--	100	A
Aroclor 1221	ND		ug/kg	3460	--	100	A
Aroclor 1232	ND		ug/kg	3460	--	100	A
Aroclor 1242	ND		ug/kg	3460	--	100	A
Aroclor 1248	11100		ug/kg	3460	--	100	B
Aroclor 1254	6220		ug/kg	3460	--	100	A
Aroclor 1260	ND		ug/kg	3460	--	100	B
Aroclor 1262	ND		ug/kg	3460	--	100	A
Aroclor 1268	ND		ug/kg	3460	--	100	A
PCBs, Total	17300		ug/kg	3460	--	100	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-41
Client ID: D-07 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:14
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 09/11/19 06:29
Analyst: KB
Percent Solids: 92%

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 11:55
Cleanup Method: EPA 3665A
Cleanup Date: 09/09/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.7	--	1	A
Aroclor 1221	ND		ug/kg	35.7	--	1	A
Aroclor 1232	ND		ug/kg	35.7	--	1	A
Aroclor 1242	ND		ug/kg	35.7	--	1	A
Aroclor 1248	ND		ug/kg	35.7	--	1	A
Aroclor 1254	102		ug/kg	35.7	--	1	B
Aroclor 1260	57.7		ug/kg	35.7	--	1	B
Aroclor 1262	ND		ug/kg	35.7	--	1	A
Aroclor 1268	ND		ug/kg	35.7	--	1	A
PCBs, Total	160		ug/kg	35.7	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	120		30-150	B
2,4,5,6-Tetrachloro-m-xylene	58		30-150	A
Decachlorobiphenyl	76		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-45
 Client ID: D-07 (7-9)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:30
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 06:41
 Analyst: KB
 Percent Solids: 78%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	42.4	--	1	A
Aroclor 1221	ND		ug/kg	42.4	--	1	A
Aroclor 1232	ND		ug/kg	42.4	--	1	A
Aroclor 1242	ND		ug/kg	42.4	--	1	A
Aroclor 1248	ND		ug/kg	42.4	--	1	A
Aroclor 1254	ND		ug/kg	42.4	--	1	A
Aroclor 1260	ND		ug/kg	42.4	--	1	A
Aroclor 1262	ND		ug/kg	42.4	--	1	A
Aroclor 1268	ND		ug/kg	42.4	--	1	A
PCBs, Total	ND		ug/kg	42.4	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	111		30-150	B
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	86		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-51 D
 Client ID: E-06 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:22
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 16:38
 Analyst: WR
 Percent Solids: 96%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	337	--	10	A
Aroclor 1221	ND		ug/kg	337	--	10	A
Aroclor 1232	ND		ug/kg	337	--	10	A
Aroclor 1242	ND		ug/kg	337	--	10	A
Aroclor 1248	2950		ug/kg	337	--	10	B
Aroclor 1254	1160		ug/kg	337	--	10	B
Aroclor 1260	475		ug/kg	337	--	10	B
Aroclor 1262	ND		ug/kg	337	--	10	A
Aroclor 1268	ND		ug/kg	337	--	10	A
PCBs, Total	4590		ug/kg	337	--	10	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-52
 Client ID: E-06 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:26
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/11/19 07:05
 Analyst: KB
 Percent Solids: 90%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 11:55
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.2	--	1	A
Aroclor 1221	ND		ug/kg	36.2	--	1	A
Aroclor 1232	ND		ug/kg	36.2	--	1	A
Aroclor 1242	ND		ug/kg	36.2	--	1	A
Aroclor 1248	192		ug/kg	36.2	--	1	B
Aroclor 1254	ND		ug/kg	36.2	--	1	A
Aroclor 1260	54.4		ug/kg	36.2	--	1	B
Aroclor 1262	ND		ug/kg	36.2	--	1	A
Aroclor 1268	ND		ug/kg	36.2	--	1	A
PCBs, Total	246		ug/kg	36.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	89		30-150	B
Decachlorobiphenyl	163	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	92		30-150	A
Decachlorobiphenyl	118		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-56
 Client ID: E-06 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:35
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 02:50
 Analyst: WR
 Percent Solids: 79%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	41.1	--	1	A
Aroclor 1221	ND		ug/kg	41.1	--	1	A
Aroclor 1232	ND		ug/kg	41.1	--	1	A
Aroclor 1242	ND		ug/kg	41.1	--	1	A
Aroclor 1248	ND		ug/kg	41.1	--	1	B
Aroclor 1254	ND		ug/kg	41.1	--	1	A
Aroclor 1260	ND		ug/kg	41.1	--	1	A
Aroclor 1262	ND		ug/kg	41.1	--	1	A
Aroclor 1268	ND		ug/kg	41.1	--	1	A
PCBs, Total	ND		ug/kg	41.1	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	105		30-150	B
2,4,5,6-Tetrachloro-m-xylene	68		30-150	A
Decachlorobiphenyl	103		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-57 D
 Client ID: E-05 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:10
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 21:52
 Analyst: AWS
 Percent Solids: 91%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	712	--	20	A
Aroclor 1221	ND		ug/kg	712	--	20	A
Aroclor 1232	ND		ug/kg	712	--	20	A
Aroclor 1242	ND		ug/kg	712	--	20	A
Aroclor 1248	7870		ug/kg	712	--	20	A
Aroclor 1254	ND		ug/kg	712	--	20	A
Aroclor 1260	1400		ug/kg	712	--	20	B
Aroclor 1262	ND		ug/kg	712	--	20	A
Aroclor 1268	ND		ug/kg	712	--	20	A
PCBs, Total	9270		ug/kg	712	--	20	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-58
Client ID: E-05 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:12
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 09/12/19 03:15
Analyst: WR
Percent Solids: 87%

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 14:15
Cleanup Method: EPA 3665A
Cleanup Date: 09/09/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.7	--	1	A
Aroclor 1221	ND		ug/kg	37.7	--	1	A
Aroclor 1232	ND		ug/kg	37.7	--	1	A
Aroclor 1242	ND		ug/kg	37.7	--	1	A
Aroclor 1248	ND		ug/kg	37.7	--	1	B
Aroclor 1254	ND		ug/kg	37.7	--	1	A
Aroclor 1260	ND		ug/kg	37.7	--	1	A
Aroclor 1262	ND		ug/kg	37.7	--	1	A
Aroclor 1268	ND		ug/kg	37.7	--	1	A
PCBs, Total	ND		ug/kg	37.7	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	B
Decachlorobiphenyl	90		30-150	B
2,4,5,6-Tetrachloro-m-xylene	56		30-150	A
Decachlorobiphenyl	82		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-61 D
 Client ID: SB-DUP-6
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 22:04
 Analyst: AWS
 Percent Solids: 91%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	702	--	20	A
Aroclor 1221	ND		ug/kg	702	--	20	A
Aroclor 1232	ND		ug/kg	702	--	20	A
Aroclor 1242	ND		ug/kg	702	--	20	A
Aroclor 1248	4930		ug/kg	702	--	20	B
Aroclor 1254	ND		ug/kg	702	--	20	A
Aroclor 1260	1070		ug/kg	702	--	20	B
Aroclor 1262	ND		ug/kg	702	--	20	A
Aroclor 1268	ND		ug/kg	702	--	20	A
PCBs, Total	6000		ug/kg	702	--	20	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-66 D
 Client ID: D-09 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:50
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 22:16
 Analyst: AWS
 Percent Solids: 88%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	745	--	20	A
Aroclor 1221	ND		ug/kg	745	--	20	A
Aroclor 1232	ND		ug/kg	745	--	20	A
Aroclor 1242	ND		ug/kg	745	--	20	A
Aroclor 1248	ND		ug/kg	745	--	20	A
Aroclor 1254	ND		ug/kg	745	--	20	A
Aroclor 1260	5650		ug/kg	745	--	20	B
Aroclor 1262	ND		ug/kg	745	--	20	A
Aroclor 1268	ND		ug/kg	745	--	20	A
PCBs, Total	5650		ug/kg	745	--	20	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-67 D
 Client ID: D-09 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:53
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/17/19 16:22
 Analyst: AWS
 Percent Solids: 75%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	441	--	10	A
Aroclor 1221	ND		ug/kg	441	--	10	A
Aroclor 1232	ND		ug/kg	441	--	10	A
Aroclor 1242	ND		ug/kg	441	--	10	A
Aroclor 1248	ND		ug/kg	441	--	10	A
Aroclor 1254	ND		ug/kg	441	--	10	A
Aroclor 1260	ND		ug/kg	441	--	10	A
Aroclor 1262	ND		ug/kg	441	--	10	A
Aroclor 1268	1850		ug/kg	441	--	10	B
PCBs, Total	1850		ug/kg	441	--	10	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-74
 Client ID: B-07 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 15:27
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 04:04
 Analyst: WR
 Percent Solids: 91%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.0	--	1	A
Aroclor 1221	ND		ug/kg	36.0	--	1	A
Aroclor 1232	ND		ug/kg	36.0	--	1	A
Aroclor 1242	ND		ug/kg	36.0	--	1	A
Aroclor 1248	45.5		ug/kg	36.0	--	1	B
Aroclor 1254	208		ug/kg	36.0	--	1	B
Aroclor 1260	128		ug/kg	36.0	--	1	B
Aroclor 1262	ND		ug/kg	36.0	--	1	A
Aroclor 1268	ND		ug/kg	36.0	--	1	A
PCBs, Total	382		ug/kg	36.0	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	B
Decachlorobiphenyl	92		30-150	B
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	81		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-75
Client ID: B-07 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 15:29
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 09/12/19 04:16
Analyst: WR
Percent Solids: 83%

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 14:15
Cleanup Method: EPA 3665A
Cleanup Date: 09/10/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.2	--	1	A
Aroclor 1221	ND		ug/kg	38.2	--	1	A
Aroclor 1232	ND		ug/kg	38.2	--	1	A
Aroclor 1242	ND		ug/kg	38.2	--	1	A
Aroclor 1248	ND		ug/kg	38.2	--	1	A
Aroclor 1254	ND		ug/kg	38.2	--	1	A
Aroclor 1260	ND		ug/kg	38.2	--	1	A
Aroclor 1262	ND		ug/kg	38.2	--	1	A
Aroclor 1268	ND		ug/kg	38.2	--	1	B
PCBs, Total	ND		ug/kg	38.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		30-150	B
Decachlorobiphenyl	111		30-150	B
2,4,5,6-Tetrachloro-m-xylene	66		30-150	A
Decachlorobiphenyl	104		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-86 D
 Client ID: C-08 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:08
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 22:40
 Analyst: AWS
 Percent Solids: 87%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	368	--	10	A
Aroclor 1221	ND		ug/kg	368	--	10	A
Aroclor 1232	ND		ug/kg	368	--	10	A
Aroclor 1242	ND		ug/kg	368	--	10	A
Aroclor 1248	ND		ug/kg	368	--	10	A
Aroclor 1254	ND		ug/kg	368	--	10	A
Aroclor 1260	3500		ug/kg	368	--	10	B
Aroclor 1262	ND		ug/kg	368	--	10	A
Aroclor 1268	ND		ug/kg	368	--	10	A
PCBs, Total	3500		ug/kg	368	--	10	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-87
 Client ID: C-08 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:11
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 04:53
 Analyst: WR
 Percent Solids: 78%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	42.6	--	1	A
Aroclor 1221	ND		ug/kg	42.6	--	1	A
Aroclor 1232	ND		ug/kg	42.6	--	1	A
Aroclor 1242	ND		ug/kg	42.6	--	1	A
Aroclor 1248	ND		ug/kg	42.6	--	1	A
Aroclor 1254	ND		ug/kg	42.6	--	1	A
Aroclor 1260	55.7		ug/kg	42.6	--	1	B
Aroclor 1262	ND		ug/kg	42.6	--	1	A
Aroclor 1268	57.0		ug/kg	42.6	--	1	B
PCBs, Total	113		ug/kg	42.6	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	153	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	138		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-90
 Client ID: SB-DUP-4
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/12/19 05:06
 Analyst: WR
 Percent Solids: 77%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	41.7	--	1	A
Aroclor 1221	ND		ug/kg	41.7	--	1	A
Aroclor 1232	ND		ug/kg	41.7	--	1	A
Aroclor 1242	ND		ug/kg	41.7	--	1	A
Aroclor 1248	ND		ug/kg	41.7	--	1	A
Aroclor 1254	ND		ug/kg	41.7	--	1	A
Aroclor 1260	47.3		ug/kg	41.7	--	1	B
Aroclor 1262	ND		ug/kg	41.7	--	1	A
Aroclor 1268	53.7		ug/kg	41.7	--	1	B
PCBs, Total	101		ug/kg	41.7	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	61		30-150	B
Decachlorobiphenyl	158	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	142		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-99 D
 Client ID: B-09 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:53
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/17/19 15:27
 Analyst: AWS
 Percent Solids: 96%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	335	--	10	A
Aroclor 1221	ND		ug/kg	335	--	10	A
Aroclor 1232	ND		ug/kg	335	--	10	A
Aroclor 1242	ND		ug/kg	335	--	10	A
Aroclor 1248	2790		ug/kg	335	--	10	B
Aroclor 1254	4040		ug/kg	335	--	10	B
Aroclor 1260	3360		ug/kg	335	--	10	B
Aroclor 1262	ND		ug/kg	335	--	10	A
Aroclor 1268	ND		ug/kg	335	--	10	A
PCBs, Total	10200		ug/kg	335	--	10	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-100 D
 Client ID: SB-DUP-3
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 22:52
 Analyst: AWS
 Percent Solids: 96%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	345	--	10	A
Aroclor 1221	ND		ug/kg	345	--	10	A
Aroclor 1232	ND		ug/kg	345	--	10	A
Aroclor 1242	ND		ug/kg	345	--	10	A
Aroclor 1248	2920		ug/kg	345	--	10	A
Aroclor 1254	4310		ug/kg	345	--	10	A
Aroclor 1260	3090		ug/kg	345	--	10	B
Aroclor 1262	ND		ug/kg	345	--	10	A
Aroclor 1268	ND		ug/kg	345	--	10	A
PCBs, Total	10300		ug/kg	345	--	10	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-102 D
 Client ID: B-09 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:55
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 23:04
 Analyst: AWS
 Percent Solids: 91%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	180	--	5	A
Aroclor 1221	ND		ug/kg	180	--	5	A
Aroclor 1232	ND		ug/kg	180	--	5	A
Aroclor 1242	ND		ug/kg	180	--	5	A
Aroclor 1248	640		ug/kg	180	--	5	A
Aroclor 1254	841		ug/kg	180	--	5	A
Aroclor 1260	1190		ug/kg	180	--	5	B
Aroclor 1262	ND		ug/kg	180	--	5	A
Aroclor 1268	ND		ug/kg	180	--	5	A
PCBs, Total	2670		ug/kg	180	--	5	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		30-150	B
Decachlorobiphenyl	181	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	115		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-105 D
 Client ID: B-09 (5-7)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:02
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 23:16
 Analyst: AWS
 Percent Solids: 92%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	173	--	5	A
Aroclor 1221	ND		ug/kg	173	--	5	A
Aroclor 1232	ND		ug/kg	173	--	5	A
Aroclor 1242	ND		ug/kg	173	--	5	A
Aroclor 1248	930		ug/kg	173	--	5	A
Aroclor 1254	1880		ug/kg	173	--	5	A
Aroclor 1260	1610		ug/kg	173	--	5	B
Aroclor 1262	ND		ug/kg	173	--	5	A
Aroclor 1268	ND		ug/kg	173	--	5	A
PCBs, Total	4420		ug/kg	173	--	5	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	167	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	70		30-150	A
Decachlorobiphenyl	109		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-106
 Client ID: A-06 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:33
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 23:41
 Analyst: AWS
 Percent Solids: 97%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.1	--	1	A
Aroclor 1221	ND		ug/kg	34.1	--	1	A
Aroclor 1232	ND		ug/kg	34.1	--	1	A
Aroclor 1242	ND		ug/kg	34.1	--	1	A
Aroclor 1248	ND		ug/kg	34.1	--	1	A
Aroclor 1254	ND		ug/kg	34.1	--	1	A
Aroclor 1260	ND		ug/kg	34.1	--	1	A
Aroclor 1262	ND		ug/kg	34.1	--	1	A
Aroclor 1268	ND		ug/kg	34.1	--	1	A
PCBs, Total	ND		ug/kg	34.1	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	87		30-150	B
2,4,5,6-Tetrachloro-m-xylene	83		30-150	A
Decachlorobiphenyl	70		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-107
 Client ID: A-06 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:36
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 23:29
 Analyst: AWS
 Percent Solids: 97%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.8	--	1	A
Aroclor 1221	ND		ug/kg	33.8	--	1	A
Aroclor 1232	ND		ug/kg	33.8	--	1	A
Aroclor 1242	ND		ug/kg	33.8	--	1	A
Aroclor 1248	ND		ug/kg	33.8	--	1	A
Aroclor 1254	ND		ug/kg	33.8	--	1	A
Aroclor 1260	ND		ug/kg	33.8	--	1	A
Aroclor 1262	ND		ug/kg	33.8	--	1	A
Aroclor 1268	ND		ug/kg	33.8	--	1	B
PCBs, Total	ND		ug/kg	33.8	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		30-150	B
Decachlorobiphenyl	90		30-150	B
2,4,5,6-Tetrachloro-m-xylene	67		30-150	A
Decachlorobiphenyl	68		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-110
 Client ID: SB-DUP-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/13/19 23:53
 Analyst: AWS
 Percent Solids: 97%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	32.3	--	1	A
Aroclor 1221	ND		ug/kg	32.3	--	1	A
Aroclor 1232	ND		ug/kg	32.3	--	1	A
Aroclor 1242	ND		ug/kg	32.3	--	1	A
Aroclor 1248	ND		ug/kg	32.3	--	1	A
Aroclor 1254	ND		ug/kg	32.3	--	1	A
Aroclor 1260	ND		ug/kg	32.3	--	1	A
Aroclor 1262	ND		ug/kg	32.3	--	1	A
Aroclor 1268	ND		ug/kg	32.3	--	1	A
PCBs, Total	ND		ug/kg	32.3	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	B
Decachlorobiphenyl	103		30-150	B
2,4,5,6-Tetrachloro-m-xylene	73		30-150	A
Decachlorobiphenyl	83		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-111 D
 Client ID: B-05 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:48
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/14/19 00:05
 Analyst: AWS
 Percent Solids: 92%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/10/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/10/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	172	--	5	A
Aroclor 1221	ND		ug/kg	172	--	5	A
Aroclor 1232	ND		ug/kg	172	--	5	A
Aroclor 1242	ND		ug/kg	172	--	5	A
Aroclor 1248	1450		ug/kg	172	--	5	A
Aroclor 1254	2160		ug/kg	172	--	5	A
Aroclor 1260	570		ug/kg	172	--	5	B
Aroclor 1262	ND		ug/kg	172	--	5	A
Aroclor 1268	ND		ug/kg	172	--	5	A
PCBs, Total	4180		ug/kg	172	--	5	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	106		30-150	B
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	79		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-112
 Client ID: B-05 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:51
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/14/19 00:17
 Analyst: AWS
 Percent Solids: 86%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:15
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/09/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.9	--	1	A
Aroclor 1221	ND		ug/kg	37.9	--	1	A
Aroclor 1232	ND		ug/kg	37.9	--	1	A
Aroclor 1242	ND		ug/kg	37.9	--	1	A
Aroclor 1248	ND		ug/kg	37.9	--	1	A
Aroclor 1254	ND		ug/kg	37.9	--	1	B
Aroclor 1260	ND		ug/kg	37.9	--	1	B
Aroclor 1262	ND		ug/kg	37.9	--	1	A
Aroclor 1268	ND		ug/kg	37.9	--	1	A
PCBs, Total	ND		ug/kg	37.9	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	B
Decachlorobiphenyl	105		30-150	B
2,4,5,6-Tetrachloro-m-xylene	68		30-150	A
Decachlorobiphenyl	79		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-115
 Client ID: B-05 (3-5)-2
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:57
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 14:58
 Analyst: WR
 Percent Solids: 69%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	47.1	--	1	A
Aroclor 1221	ND		ug/kg	47.1	--	1	A
Aroclor 1232	ND		ug/kg	47.1	--	1	A
Aroclor 1242	ND		ug/kg	47.1	--	1	A
Aroclor 1248	ND		ug/kg	47.1	--	1	A
Aroclor 1254	ND		ug/kg	47.1	--	1	A
Aroclor 1260	ND		ug/kg	47.1	--	1	A
Aroclor 1262	ND		ug/kg	47.1	--	1	A
Aroclor 1268	ND		ug/kg	47.1	--	1	A
PCBs, Total	ND		ug/kg	47.1	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		30-150	B
Decachlorobiphenyl	94		30-150	B
2,4,5,6-Tetrachloro-m-xylene	59		30-150	A
Decachlorobiphenyl	81		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-117 D
 Client ID: C-05 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:12
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/17/19 15:15
 Analyst: AWS
 Percent Solids: 87%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	186	--	5	A
Aroclor 1221	ND		ug/kg	186	--	5	A
Aroclor 1232	ND		ug/kg	186	--	5	A
Aroclor 1242	ND		ug/kg	186	--	5	A
Aroclor 1248	ND		ug/kg	186	--	5	A
Aroclor 1254	ND		ug/kg	186	--	5	A
Aroclor 1260	2560		ug/kg	186	--	5	B
Aroclor 1262	ND		ug/kg	186	--	5	A
Aroclor 1268	ND		ug/kg	186	--	5	A
PCBs, Total	2560		ug/kg	186	--	5	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	145		30-150	B
2,4,5,6-Tetrachloro-m-xylene	67		30-150	A
Decachlorobiphenyl	120		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-118
 Client ID: C-05 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:15
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 15:23
 Analyst: WR
 Percent Solids: 86%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.0	--	1	A
Aroclor 1221	ND		ug/kg	38.0	--	1	A
Aroclor 1232	ND		ug/kg	38.0	--	1	A
Aroclor 1242	ND		ug/kg	38.0	--	1	A
Aroclor 1248	ND		ug/kg	38.0	--	1	A
Aroclor 1254	ND		ug/kg	38.0	--	1	A
Aroclor 1260	57.6		ug/kg	38.0	--	1	B
Aroclor 1262	ND		ug/kg	38.0	--	1	A
Aroclor 1268	ND		ug/kg	38.0	--	1	A
PCBs, Total	57.6		ug/kg	38.0	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		30-150	B
Decachlorobiphenyl	107		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	91		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-121
 Client ID: C-06 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:32
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 15:35
 Analyst: WR
 Percent Solids: 95%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.1	--	1	A
Aroclor 1221	ND		ug/kg	34.1	--	1	A
Aroclor 1232	ND		ug/kg	34.1	--	1	A
Aroclor 1242	ND		ug/kg	34.1	--	1	A
Aroclor 1248	ND		ug/kg	34.1	--	1	A
Aroclor 1254	ND		ug/kg	34.1	--	1	A
Aroclor 1260	ND		ug/kg	34.1	--	1	B
Aroclor 1262	ND		ug/kg	34.1	--	1	A
Aroclor 1268	ND		ug/kg	34.1	--	1	A
PCBs, Total	ND		ug/kg	34.1	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	60		30-150	B
Decachlorobiphenyl	118		30-150	B
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	88		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-122
 Client ID: C-06 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:34
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 15:48
 Analyst: WR
 Percent Solids: 91%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.7	--	1	A
Aroclor 1221	ND		ug/kg	34.7	--	1	A
Aroclor 1232	ND		ug/kg	34.7	--	1	A
Aroclor 1242	ND		ug/kg	34.7	--	1	A
Aroclor 1248	ND		ug/kg	34.7	--	1	A
Aroclor 1254	ND		ug/kg	34.7	--	1	A
Aroclor 1260	ND		ug/kg	34.7	--	1	A
Aroclor 1262	ND		ug/kg	34.7	--	1	A
Aroclor 1268	ND		ug/kg	34.7	--	1	A
PCBs, Total	ND		ug/kg	34.7	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		30-150	B
Decachlorobiphenyl	101		30-150	B
2,4,5,6-Tetrachloro-m-xylene	59		30-150	A
Decachlorobiphenyl	89		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-125
 Client ID: A-05 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 12:12
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:00
 Analyst: WR
 Percent Solids: 93%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.2	--	1	A
Aroclor 1221	ND		ug/kg	35.2	--	1	A
Aroclor 1232	ND		ug/kg	35.2	--	1	A
Aroclor 1242	ND		ug/kg	35.2	--	1	A
Aroclor 1248	ND		ug/kg	35.2	--	1	A
Aroclor 1254	ND		ug/kg	35.2	--	1	A
Aroclor 1260	ND		ug/kg	35.2	--	1	A
Aroclor 1262	ND		ug/kg	35.2	--	1	A
Aroclor 1268	ND		ug/kg	35.2	--	1	A
PCBs, Total	ND		ug/kg	35.2	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	113		30-150	B
2,4,5,6-Tetrachloro-m-xylene	65		30-150	A
Decachlorobiphenyl	104		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-126
 Client ID: A-05 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 12:14
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:12
 Analyst: WR
 Percent Solids: 94%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.9	--	1	A
Aroclor 1221	ND		ug/kg	33.9	--	1	A
Aroclor 1232	ND		ug/kg	33.9	--	1	A
Aroclor 1242	ND		ug/kg	33.9	--	1	A
Aroclor 1248	ND		ug/kg	33.9	--	1	A
Aroclor 1254	ND		ug/kg	33.9	--	1	A
Aroclor 1260	ND		ug/kg	33.9	--	1	A
Aroclor 1262	ND		ug/kg	33.9	--	1	A
Aroclor 1268	ND		ug/kg	33.9	--	1	A
PCBs, Total	ND		ug/kg	33.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	67		30-150	B
Decachlorobiphenyl	158	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	66		30-150	A
Decachlorobiphenyl	137		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-129
 Client ID: E-02 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:05
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:24
 Analyst: WR
 Percent Solids: 94%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.8	--	1	A
Aroclor 1221	ND		ug/kg	33.8	--	1	A
Aroclor 1232	ND		ug/kg	33.8	--	1	A
Aroclor 1242	ND		ug/kg	33.8	--	1	A
Aroclor 1248	ND		ug/kg	33.8	--	1	A
Aroclor 1254	ND		ug/kg	33.8	--	1	A
Aroclor 1260	127		ug/kg	33.8	--	1	B
Aroclor 1262	ND		ug/kg	33.8	--	1	A
Aroclor 1268	ND		ug/kg	33.8	--	1	A
PCBs, Total	127		ug/kg	33.8	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	56		30-150	B
Decachlorobiphenyl	117		30-150	B
2,4,5,6-Tetrachloro-m-xylene	56		30-150	A
Decachlorobiphenyl	80		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-130
 Client ID: E-02 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:08
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:37
 Analyst: WR
 Percent Solids: 95%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.6	--	1	A
Aroclor 1221	ND		ug/kg	33.6	--	1	A
Aroclor 1232	ND		ug/kg	33.6	--	1	A
Aroclor 1242	ND		ug/kg	33.6	--	1	A
Aroclor 1248	ND		ug/kg	33.6	--	1	A
Aroclor 1254	ND		ug/kg	33.6	--	1	A
Aroclor 1260	ND		ug/kg	33.6	--	1	A
Aroclor 1262	ND		ug/kg	33.6	--	1	A
Aroclor 1268	ND		ug/kg	33.6	--	1	A
PCBs, Total	ND		ug/kg	33.6	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		30-150	B
Decachlorobiphenyl	105		30-150	B
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	89		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-137
 Client ID: SB-1 (0-0.5)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:33
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 16:49
 Analyst: WR
 Percent Solids: 95%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.2	--	1	A
Aroclor 1221	ND		ug/kg	34.2	--	1	A
Aroclor 1232	ND		ug/kg	34.2	--	1	A
Aroclor 1242	ND		ug/kg	34.2	--	1	A
Aroclor 1248	ND		ug/kg	34.2	--	1	A
Aroclor 1254	ND		ug/kg	34.2	--	1	A
Aroclor 1260	ND		ug/kg	34.2	--	1	B
Aroclor 1262	ND		ug/kg	34.2	--	1	A
Aroclor 1268	ND		ug/kg	34.2	--	1	A
PCBs, Total	ND		ug/kg	34.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	61		30-150	B
Decachlorobiphenyl	88		30-150	B
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	78		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
 Client ID: SB-1 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 18:09
 Analyst: WR
 Percent Solids: 92%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.2	--	1	A
Aroclor 1221	ND		ug/kg	36.2	--	1	A
Aroclor 1232	ND		ug/kg	36.2	--	1	A
Aroclor 1242	ND		ug/kg	36.2	--	1	A
Aroclor 1248	ND		ug/kg	36.2	--	1	A
Aroclor 1254	ND		ug/kg	36.2	--	1	A
Aroclor 1260	83.8		ug/kg	36.2	--	1	B
Aroclor 1262	ND		ug/kg	36.2	--	1	A
Aroclor 1268	ND		ug/kg	36.2	--	1	A
PCBs, Total	83.8		ug/kg	36.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	B
Decachlorobiphenyl	104		30-150	B
2,4,5,6-Tetrachloro-m-xylene	61		30-150	A
Decachlorobiphenyl	94		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-139
 Client ID: SB-1 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:39
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 18:21
 Analyst: WR
 Percent Solids: 90%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.8	--	1	A
Aroclor 1221	ND		ug/kg	36.8	--	1	A
Aroclor 1232	ND		ug/kg	36.8	--	1	A
Aroclor 1242	ND		ug/kg	36.8	--	1	A
Aroclor 1248	ND		ug/kg	36.8	--	1	A
Aroclor 1254	ND		ug/kg	36.8	--	1	A
Aroclor 1260	51.4		ug/kg	36.8	--	1	B
Aroclor 1262	ND		ug/kg	36.8	--	1	A
Aroclor 1268	ND		ug/kg	36.8	--	1	A
PCBs, Total	51.4		ug/kg	36.8	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	61		30-150	B
Decachlorobiphenyl	113		30-150	B
2,4,5,6-Tetrachloro-m-xylene	61		30-150	A
Decachlorobiphenyl	99		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-140
Client ID: SB-DUP-1
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 09/16/19 18:33
Analyst: WR
Percent Solids: 95%

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 14:45
Cleanup Method: EPA 3665A
Cleanup Date: 09/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.1	--	1	A
Aroclor 1221	ND		ug/kg	33.1	--	1	A
Aroclor 1232	ND		ug/kg	33.1	--	1	A
Aroclor 1242	ND		ug/kg	33.1	--	1	A
Aroclor 1248	ND		ug/kg	33.1	--	1	A
Aroclor 1254	ND		ug/kg	33.1	--	1	A
Aroclor 1260	88.0		ug/kg	33.1	--	1	B
Aroclor 1262	ND		ug/kg	33.1	--	1	A
Aroclor 1268	ND		ug/kg	33.1	--	1	A
PCBs, Total	88.0		ug/kg	33.1	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	108		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	93		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-141
 Client ID: SB-1 (3-5)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:42
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 09/16/19 18:53
 Analyst: WR
 Percent Solids: 78%

Extraction Method: EPA 3540C
 Extraction Date: 09/07/19 14:45
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/16/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	41.0	--	1	A
Aroclor 1221	ND		ug/kg	41.0	--	1	A
Aroclor 1232	ND		ug/kg	41.0	--	1	A
Aroclor 1242	ND		ug/kg	41.0	--	1	A
Aroclor 1248	ND		ug/kg	41.0	--	1	A
Aroclor 1254	ND		ug/kg	41.0	--	1	A
Aroclor 1260	ND		ug/kg	41.0	--	1	A
Aroclor 1262	ND		ug/kg	41.0	--	1	A
Aroclor 1268	ND		ug/kg	41.0	--	1	A
PCBs, Total	ND		ug/kg	41.0	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	B
Decachlorobiphenyl	90		30-150	B
2,4,5,6-Tetrachloro-m-xylene	55		30-150	A
Decachlorobiphenyl	74		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 09/11/19 22:26
Analyst: WR

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 10:25
Cleanup Method: EPA 3665A
Cleanup Date: 09/09/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01-09 Batch: WG1281465-1						
Aroclor 1016	ND		ug/kg	56.3	--	B
Aroclor 1221	ND		ug/kg	56.3	--	B
Aroclor 1232	ND		ug/kg	56.3	--	B
Aroclor 1242	ND		ug/kg	56.3	--	B
Aroclor 1248	ND		ug/kg	37.5	--	B
Aroclor 1254	ND		ug/kg	56.3	--	B
Aroclor 1260	ND		ug/kg	37.5	--	B
Aroclor 1262	ND		ug/kg	18.8	--	B
Aroclor 1268	ND		ug/kg	18.8	--	B
PCBs, Total	ND		ug/kg	18.8	--	B

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	B
Decachlorobiphenyl	85		30-150	B
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	71		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 09/11/19 07:16
Analyst: KB

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 11:55
Cleanup Method: EPA 3665A
Cleanup Date: 09/09/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 10-13,19,33,40-41,45,51-52 Batch: WG1281488-1						
Aroclor 1016	ND		ug/kg	32.8	--	A
Aroclor 1221	ND		ug/kg	32.8	--	A
Aroclor 1232	ND		ug/kg	32.8	--	A
Aroclor 1242	ND		ug/kg	32.8	--	A
Aroclor 1248	ND		ug/kg	32.8	--	A
Aroclor 1254	ND		ug/kg	32.8	--	A
Aroclor 1260	ND		ug/kg	32.8	--	A
Aroclor 1262	ND		ug/kg	32.8	--	A
Aroclor 1268	ND		ug/kg	32.8	--	A
PCBs, Total	ND		ug/kg	32.8	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	96		30-150	B
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	86		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8082A
Analytical Date: 09/12/19 05:18
Analyst: WR

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 14:15
Cleanup Method: EPA 3665A
Cleanup Date: 09/09/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 56-58,61,66-67,74-75,86-87,90,99-100,102,105-107,110-112 Batch: WG1281518-1						
Aroclor 1016	ND		ug/kg	32.2	--	A
Aroclor 1221	ND		ug/kg	32.2	--	A
Aroclor 1232	ND		ug/kg	32.2	--	A
Aroclor 1242	ND		ug/kg	32.2	--	A
Aroclor 1248	ND		ug/kg	32.2	--	A
Aroclor 1254	ND		ug/kg	32.2	--	A
Aroclor 1260	ND		ug/kg	32.2	--	A
Aroclor 1262	ND		ug/kg	32.2	--	A
Aroclor 1268	ND		ug/kg	32.2	--	A
PCBs, Total	ND		ug/kg	32.2	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	93		30-150	B
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	81		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 09/16/19 17:01
Analyst: WR

Extraction Method: EPA 3540C
Extraction Date: 09/07/19 14:45
Cleanup Method: EPA 3665A
Cleanup Date: 09/16/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/16/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 115,117-118,121-122,125-126,129-130,137-141 Batch: WG1281533-1						
Aroclor 1016	ND		ug/kg	32.5	--	A
Aroclor 1221	ND		ug/kg	32.5	--	A
Aroclor 1232	ND		ug/kg	32.5	--	A
Aroclor 1242	ND		ug/kg	32.5	--	A
Aroclor 1248	ND		ug/kg	32.5	--	A
Aroclor 1254	ND		ug/kg	32.5	--	A
Aroclor 1260	ND		ug/kg	32.5	--	A
Aroclor 1262	ND		ug/kg	32.5	--	A
Aroclor 1268	ND		ug/kg	32.5	--	A
PCBs, Total	ND		ug/kg	32.5	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		30-150	B
Decachlorobiphenyl	88		30-150	B
2,4,5,6-Tetrachloro-m-xylene	61		30-150	A
Decachlorobiphenyl	74		30-150	A

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 97,8082A
Analytical Date: 09/10/19 14:23
Analyst: WR

Extraction Method: EPA 3540C
Extraction Date: 09/08/19 17:20
Cleanup Method: EPA 3665A
Cleanup Date: 09/09/19
Cleanup Method: EPA 3660B
Cleanup Date: 09/09/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 15-18,22-25,32 Batch: WG1281633-1						
Aroclor 1016	ND		ug/kg	32.7	--	A
Aroclor 1221	ND		ug/kg	32.7	--	A
Aroclor 1232	ND		ug/kg	32.7	--	A
Aroclor 1242	ND		ug/kg	32.7	--	A
Aroclor 1248	ND		ug/kg	32.7	--	A
Aroclor 1254	ND		ug/kg	32.7	--	A
Aroclor 1260	ND		ug/kg	32.7	--	A
Aroclor 1262	ND		ug/kg	32.7	--	A
Aroclor 1268	ND		ug/kg	32.7	--	A
PCBs, Total	ND		ug/kg	32.7	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	82		30-150	B
2,4,5,6-Tetrachloro-m-xylene	67		30-150	A
Decachlorobiphenyl	62		30-150	A

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-09 Batch: WG1281465-2 WG1281465-3									
Aroclor 1016	73		82		40-140	12		30	B
Aroclor 1260	67		75		40-140	11		30	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	67		74		30-150	B
Decachlorobiphenyl	76		83		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		69		30-150	A
Decachlorobiphenyl	63		69		30-150	A



Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 10-13,19,33,40-41,45,51-52 Batch: WG1281488-2 WG1281488-3									
Aroclor 1016	75		76		40-140	1		30	A
Aroclor 1260	63		63		40-140	0		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	82		84		30-150	B
Decachlorobiphenyl	87		82		30-150	B
2,4,5,6-Tetrachloro-m-xylene	81		83		30-150	A
Decachlorobiphenyl	80		74		30-150	A



Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 56-58,61,66-67,74-75,86-87,90,99-100,102,105-107,110-112 Batch: WG1281518-2 WG1281518-3									
Aroclor 1016	78		80		40-140	3		30	A
Aroclor 1260	71		72		40-140	1		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		77		30-150	B
Decachlorobiphenyl	88		88		30-150	B
2,4,5,6-Tetrachloro-m-xylene	74		76		30-150	A
Decachlorobiphenyl	76		77		30-150	A



Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 115,117-118,121-122,125-126,129-130,137-141 Batch: WG1281533-2 WG1281533-3									
Aroclor 1016	72		73		40-140	1		30	A
Aroclor 1260	72		75		40-140	4		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		69		30-150	B
Decachlorobiphenyl	95		90		30-150	B
2,4,5,6-Tetrachloro-m-xylene	68		67		30-150	A
Decachlorobiphenyl	77		78		30-150	A



Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 15-18,22-25,32 Batch: WG1281633-2 WG1281633-3									
Aroclor 1016	84		89		40-140	6		30	A
Aroclor 1260	60		55		40-140	9		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		69		30-150	B
Decachlorobiphenyl	68		64		30-150	B
2,4,5,6-Tetrachloro-m-xylene	69		71		30-150	A
Decachlorobiphenyl	40		39		30-150	A



METALS

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-11

Date Collected: 09/04/19 08:50

Client ID: SB-4 (1-2)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	3.39		mg/kg	0.410	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC
Barium, Total	62.6		mg/kg	0.410	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC
Cadmium, Total	0.672		mg/kg	0.410	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC
Chromium, Total	47.3		mg/kg	0.410	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC
Lead, Total	12.6		mg/kg	2.05	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC
Mercury, Total	ND		mg/kg	0.080	--	1	09/16/19 06:00	09/16/19 17:10	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.05	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.410	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC
Zinc, Total	30.1		mg/kg	2.05	--	1	09/15/19 17:40	09/16/19 22:26	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-12

Date Collected: 09/04/19 08:40

Client ID: SB-4 (2-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	4.72		mg/kg	0.429	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC
Barium, Total	34.3		mg/kg	0.429	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC
Cadmium, Total	0.939		mg/kg	0.429	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC
Chromium, Total	11.3		mg/kg	0.429	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC
Lead, Total	99.1		mg/kg	2.14	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC
Mercury, Total	ND		mg/kg	0.081	--	1	09/16/19 06:00	09/16/19 17:14	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.14	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.429	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC
Zinc, Total	41.7		mg/kg	2.14	--	1	09/15/19 17:40	09/16/19 22:48	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-15

Date Collected: 09/04/19 09:10

Client ID: SB-4 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	9.82		mg/kg	0.527	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC
Barium, Total	170		mg/kg	0.527	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC
Cadmium, Total	0.733		mg/kg	0.527	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC
Chromium, Total	11.9		mg/kg	0.527	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC
Lead, Total	96.0		mg/kg	2.64	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC
Mercury, Total	ND		mg/kg	0.097	--	1	09/16/19 06:00	09/16/19 17:25	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.64	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.527	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC
Zinc, Total	109		mg/kg	2.64	--	1	09/15/19 17:40	09/16/19 23:01	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-17
 Client ID: SB-3 (1-2)
 Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:25
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	4.74		mg/kg	0.412	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC
Barium, Total	26.4		mg/kg	0.412	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC
Cadmium, Total	0.461		mg/kg	0.412	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC
Chromium, Total	17.8		mg/kg	0.412	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC
Lead, Total	48.7		mg/kg	2.06	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC
Mercury, Total	ND		mg/kg	0.078	--	1	09/16/19 06:00	09/16/19 17:27	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.06	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.412	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC
Zinc, Total	51.4		mg/kg	2.06	--	1	09/15/19 17:40	09/16/19 23:05	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-18

Date Collected: 09/04/19 09:30

Client ID: SB-3 (2-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	4.35		mg/kg	0.404	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC
Barium, Total	27.5		mg/kg	0.404	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC
Cadmium, Total	0.565		mg/kg	0.404	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC
Chromium, Total	9.98		mg/kg	0.404	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC
Lead, Total	108		mg/kg	2.02	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC
Mercury, Total	ND		mg/kg	0.079	--	1	09/16/19 06:00	09/16/19 17:29	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.02	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.404	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC
Zinc, Total	46.6		mg/kg	2.02	--	1	09/15/19 17:40	09/16/19 23:09	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-21

Date Collected: 09/04/19 09:40

Client ID: SB-3 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	6.04		mg/kg	0.459	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC
Barium, Total	51.3		mg/kg	0.459	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC
Cadmium, Total	0.826		mg/kg	0.459	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC
Chromium, Total	25.0		mg/kg	0.459	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC
Lead, Total	153		mg/kg	2.29	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC
Mercury, Total	0.160		mg/kg	0.090	--	1	09/16/19 06:00	09/16/19 17:31	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.29	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.459	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC
Zinc, Total	74.4		mg/kg	2.29	--	1	09/15/19 17:40	09/16/19 23:13	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-23

Date Collected: 09/04/19 10:05

Client ID: SB-2 (1-2)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	9.19		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC
Barium, Total	132		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC
Cadmium, Total	0.851		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC
Chromium, Total	67.9		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC
Lead, Total	215		mg/kg	2.18	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC
Mercury, Total	0.330		mg/kg	0.080	--	1	09/16/19 06:00	09/16/19 16:53	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.18	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC
Zinc, Total	123		mg/kg	2.18	--	1	09/15/19 17:40	09/16/19 21:11	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-24

Date Collected: 09/04/19 10:07

Client ID: SB-2 (2-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	8.41		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC
Barium, Total	98.5		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC
Cadmium, Total	0.875		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC
Chromium, Total	47.7		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC
Lead, Total	149		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC
Mercury, Total	2.03		mg/kg	0.088	--	1	09/16/19 06:00	09/16/19 17:33	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC
Zinc, Total	116		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 23:17	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-27

Date Collected: 09/04/19 10:20

Client ID: SB-2 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	7.93		mg/kg	0.493	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC
Barium, Total	126		mg/kg	0.493	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC
Cadmium, Total	1.33		mg/kg	0.493	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC
Chromium, Total	41.3		mg/kg	0.493	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC
Lead, Total	698		mg/kg	2.46	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC
Mercury, Total	0.393		mg/kg	0.092	--	1	09/16/19 06:00	09/16/19 17:35	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.46	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.493	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC
Zinc, Total	512		mg/kg	2.46	--	1	09/15/19 17:40	09/16/19 23:22	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-44

Date Collected: 09/04/19 12:16

Client ID: D-07 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	8.68		mg/kg	0.424	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC
Barium, Total	297		mg/kg	0.424	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC
Cadmium, Total	3.02		mg/kg	0.424	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC
Chromium, Total	26.2		mg/kg	0.424	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC
Lead, Total	2650		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC
Mercury, Total	0.326		mg/kg	0.081	--	1	09/16/19 06:00	09/16/19 17:37	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.424	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC
Zinc, Total	722		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 23:52	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-45

Date Collected: 09/04/19 12:30

Client ID: D-07 (7-9)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	3.80		mg/kg	0.499	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC
Barium, Total	17.2		mg/kg	0.499	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC
Cadmium, Total	ND		mg/kg	0.499	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC
Chromium, Total	15.2		mg/kg	0.499	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC
Lead, Total	10.5		mg/kg	2.49	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC
Mercury, Total	ND		mg/kg	0.095	--	1	09/16/19 06:00	09/16/19 17:39	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.49	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.499	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC
Zinc, Total	25.3		mg/kg	2.49	--	1	09/15/19 17:40	09/16/19 23:57	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-50

Date Collected: 09/04/19 00:00

Client ID: SB-DUP-5

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	8.93		mg/kg	0.424	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC
Barium, Total	168		mg/kg	0.424	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC
Cadmium, Total	2.78		mg/kg	0.424	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC
Chromium, Total	30.8		mg/kg	0.424	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC
Lead, Total	1220		mg/kg	2.12	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC
Mercury, Total	0.462		mg/kg	0.083	--	1	09/16/19 06:00	09/16/19 17:41	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.12	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.424	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC
Zinc, Total	534		mg/kg	2.12	--	1	09/15/19 17:40	09/17/19 00:01	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-55

Date Collected: 09/04/19 13:24

Client ID: E-06 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	6.53		mg/kg	0.425	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC
Barium, Total	269		mg/kg	0.425	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC
Cadmium, Total	1.82		mg/kg	0.425	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC
Chromium, Total	48.6		mg/kg	0.425	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC
Lead, Total	241		mg/kg	2.12	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC
Mercury, Total	2.59		mg/kg	0.079	--	1	09/16/19 06:00	09/16/19 17:43	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.12	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.425	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC
Zinc, Total	415		mg/kg	2.12	--	1	09/15/19 17:40	09/17/19 00:05	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-56

Date Collected: 09/04/19 13:35

Client ID: E-06 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	6.74		mg/kg	0.489	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC
Barium, Total	75.0		mg/kg	0.489	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC
Cadmium, Total	1.74		mg/kg	0.489	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC
Chromium, Total	24.6		mg/kg	0.489	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC
Lead, Total	50.8		mg/kg	2.45	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC
Mercury, Total	0.362		mg/kg	0.095	--	1	09/16/19 06:00	09/16/19 17:49	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.45	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.489	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC
Zinc, Total	52.3		mg/kg	2.45	--	1	09/15/19 17:40	09/17/19 00:10	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-101

Date Collected: 09/05/19 09:54

Client ID: B-09 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	17.0		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC
Barium, Total	328		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC
Cadmium, Total	6.38		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC
Chromium, Total	37.8		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC
Lead, Total	717		mg/kg	2.04	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC
Mercury, Total	0.789		mg/kg	0.083	--	1	09/16/19 06:00	09/16/19 17:07	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.04	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC
Silver, Total	0.481		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC
Zinc, Total	774		mg/kg	2.04	--	1	09/15/19 17:40	09/16/19 22:17	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-105

Date Collected: 09/05/19 10:02

Client ID: B-09 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	10.6		mg/kg	0.423	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC
Barium, Total	410		mg/kg	0.423	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC
Cadmium, Total	6.16		mg/kg	0.423	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC
Chromium, Total	40.0		mg/kg	0.423	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC
Lead, Total	1150		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC
Mercury, Total	0.887		mg/kg	0.083	--	1	09/16/19 06:00	09/16/19 17:08	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC
Silver, Total	2.11		mg/kg	0.423	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC
Zinc, Total	914		mg/kg	2.12	--	1	09/15/19 17:40	09/16/19 22:21	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-113

Date Collected: 09/05/19 10:54

Client ID: B-05 (1-3)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	49.0		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC
Barium, Total	59.0		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC
Cadmium, Total	2.66		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC
Chromium, Total	19.4		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC
Lead, Total	242		mg/kg	2.18	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC
Mercury, Total	0.612		mg/kg	0.087	--	1	09/16/19 07:00	09/16/19 17:56	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.18	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.436	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC
Zinc, Total	245		mg/kg	2.18	--	1	09/15/19 17:40	09/16/19 21:37	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-115

Date Collected: 09/05/19 10:57

Client ID: B-05 (3-5)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	13.4		mg/kg	0.562	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC
Barium, Total	26.0		mg/kg	0.562	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC
Cadmium, Total	0.601		mg/kg	0.562	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC
Chromium, Total	15.8		mg/kg	0.562	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC
Lead, Total	33.4		mg/kg	2.81	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC
Mercury, Total	0.107		mg/kg	0.107	--	1	09/16/19 06:00	09/16/19 17:12	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.81	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.562	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC
Zinc, Total	31.7		mg/kg	2.81	--	1	09/15/19 17:40	09/16/19 22:31	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-138

Date Collected: 09/05/19 13:36

Client ID: SB-1 (1-2)

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	5.94		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC
Barium, Total	74.6		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC
Cadmium, Total	1.11		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC
Chromium, Total	25.6		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC
Lead, Total	342		mg/kg	2.13	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC
Mercury, Total	0.121		mg/kg	0.081	--	1	09/16/19 06:00	09/16/19 17:16	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.13	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.425	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC
Zinc, Total	135		mg/kg	2.13	--	1	09/15/19 17:40	09/16/19 22:52	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-139
 Client ID: SB-1 (2-3)
 Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:39
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	6.12		mg/kg	0.417	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC
Barium, Total	58.3		mg/kg	0.417	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC
Cadmium, Total	0.921		mg/kg	0.417	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC
Chromium, Total	13.9		mg/kg	0.417	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC
Lead, Total	236		mg/kg	2.08	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC
Mercury, Total	0.306		mg/kg	0.084	--	1	09/16/19 08:20	09/16/19 16:15	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.08	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.417	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC
Zinc, Total	121		mg/kg	2.08	--	1	09/16/19 14:06	09/17/19 00:14	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-140

Date Collected: 09/05/19 00:00

Client ID: SB-DUP-1

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	6.44		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC
Barium, Total	99.9		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC
Cadmium, Total	1.04		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC
Chromium, Total	30.6		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC
Lead, Total	371		mg/kg	2.04	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC
Mercury, Total	0.139		mg/kg	0.078	--	1	09/16/19 06:00	09/16/19 17:18	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.04	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.408	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC
Zinc, Total	151		mg/kg	2.04	--	1	09/15/19 17:40	09/16/19 22:56	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**SAMPLE RESULTS**

Lab ID: L1940717-143

Date Collected: 09/05/19 13:48

Client ID: SB-1 (5-7)-2

Date Received: 09/06/19

Sample Location: LAWRENCE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Arsenic, Total	8.94		mg/kg	0.496	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC
Barium, Total	100		mg/kg	0.496	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC
Cadmium, Total	1.60		mg/kg	0.496	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC
Chromium, Total	16.9		mg/kg	0.496	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC
Lead, Total	272		mg/kg	2.48	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC
Mercury, Total	0.329		mg/kg	0.095	--	1	09/16/19 06:00	09/16/19 17:20	EPA 7471B	97,7471B	GD
Selenium, Total	ND		mg/kg	2.48	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC
Silver, Total	ND		mg/kg	0.496	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC
Zinc, Total	129		mg/kg	2.48	--	1	09/16/19 14:06	09/17/19 00:53	EPA 3050B	97,6010D	MC



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140 Batch: WG1284380-1									
Arsenic, Total	ND	mg/kg	0.400	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC
Barium, Total	ND	mg/kg	0.400	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC
Cadmium, Total	ND	mg/kg	0.400	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC
Chromium, Total	ND	mg/kg	0.400	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC
Lead, Total	ND	mg/kg	2.00	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC
Selenium, Total	ND	mg/kg	2.00	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC
Silver, Total	ND	mg/kg	0.400	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC
Zinc, Total	ND	mg/kg	2.00	--	1	09/15/19 17:40	09/16/19 20:12	97,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,115,138,140,143 Batch: WG1284435-1									
Mercury, Total	ND	mg/kg	0.083	--	1	09/16/19 06:00	09/16/19 16:47	97,7471B	GD

Prep Information

Digestion Method: EPA 7471B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 113 Batch: WG1284436-1									
Mercury, Total	ND	mg/kg	0.083	--	1	09/16/19 07:00	09/16/19 17:50	97,7471B	GD

Prep Information

Digestion Method: EPA 7471B



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 139 Batch: WG1284469-1									
Mercury, Total	ND	mg/kg	0.083	--	1	09/16/19 08:20	09/16/19 16:05	97,7471B	GD

Prep Information

Digestion Method: EPA 7471B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 139,143 Batch: WG1284649-1									
Arsenic, Total	ND	mg/kg	0.400	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC
Barium, Total	ND	mg/kg	0.400	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC
Cadmium, Total	ND	mg/kg	0.400	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC
Chromium, Total	ND	mg/kg	0.400	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC
Lead, Total	ND	mg/kg	2.00	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC
Selenium, Total	ND	mg/kg	2.00	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC
Silver, Total	ND	mg/kg	0.400	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC
Zinc, Total	ND	mg/kg	2.00	--	1	09/16/19 14:06	09/16/19 23:39	97,6010D	MC

Prep Information

Digestion Method: EPA 3050B



Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Total Metals - Mansfield Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140 Batch: WG1284380-2 WG1284380-3 SRM Lot Number: D105-540								
Arsenic, Total	92		93		70-130	1		30
Barium, Total	80		87		75-125	8		30
Cadmium, Total	96		94		75-125	2		30
Chromium, Total	80		83		70-130	4		30
Lead, Total	83		84		71-128	1		30
Selenium, Total	91		92		63-137	1		30
Silver, Total	83		85		69-131	2		30
Zinc, Total	85		86		70-130	1		30
MCP Total Metals - Mansfield Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,115,138,140,143 Batch: WG1284435-2 WG1284435-3 SRM Lot Number: D105-540								
Mercury, Total	94		96		60-141	2		30
MCP Total Metals - Mansfield Lab Associated sample(s): 113 Batch: WG1284436-2 WG1284436-3 SRM Lot Number: D105-540								
Mercury, Total	90		94		60-141	4		30
MCP Total Metals - Mansfield Lab Associated sample(s): 139 Batch: WG1284469-2 WG1284469-3 SRM Lot Number: D105-540								
Mercury, Total	91		96		60-141	5		30



Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Project Number: 17001426

Lab Number: L1940717

Report Date: 09/20/19

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 139,143 Batch: WG1284649-2 WG1284649-3 SRM Lot Number: D105-540					
Arsenic, Total	94	92	70-130	2	30
Barium, Total	86	89	75-125	3	30
Cadmium, Total	89	94	75-125	5	30
Chromium, Total	81	82	70-130	1	30
Lead, Total	84	81	71-128	4	30
Selenium, Total	92	90	63-137	2	30
Silver, Total	86	85	69-131	1	30
Zinc, Total	85	86	70-130	1	30

Matrix Spike Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140 QC Batch ID: WG1284380-4 WG1284380-5 QC Sample: L1940717-23 Client ID: SB-2 (1-2)												
Arsenic, Total	9.19	10.2	18.9	95		17.7	82		75-125	7		35
Barium, Total	132	170	242	65	Q	238	61	Q	75-125	2		35
Cadmium, Total	0.851	4.33	4.58	86		4.80	90		75-125	5		35
Chromium, Total	67.9	17	82.3	85		53.8	0	Q	75-125	42	Q	35
Lead, Total	215	43.3	207	0	Q	200	0	Q	75-125	3		35
Selenium, Total	ND	10.2	9.20	90		9.60	93		75-125	4		35
Silver, Total	ND	25.4	22.2	87		22.9	88		75-125	3		35
Zinc, Total	123	42.4	155	75		185	144	Q	75-125	18		35

MCP Total Metals - Mansfield Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140 QC Batch ID: WG1284380-7
WG1284380-8 QC Sample: L1940717-113 Client ID: B-05 (1-3)

Arsenic, Total	49.0	10.8	57.3	77		58.6	92		75-125	2		35
Barium, Total	59.0	180	226	93		215	90		75-125	5		35
Cadmium, Total	2.66	4.59	6.43	82		6.26	81		75-125	3		35
Chromium, Total	19.4	18	32.1	70	Q	32.8	77		75-125	2		35
Lead, Total	242	45.9	263	46	Q	304	140	Q	75-125	14		35
Selenium, Total	ND	10.8	11.1	103		10.7	103		75-125	4		35
Silver, Total	ND	27	24.3	90		23.3	89		75-125	4		35
Zinc, Total	245	45	613	818	Q	273	64	Q	75-125	77	Q	35

MCP Total Metals - Mansfield Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,115,138,140,143 QC Batch ID: WG1284435-4
WG1284435-5 QC Sample: L1940717-23 Client ID: SB-2 (1-2)

Mercury, Total	0.330	0.167	0.504	104		0.523	120		75-125	4		35
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Matrix Spike Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 113 QC Batch ID: WG1284436-4 WG1284436-5 QC Sample: L1940717-113 Client ID: B-05 (1-3)									
Mercury, Total	0.612	0.17	0.793	107	0.743	76	75-125	7	35
MCP Total Metals - Mansfield Lab Associated sample(s): 139 QC Batch ID: WG1284469-4 WG1284469-5 QC Sample: L1940717-139 Client ID: SB-1 (2-3)									
Mercury, Total	0.306	0.164	0.503	120	0.544	141	Q 75-125	8	35
MCP Total Metals - Mansfield Lab Associated sample(s): 139,143 QC Batch ID: WG1284649-4 WG1284649-5 QC Sample: L1940717-139 Client ID: SB-1 (2-3)									
Arsenic, Total	6.12	10.6	22.0	149	Q 22.1	149	Q 75-125	0	35
Barium, Total	58.3	177	224	93	224	93	75-125	0	35
Cadmium, Total	0.921	4.52	6.46	122	6.23	116	75-125	4	35
Chromium, Total	13.9	17.7	34.9	118	35.3	120	75-125	1	35
Lead, Total	236	45.2	271	77	293	125	75-125	8	35
Selenium, Total	ND	10.6	9.54	90	9.84	92	75-125	3	35
Silver, Total	ND	26.6	24.0	90	24.6	92	75-125	2	35
Zinc, Total	121	44.3	162	92	164	96	75-125	1	35

Project Name: TOMBARELLO SITE

Project Number: 17001426

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L1940717

Report Date: 09/20/19

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140 QC Batch ID: WG1284380-6 QC Sample: L1940717-23 Client ID: SB-2 (1-2)						
Barium, Total	132	103	mg/kg	22	Q	20
Chromium, Total	67.9	70.8	mg/kg	4		20
Lead, Total	215	279	mg/kg	30	Q	20
Zinc, Total	123	158	mg/kg	28	Q	20
MCP Total Metals - Mansfield Lab Associated sample(s): 11-12,15,17-18,21,23-24,27,44-45,50,55-56,101,105,113,115,138,140 QC Batch ID: WG1284380-9 QC Sample: L1940717-113 Client ID: B-05 (1-3)						
Arsenic, Total	49.0	57.0	mg/kg	16		20
Barium, Total	59.0	49.4	mg/kg	16		20
Lead, Total	242	306	mg/kg	26	Q	20
Zinc, Total	245	313	mg/kg	28	Q	20

INORGANICS & MISCELLANEOUS

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-01
Client ID: AS-5
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:05
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	100		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-02
Client ID: AS-6
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:15
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	100		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-03
Client ID: AS-7
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	99.0		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-04
Client ID: AS-8
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:25
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	100		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-05
Client ID: AS-1
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:45
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	99.0		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-06
Client ID: AS-2
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:50
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	99.8		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-07
Client ID: AS-3
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 11:55
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	99.6		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-08
Client ID: AS-4
Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 12:05
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	100		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-09
 Client ID: AS-DUP-1
 Sample Location: LAWRENCE, MA

Date Collected: 09/03/19 00:00
 Date Received: 09/06/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	100		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-10
Client ID: SB-4 (0-0.5)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.9		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-11
Client ID: SB-4 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:50
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.846	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI
pH (H)	5.7		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	140		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-12
Client ID: SB-4 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 08:40
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.857	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	93.3		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI
pH (H)	6.3		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	190		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-13
Client ID: SB-4 (3-5)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:05
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-15
Client ID: SB-4 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:10
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	1.06	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	75.3		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI
pH (H)	7.5		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	140		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-16
Client ID: SB-3 (0-0.5)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-17
Client ID: SB-3 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:25
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.853	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI
pH (H)	6.5		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	150		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-18
Client ID: SB-3 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.846	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI
pH (H)	7.6		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	130		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-19
Client ID: SB-3 (3-5)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:35
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.2		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-21
Client ID: SB-3 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 09:40
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.966	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI
pH (H)	6.2		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	150		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-22
Client ID: SB-2 (0-0.5)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.8		%	0.100	NA	1	-	09/07/19 09:07	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-23
Client ID: SB-2 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:05
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.885	--	1	09/13/19 22:25	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	90.4		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	7.9		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	140		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-24
Client ID: SB-2 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:07
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	1.13		mg/kg	0.897	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	7.8		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	160		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-25
Client ID: SB-2 (3-5)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:15
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-27
Client ID: SB-2 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 10:20
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.985	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	7.6		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	150		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-32
Client ID: E-08 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 11:25
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.0		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-33
Client ID: E-08 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 11:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.9		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-40
Client ID: D-07 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:12
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.3		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-41
Client ID: D-07 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:14
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.4		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-44
Client ID: D-07 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:16
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.881	--	1	09/13/19 22:25	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	7.8		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	140		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-45
Client ID: D-07 (7-9)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 12:30
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	1.03	--	1	09/13/19 22:25	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	77.6		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	6.4		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	140		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-50
Client ID: SB-DUP-5
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.881	--	1	09/13/19 22:25	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	7.5		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	150		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-51
Client ID: E-06 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:22
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.3		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-52
Client ID: E-06 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:26
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-55
Client ID: E-06 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:24
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.856	--	1	09/13/19 22:25	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	93.5		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	7.4		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	140		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-56
Client ID: E-06 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 13:35
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	1.02	--	1	09/13/19 22:25	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI
pH (H)	7.6		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	150		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-57
Client ID: E-05 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:10
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.0		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-58
Client ID: E-05 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:12
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.4		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-61
Client ID: SB-DUP-6
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.3		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-66
Client ID: D-09 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:50
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-67
Client ID: D-09 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 14:53
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.3		%	0.100	NA	1	-	09/07/19 09:22	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-74
Client ID: B-07 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 15:27
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-75
Client ID: B-07 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/04/19 15:29
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-86
Client ID: C-08 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:08
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.3		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-87
Client ID: C-08 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:11
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.9		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-90
Client ID: SB-DUP-4
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.8		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-99
Client ID: B-09 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:53
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.5		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-100
Client ID: SB-DUP-3
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.4		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-101
Client ID: B-09 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:54
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.857	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	93.3		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI
pH (H)	7.0		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	160		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-102
Client ID: B-09 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 09:55
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.0		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-105
Client ID: B-09 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:02
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.872	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	91.7		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI
pH (H)	6.8		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	160		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-106
Client ID: A-06 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:33
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.7		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-107
Client ID: A-06 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:36
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97.1		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-110
Client ID: SB-DUP-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97.2		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-111
Client ID: B-05 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:48
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.9		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-112
Client ID: B-05 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:51
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-113
Client ID: B-05 (1-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:54
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.918	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI
pH (H)	7.8		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	140		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-115
Client ID: B-05 (3-5)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 10:57
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	1.15	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	69.3		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI
pH (H)	7.5		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	160		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-117
Client ID: C-05 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:12
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-118
Client ID: C-05 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:15
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	09/07/19 09:47	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-121
Client ID: C-06 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:32
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.2		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-122
Client ID: C-06 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 11:34
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.0		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-125
Client ID: A-05 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 12:12
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.0		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-126
Client ID: A-05 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 12:14
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.3		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-129
Client ID: E-02 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:05
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-130
Client ID: E-02 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:08
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-137
Client ID: SB-1 (0-0.5)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:33
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-138
Client ID: SB-1 (1-2)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:36
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.870	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI
pH (H)	7.8		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	160		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-139
Client ID: SB-1 (2-3)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:39
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.894	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	89.5		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI
pH (H)	7.7		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	130		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-140
Client ID: SB-DUP-1
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 00:00
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	0.840	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	95.2		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI
pH (H)	8.2		SU	-	NA	1	-	09/07/19 12:34	1,9045D	JA
Oxidation/Reduction Potential	130		mv	-	NA	1	-	09/07/19 11:42	68,1498	JA



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-141
Client ID: SB-1 (3-5)
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:42
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

SAMPLE RESULTS

Lab ID: L1940717-143
Client ID: SB-1 (5-7)-2
Sample Location: LAWRENCE, MA

Date Collected: 09/05/19 13:48
Date Received: 09/06/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab										
Chromium, Hexavalent	ND		mg/kg	1.01	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
General Chemistry - Westborough Lab										
Solids, Total	79.3		%	0.100	NA	1	-	09/07/19 09:58	121,2540G	RI
pH (H)	7.5		SU	-	NA	1	-	09/09/19 18:34	1,9045D	AS
Oxidation/Reduction Potential	160		mv	-	NA	1	-	09/09/19 22:02	68,1498	AS



Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Method Blank Analysis
Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP General Chemistry - Westborough Lab for sample(s): 11-12,101,105,113,115,138 Batch: WG1283971-1									
Chromium, Hexavalent	ND	mg/kg	0.800	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
MCP General Chemistry - Westborough Lab for sample(s): 15,17-18,21,24,27,139-140,143 Batch: WG1283979-1									
Chromium, Hexavalent	ND	mg/kg	0.800	--	1	09/13/19 19:00	09/15/19 18:00	97,7196A	CW
MCP General Chemistry - Westborough Lab for sample(s): 23,44-45,50,55-56 Batch: WG1283980-1									
Chromium, Hexavalent	ND	mg/kg	0.800	--	1	09/13/19 22:25	09/15/19 18:00	97,7196A	CW

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE

Lab Number: L1940717

Project Number: 17001426

Report Date: 09/20/19

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 15,18,23,27,44,50,55,113,139-140 Batch: WG1281496-1								
Oxidation/Reduction Potential	101		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 15,18,23,27,44,50,55,113,139-140 Batch: WG1281505-1								
pH	101		-		99-101	-		
General Chemistry - Westborough Lab Associated sample(s): 11-12,17,21,24,45,56,101,105,115,138,143 Batch: WG1281961-1								
pH	100		-		99-101	-		
General Chemistry - Westborough Lab Associated sample(s): 11-12,17,21,24,45,56,101,105,115,138,143 Batch: WG1281998-1								
Oxidation/Reduction Potential	101		-		90-110	-		20
MCP General Chemistry - Westborough Lab Associated sample(s): 11-12,101,105,113,115,138 Batch: WG1283971-2 WG1283971-3								
Chromium, Hexavalent	97		103		70-129	6		20
MCP General Chemistry - Westborough Lab Associated sample(s): 15,17-18,21,24,27,139-140,143 Batch: WG1283979-2 WG1283979-3								
Chromium, Hexavalent	97		103		70-129	6		20
MCP General Chemistry - Westborough Lab Associated sample(s): 23,44-45,50,55-56 Batch: WG1283980-2 WG1283980-3								
Chromium, Hexavalent	86		85		70-129	1		20

Matrix Spike Analysis Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
MCP General Chemistry - Westborough Lab Associated sample(s): 11-12,101,105,113,115,138 QC Batch ID: WG1283971-4 WG1283971-5 QC Sample: L1940717-113 Client ID: B-05 (1-3)												
Chromium, Hexavalent	ND	772	726	94		840	106		75-125	15		35
MCP General Chemistry - Westborough Lab Associated sample(s): 15,17-18,21,24,27,139-140,143 QC Batch ID: WG1283979-4 WG1283979-5 QC Sample: L1940717-139 Client ID: SB-1 (2-3)												
Chromium, Hexavalent	ND	990	933	94		842	87		75-125	10		35
MCP General Chemistry - Westborough Lab Associated sample(s): 23,44-45,50,55-56 QC Batch ID: WG1283980-4 WG1283980-5 QC Sample: L1940717-23 Client ID: SB-2 (1-2)												
Chromium, Hexavalent	ND	762	793	104		804	102		75-125	1		35



Lab Duplicate Analysis

Batch Quality Control

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13,15-19,21-22 QC Batch ID: WG1281442-1 QC Sample: L1940717-01 Client ID: AS-5						
Solids, Total	100	99.7	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 23-25,27,32-33,40-41,44-45,50-52,55-58,61,66-67 QC Batch ID: WG1281445-1 QC Sample: L1940717-23 Client ID: SB-2 (1-2)						
Solids, Total	90.4	91.0	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 74-75,86-87,90,99-102,105-107,110-113,115,117-118 QC Batch ID: WG1281446-1 QC Sample: L1940717-74 Client ID: B-07 (1-2)						
Solids, Total	91.2	92.3	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 121-122,125-126,129-130,137-141,143 QC Batch ID: WG1281447-1 QC Sample: L1940717-121 Client ID: C-06 (1-2)						
Solids, Total	95.2	95.6	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 15,18,23,27,44,50,55,113,139-140 QC Batch ID: WG1281496-2 QC Sample: L1940717-113 Client ID: B-05 (1-3)						
Oxidation/Reduction Potential	140	140	mv	0		20
General Chemistry - Westborough Lab Associated sample(s): 11-12,17,21,24,45,56,101,105,115,138,143 QC Batch ID: WG1281961-2 QC Sample: L1940717-11 Client ID: SB-4 (1-2)						
pH (H)	5.7	5.8	SU	2		5
General Chemistry - Westborough Lab Associated sample(s): 11-12,17,21,24,45,56,101,105,115,138,143 QC Batch ID: WG1281998-2 QC Sample: L1940717-11 Client ID: SB-4 (1-2)						
Oxidation/Reduction Potential	140	140	mv	0		20



Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-01A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-02A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-03A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-04A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-05A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-06A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-07A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-08A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-09A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082LL-CNCRT(365)
L1940717-100A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-101A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-101B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-101C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-101D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-101E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-101F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-101G	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-102A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-103A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-104A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-105A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-105B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-105C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-105E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-105F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-105G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-106A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-107A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-108A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-109A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-10A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-110A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-111A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-112A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-113A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-113B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-113C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-113D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-113E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-113E1	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-113E2	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-113F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-113G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-113G1	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-113G2	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		EPH-DELUX-10(14)
L1940717-114A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-115A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-115B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-115C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-115D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-115E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-115F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-115G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-116A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-117A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-118A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-119A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-11A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-11B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-11C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-11D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-11F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-11G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-120A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-121A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-122A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-123A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-124A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-125A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-126A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-127A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-128A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-129A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-12A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-12B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-12C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-12D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-12F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-12G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-130A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-131A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-132A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-133A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-134A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-135A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-136A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-137A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-138A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-138B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-138C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-138E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-138F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-138G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-139A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-139B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-139C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-139D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-139E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-139E1	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-139E2	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-139F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-139G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-139G1	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-139G2	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-13A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)

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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-140A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-140B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-140C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-140D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-140E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-140F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-140G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-141A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-142A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-143A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-143B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-143C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-143D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-143E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-143F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-143G	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-144A	Vial MeOH preserved	A	NA		4.9	Y	Absent		ARCHIVE()
L1940717-144B	Vial MeOH preserved	B	NA		3.5	Y	Absent		ARCHIVE()
L1940717-144C	Vial water preserved	A	NA		4.9	Y	Absent	07-SEP-19 07:00	ARCHIVE()
L1940717-144D	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	ARCHIVE()
L1940717-14A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-15A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-15B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-15C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)

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L1940717-15D	Plastic 2oz unreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-15E	Metals Only-Glass 60mL/2oz unreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-15F	Glass 120ml/4oz unreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-15G	Glass 60mL/2oz unreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-16A	Glass 60mL/2oz unreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-17A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-17B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-17C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-17E	Metals Only-Glass 60mL/2oz unreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-17F	Glass 120ml/4oz unreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-17G	Glass 120ml/4oz unreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-18A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-18B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-18C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-18D	Plastic 2oz unreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-18E	Metals Only-Glass 60mL/2oz unreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-18F	Glass 120ml/4oz unreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-18G	Glass 120ml/4oz unreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-19A	Glass 60mL/2oz unreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-20A	Glass 60mL/2oz unreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-21A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-21B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)

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L1940717-21C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-21E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-21F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-21G	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),PH-9045(1),EPH-DELUX-10(14)
L1940717-22A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-23A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-23B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-23C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-23E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-23E1	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-23E2	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-23F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-23G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-23G1	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-23G2	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-24A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-24B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-24C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-24D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)

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L1940717-24E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-24F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-24G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-25A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-26A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-27A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-27B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-27C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-27D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-27E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-27F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-27G	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-28A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-29A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-30A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-31A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-32A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-33A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-34A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-35A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-36A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-37A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-38A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-39A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)

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L1940717-40A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-41A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-42A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-43A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-44A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-44B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-44C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260H-10(14),MCP-8260HLW-10(14)
L1940717-44D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-44E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-44F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-44G	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-45A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-45B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-45C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-45E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-45F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-45G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-46A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-47A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-48A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-49A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-50A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-50B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-50C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)

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L1940717-50D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-50E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-50F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-50G	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-51A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-52A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-53A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-54A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-55A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-55B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-55C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-55D	Plastic 2oz unpreserved for TS	B	NA		3.5	Y	Absent		TS(7)
L1940717-55E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-55F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-55G	Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),PH-9045(1),EPH-DELUX-10(14)
L1940717-56A	Vial MeOH preserved	B	NA		3.5	Y	Absent		MCP-8260HLW-10(14)
L1940717-56B	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-56C	Vial water preserved	B	NA		3.5	Y	Absent	07-SEP-19 07:00	MCP-8260HLW-10(14)
L1940717-56E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.5	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-AG-6010T-10(180),MCP-ZN-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-PB-6010T-10(180)
L1940717-56F	Glass 120ml/4oz unpreserved/No Headspace	B	NA		3.5	Y	Absent		MCP-HEXCR7196-10(30)
L1940717-56G	Glass 120ml/4oz unpreserved	B	NA		3.5	Y	Absent		ORP-9045(1),TS(7),MCP-8082-10-3540C(365),PH-9045(1),EPH-DELUX-10(14)
L1940717-57A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)

Project Name: TOMBARELLO SITE**Lab Number:** L1940717**Project Number:** 17001426**Report Date:** 09/20/19**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-58A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-59A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-60A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-61A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-62A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-63A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-64A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-65A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-66A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-67A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-68A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-69A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-70A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-71A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-72A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-73A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-74A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-75A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-76A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-77A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-78A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-79A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-80A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-81A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-82A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-83A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-84A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-85A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)

Project Name: TOMBARELLO SITE
Project Number: 17001426

Serial_No:09201912:30
Lab Number: L1940717
Report Date: 09/20/19

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1940717-86A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-87A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-88A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-89A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-90A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1940717-91A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-92A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-93A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-94A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-95A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-96A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-97A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-98A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		HOLD-8082(14)
L1940717-99A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-8082-10-3540C(365)

Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: Data Usability Report



Project Name: TOMBARELLO SITE
Project Number: 17001426

Lab Number: L1940717
Report Date: 09/20/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 68 Annual Book of ASTM (American Society for Testing and Materials) Standards following extraction by SW-846 EPA Method 9045C under the requirements of MADEP BWSC, WSC-CAM-VIB. August 2004.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIB, July 2010.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Credere Associates, LLC

Address: 776 Main Street

Westbrook, Maine

Phone: 207-828-1272

Fax:

Email: sgannon@credere LLC

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19

ALPHA Job #: L1940717

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426

ADEx Add'l Deliverables - GEI - EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

SAMPLE HANDLING
Filtration
 Done
 Not Needed
Preservation
 Lab to do
 Lab to do
(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs									Sample Specific Comments		
		Date	Time																			
40717-01	AS-5	9.3.19	1105	concrete dust	SG	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-02	AS-6		1115			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-03	AS-7		1120			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-04	AS-8		1125			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-05	AS-1		1145			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-06	AS-2		1150			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-07	AS-3		1155			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-08	AS-4		1205			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-09	AS-DUP-1		-			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-10	SB-4 (0-0.5)	9.4.19	0830	Soil	SP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1

Container Type: 4F - - - - -
Preservative: - - - - -

Relinquished By: [Signature]	Date/Time: 9.6.19/1132	Received By: [Signature]	Date/Time: 9/6/19 11:30
[Signature]	9/6/19/1845	Rob Monte	9-6-19 1845
[Signature]	9-6-19 2040	[Signature]	9-6-19 2040

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 2 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Credere Associates, LLC

Address: 776 Main Street

Westbrook, Maine

Phone: 207-828-1272

Fax:

Email: sgannon@credereassoc.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/17

ALPHA Job #: L1940717

Report Information Data Deliverables

FAX EMAIL
 ADEx Add'l Deliverables -

Billing Information

Same as Client Info PO #: 17001426

GET - EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs									SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed Preservation <input type="checkbox"/> Lab to do <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES
		Date	Time																		
40717-11	SB-4 (1-2)	9-4-19	0850	S&I	SG	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-12	SB-4 (2-3)		0840			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-13	SB-4 (3-5)		0905			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-14	SB-4 (5-7) -1		0940			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HOLD	1
-15	SB-4 (5-7) -2		0940			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-16	SB-3 (0-0.5)		0920			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-17	SB-3 (1-2)		0925			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-18	SB-3 (2-3)		0930			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-19	SB-3 (3-5)		0935			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-20	SB-3 (5-7) -1		0940			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1

Hold SB-4 (5-7) -1 pending approval
 Hold SB-3 (5-7) pending approval
 Some samples with 7 bottles indicated may be missing total solids jar due to insufficient soil volume

Container Type: Jar
 Preservative: None

Relinquished By: [Signature] Date/Time: 9-6-19/11:30
 Received By: [Signature] Date/Time: 9/6/19 11:30
 [Signature] Date/Time: 9/6/19/1845
 [Signature] Date/Time: 9-6-19 2040

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CHAIN OF CUSTODY

PAGE 3 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Credere Associates, LLC

Address: 776 Main Street

Westbrook, Maine

Phone: 207-828-1272

Fax:

Email: sgannon@credereilc.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19

ALPHA Job #: L1940717

Report Information Data Deliverables

FAX EMAIL
 ADEX Add'l Deliverables

Billing Information

Same as Client info PO #: 17001426

GEI-EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs												
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Preservation
 Lab to do
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
40717-21	SB-3 (5-7)-2	9-4-19	0940	Soil	SF
-22	SB-2 (0-0.5)		1000		
-23	SB-2 (1-2)		1005		
-24	SB-2 (2-3)		1007		
-25	SB-2 (3-5)		1015		
-26	SB-2 (5-7)-1		1020		
-27	SB-2 (5-7)-2		1020		
-28	E-07 (1-2)		1100		
-29	E-07 (2-3)		1103		
-30	E-07 (3-5)		1106		

- SB-2 (1-2) includes volume for MS/MSD (metals)
 - SB-2 (5-7)-1 hold pending approval.
 - All E-07 samples held for approval
 - Some samples with 7 bottles indicated maybe missing total solids due to insufficient soil volume.

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time:	Received By:	Date/Time:
<i>[Signature]</i>	9-6-19/1845	<i>[Signature]</i>	9/6/19 11:32
Rob Manto	9-6-19 1845	Rob Manto	9-6-19 1845
			9-6-19 2040

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CHAIN OF CUSTODY

PAGE 4 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19 ALPHA Job #: L1940717

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426
 ADEx Add'l Deliverables - GEI-EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Credere Associates, LLC

Address: 776 Main Street

Westbrook, Maine

Phone: 207-828-1272

Fax: Email: sgannon@credereassoc.com

These samples have been Previously analyzed by Alpha

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs									SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES		
		Date	Time																				
40717-31	E-07 (5-7)	9-4-19	1109	Soil	SE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1	
-32	E-08 (1-2)		1125			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-33	E-08 (2-3)		1130			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-34	E-08 (3-5)		1135			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-35	E-08 (5-7)		1140			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-36	D-08 (1-2)		1153			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-37	D-08 (2-3)		1156			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-38	D-08 (3-5)		1159			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-39	D-08 (5-7)		1203			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-40	D-07 (1-2)		1212			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1

Hold for approval: E-07(5-7), E-08(3-5),
 E-08(5-7), All D-08 samples

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms



CHAIN OF CUSTODY

PAGE 5 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Westborough, MA Mansfield, MA
TEL: 508-898-9220 TEL: 508-822-9300
FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Credere Associates, LLC

Address: 776 Main Street

Westbrook, Maine

Phone: 207-828-1272

Fax:

Email: sgannon@credere LLC

These samples have been Previously analyzed by Alpha

Date Rec'd in Lab: 9/6/19

ALPHA Job #: L1940717

Report Information Data Deliverables

FAX EMAIL

ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 17001426

-GEI- EFWEDO

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

ANALYSIS

	PCB w/ soxhlet		EPH		RCRA-8 Metals			Zinc		Hexavalent Chromium		VOCs			
40717-41	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-42	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-43	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-44	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-45	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
-46	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-47	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-48	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-49	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-50	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SAMPLE HANDLING

Filtration

Done

Not Needed

Lab to do

Preservation

Lab to do (Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
40717-41	D-07 (2-3)	9.4.19	1214	Soil	SF
-42	D-07 (3-5)		1220		
-43	D-07 (5-7)		1225		
-44	D-07 (1-3)		1216		
-45	D-07 (7-9)		1230		
-46	D-07 D-06 (1-2)		1250		
-47	D-06 (2-3)		1253		
-48	D-06 (3-5)		1256		
-49	D-06 (5-7)		1259		
-50	SB-DUP-5		-		

Hold for approval: D-07(3-5), D-07(3-5), all D-06

-Some samples with 7 bottles indicated may be missing total Solids due to insufficient soil volume

Container Type - - - - -

Preservative - - - - -

Relinquished By: *[Signature]* Date/Time: 9.6.19/1132

Received By: *[Signature]* Date/Time: 9/6/19 11:32

[Signature] 9/6/19 1845 *[Signature]* 9.6.19 1845

[Signature] 9/6/19 2040 *[Signature]* 9-6-19-040 2040

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 6 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Credere Associates, LLC

Address: 776 Main Street

Westbrook, Maine

Phone: 207-828-1272

Fax:

Email: sgannon@credere.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19 ALPHA Job #: L1940717

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426
 ADEx Add'l Deliverables - GEI-EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs											SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES		
		Date	Time																						
40717-51	E-06 (1-2)	9.4.19	1322	Soil	SF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	
-52	E-06 (2-3)		1326			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-53	E-06 (3-5)		1328			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-54	E-06 (5-7)-1		1335			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-55	E-06 (1-3)		1324			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
-56	E-06 (5-7)-2		1335			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
-57	E-05 (1-2)		1410			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-58	E-05 (2-3)		1412			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-59	E-05 (3-5)		1414			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-60	E-05 (5-7)		1416			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1

Hold: E-06 (3-5), E-06 (5-7)-1, E-05 (3-5)

E-05 (5-7)

Some samples with 7 bottles indicated may be missing total solids jar due to insufficient soil volume

Container Type

Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

Relinquished By: [Signature] Date/Time: 9.6.19/1132
 Received By: [Signature] Date/Time: 9.6.19/1844
 Relinquished By: [Signature] Date/Time: 9.6.19/2040
 Received By: [Signature] Date/Time: 9.6.19/1844

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CHAIN OF CUSTODY

PAGE 7 OF 15

Project Information

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Project Name: Tombarello Site

Client Information

Project Location: Lawrence, MA

Client: Credere Associates, LLC

Project #: 17001426

Address: 776 Main Street

Project Manager: Sean Gannon

Westbrook, Maine

ALPHA Quote #:

Phone: 207-828-1272

Turn-Around Time

Fax:

Standard Rush (ONLY IF PRE-APPROVED)

Email: sgannon@credere.com

Due Date: Time:

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19 ALPHA Job #: L1940717

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426

ADEx Add'l Deliverables **GEE_EFWEDD**

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs							SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES
		Date	Time																
40717-61	SB-DUP-6	9-4-19	-	Soil	SF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-62	66 D-05 (1-2)		1430			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-63	D-05 (2-3)		1433			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-64	D-05 (3-5)		1436			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-65	D-05 (5-7)		1439			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-66	D-09 (1-2)		1450			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-67	D-09 (2-3)		1453			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-68	D-09 (3-5)		1456			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-69	D-09 (5-7)		1459			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-76	B-06 (1-2)		1515			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1

Hold: All D-05; D-09 (3-5, 5-7), B-06

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9.6.19/1132	<i>[Signature]</i>	9/6/19 11:32
<i>[Signature]</i>	9/6/19	<i>[Signature]</i>	9/6/19 1845
<i>[Signature]</i>	9/6/19 2040	<i>[Signature]</i>	9-6-18 2040

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CHAIN OF CUSTODY

PAGE 8 OF 15

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Crede Associates, LLC
 Address: 776 Main Street
 Westbrook, Maine
 Phone: 207-828-1272
 Fax:
 Email: sgannon@credeirellc.com

These samples have been Previously analyzed by Alpha

Project Information

Project Name: Tombarello Site
 Project Location: Lawrence, MA
 Project #: 17001426
 Project Manager: Sean Gannon
 ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19 ALPHA Job #: L1940717

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426
 ADEx Add'l Deliverables **GEI-EFWEDD**

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs							SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES
		Date	Time																
40717-71	B-06 (2-3)	9.4.19	1518	Soil	SF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-72	B-06 (3-5)		1521			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-73	B-06 (5-7)		1524			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-74	B-07 (1-2)		1527			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-75	B-07 (2-3)		1529			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-76	B-07 (3-5)		1531			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-77	B-07 (5-7)		1533			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-78	C-07 (1-2)	9.5.19	0825			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-79	C-07 (2-3)		0830			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-80	C-07 (3-5)		0835			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1

Alpha Lab ID (Lab Use Only) Sample ID Collection Date Time Sample Matrix Sampler's Initials

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Time	Sample Matrix	Sampler's Initials
40717-71	B-06 (2-3)	9.4.19	1518	Soil	SF
-72	B-06 (3-5)		1521		
-73	B-06 (5-7)		1524		
-74	B-07 (1-2)		1527		
-75	B-07 (2-3)		1529		
-76	B-07 (3-5)		1531		
-77	B-07 (5-7)		1533		
-78	C-07 (1-2)	9.5.19	0825		
-79	C-07 (2-3)		0830		
-80	C-07 (3-5)		0835		

Hold all B-06 pending approval, B-07 (3-5, 5-7), all C-07

Container Type Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9.6.19/11:32	<i>[Signature]</i>	9/6/19 11:32
<i>[Signature]</i>	9/6/19/1845	<i>[Signature]</i>	9.6.19/1845
<i>[Signature]</i>	9.6.19/2040	<i>[Signature]</i>	9.6.19/2040

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FORM NO: 01-010-N2 Rev: 9-200-12



CHAIN OF CUSTODY

PAGE 9 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: ALPHA Job #:

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426
 ADEx Add'l Deliverables **GEI-EFWEDD**

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Crede Associates, LLC

Address: 776 Main Street

Westbrook, Maine

Phone: 207-828-1272

Fax:

Email: sgannon@crederellc.com

These samples have been Previously analyzed by Alpha

ALPHA Lab ID (Lab Use Only) Sample ID Collection Date Time Sample Matrix Sampler's Initials

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-B Metals	Zinc	Hexavalent Chromium	VOCs									Sample Specific Comments	TOTAL # BOTTLES		
		Date	Time																				
40717-81	C-07(5-7)	9.5.19	0840	Soil	SF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1	
-82	A-07(1-2)		0853			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-83	A-07(2-3)		0856			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-84	A-07(3-5)		0859			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-85	A-07(5-7)		0902			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-86	C-08(1-2)		0908			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-87	C-08(2-3)		0911			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-88	C-08(3-5)		0914			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-89	C-08(5-7)		0917			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-90	SB-DUP-4		-			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1

ANALYSIS

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

Hold for approval: C-07(5-7), all A-07 samples, C-08(3-5), C-08(5-7).

Container Type: - - - - -
 Preservative: - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9.6.19/1132	<i>[Signature]</i>	9/6/19 11:32
<i>[Signature]</i>	9/6/19 184	<i>[Signature]</i>	9.6.19 184
<i>[Signature]</i>	9.6.19 2040	<i>[Signature]</i>	9-6-19 2040

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CHAIN OF CUSTODY

PAGE 10 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
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Client: Credere Associates, LLC

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Phone: 207-828-1272

Fax:

Email: sgannon@credereinc.com

These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19 ALPHA Job #: L1940717

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426
 ADEX Add'l Deliverables - GEI-EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES


ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs							Sample Specific Comments	TOTAL # BOTTLES
		Date	Time																
4077-91	B-08 (1-2)	9-5-19	0928	Soil	SF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-92	B-08 (2-3)		0930			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-93	B-08 (3-5)		0932			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-94	B-08 (5-7)		0934			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-95	C-09 (1-2)		0940			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-96	C-09 (2-3)		0942			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-97	C-09 (3-5)		0944			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-98	C-09 (5-7)		0946			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-99	B-09 (1-2)		0953			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-100	SB-DUS-3					<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1

Hold for approval: all B-08, all C-09

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9.6.19/1845	<i>[Signature]</i>	9/6/19 11:32
<i>[Signature]</i>	9/6/19 1845	<i>[Signature]</i>	9/6/19 1845
<i>[Signature]</i>	9.6.19 2040	<i>[Signature]</i>	9-6-19 2040

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Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

CHAIN OF CUSTODY

PAGE 11 OF 15

Date Rec'd in Lab: 9/6/19 ALPHA Job #: L1940717

Report Information	Data Deliverables	Billing Information
<input type="checkbox"/> FAX	<input checked="" type="checkbox"/> EMAIL	<input checked="" type="checkbox"/> Same as Client info
<input type="checkbox"/> ADEX	<input checked="" type="checkbox"/> Add'l Deliverables	PO #: 17001426

GEI-EFWEDD

Client Information

Client: Credere Associates, LLC

Address: 776 Main Street
Westbrook, Maine

Phone: 207-828-1272

Fax: _____

Email: sgannon@crederellc.com

These samples have been Previously analyzed by Alpha

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Regulatory Requirements/Report Limits

State/Fed Program _____

Criteria _____

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: _____ Time: _____

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS											SAMPLE HANDLING	TOTAL # BOTTLES		
		Date	Time			PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs									
40717-101	B-09(1-3)	9.5.19	0954	Soil	SF	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-102	B-09(2-3)		0955			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-103	B-09(3-5)		0957			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-104	B-09(5-7)-1		0959			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-105	B-09(5-7)-2		1002			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-106	A-06(1-2)		1033			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-107	A-06(2-3)		1036			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-108	A-06(3-5)		1039			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-109	A-06(5-7)		1042			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-110	SB-DUP-2		—			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1

- Hold for approval: B-09(3-5, 5-7)

- B-09(5-7)-2 no total solids jar due to insufficient soil volume

Container Type		-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative		-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time
<i>[Signature]</i>	9.6.19/1138
<i>[Signature]</i>	9/6/19 1841
<i>[Signature]</i>	9.6.19 2040

Received By:	Date/Time
<i>[Signature]</i>	9/6/19 11:30
<i>[Signature]</i>	9/6-19 1845
<i>[Signature]</i>	9/6-19 2040

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CHAIN OF CUSTODY

PAGE 12 OF 15

Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19

ALPHA Job #: L1940717

Report Information

FAX EMAIL
 ADEx Add'l Deliverables

Billing Information

Same as Client info PO #: 17001426

GEI-EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs													
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
 Filtration
 Done
 Not Needed
 Lab to do
 Preservation
 Lab to do
 (Please specify below)

TOTAL # BOTTLES

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
40717-111	A-05 B-05(1-2)	9-5-19	1048	Soil	S.F
-112	B-05(2-3)		1051		
-113	B-05(1-3)		1054		
-114	B-05(3-5)-1		1057		
-115	B-05(3-5)-2		1057		
-116	B-05(5-7)		1100		
-117	C-05(1-2)		1112		
-118	C-05(2-3)		1115		
-119	C-05(3-5)		1118		
-120	C-05(5-7)		1121		

Container Type: - - - - -
 Preservative: - - - - -

- Hold for approval: B-05(3-5)-1, B-05(5-7),
 C-05(3-5), C-05(5-7)
 - B-05(1-3) includes vial volume
 for MS/MSD (metals)

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9-6-19/1845	<i>[Signature]</i>	9/6/19 11:32
Rob Maestri	9-6-19 2040	Rob Maestri	9-6-19 1845
			9-6-19 2040

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CHAIN OF CUSTODY

PAGE 13 OF 15

Project Information

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Project Name: Tombarello Site

Client Information

Client: Credero Associates, LLC
 Address: 776 Main Street
 Westbrook, Maine
 Phone: 207-828-1272

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Fax: Standard Rush (ONLY IF PRE-APPROVED)
 Email: sgannon@crederellc.com
 These samples have been Previously analyzed by Alpha Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/16/19 ALPHA Job #: L1940717

Report Information **Data Deliverables** **Billing Information**
 FAX EMAIL Same as Client Info PO #: 17001426
 ADEX Add'l Deliverables - GEI - EFWEDD

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs							SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES
		Date	Time																
40717-121	C-06 (1-2)	9.5.19	1132	Soil	SF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-122	C-06 (2-3)		1134			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-123	C-06 (3-5)		1136			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-124	C-06 (5-7)		1138			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-125	A-05 (1-2)		1212			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-126	A-05 (2-3)		1214			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-127	A-05 (3-5)		1216			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-128	A-05 (5-7)		1218			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold
-129	E-02 (1-2)		1305			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
-130	E-02 (2-3)		1308			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1

-Hold for approval: C-06 (3-5, 5-7)

Container Type: - - - - -
 Preservative: - - - - -

Relinquished By: <i>[Signature]</i>	Date/Time: 9.6.19/1132	Received By: <i>[Signature]</i>	Date/Time: 9/6/19 11:32
<i>[Signature]</i>	9/6/19 1841	<i>[Signature]</i>	9/6-19/1845
<i>[Signature]</i>	9-6-19 2040	<i>[Signature]</i>	9-6-19 2040

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 14 OF 15



Project Information

Project Name: Tombarello Site

Project Location: Lawrence, MA

Project #: 17001426

Project Manager: Sean Gannon

ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/6/19

ALPHA Job #: L19407M

Report Information Data Deliverables Billing Information

FAX EMAIL Same as Client info PO #: 17001426
 ADEx Add'l Deliverables **GEI-EFWEDD**

Regulatory Requirements/Report Limits

State/Fed Program Criteria

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs							SAMPLE HANDLING Filtration <input type="checkbox"/> Done <input checked="" type="checkbox"/> Not Needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	TOTAL # BOTTLES
		Date	Time																
40717-131	E-02 (3-5)	9.5.19	1311	Soil	SE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-132	E-02 (5-7)		1314			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-133	B-04 (1-2)		1320			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-134	B-04 (2-3)		1323			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
+135	B-04 (3-5)		1326			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-136	B-04 (5-7)		1329			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hold	1
-137	SB-1 (0-0.5)		1333			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		1
-138	SB-1 (1-2)		1336			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7
-139	SB-1 (2-3)		1339			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MS/MSD	11
-140	SB-DUO-1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		7

- Hold for approval: E-02 (3-5, 5-7)
 - SB-1 (2-3) include;
 with ML for MS/MSD (metals)

Container Type
 Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9.5.19/1132	<i>[Signature]</i> AAL	9/6/19 11:32
<i>[Signature]</i> AAL	9/6/19 1845	<i>[Signature]</i> Rob Moore	9/6/19 1845
<i>[Signature]</i> Rob Moore	9/6/19 2040	<i>[Signature]</i> AAL	9-6-19 2040

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.



CHAIN OF CUSTODY

PAGE 15 OF 15

Westborough, MA Mansfield, MA
 TEL: 508-898-9220 TEL: 508-822-9300
 FAX: 508-898-9193 FAX: 508-822-3288

Client Information

Client: Credere Associates, LLC
 Address: 776 Main Street
 Westbrook, Maine
 Phone: 207-828-1272
 Fax:
 Email: sgannon@credere LLC.com

Project Information

Project Name: Tombarello Site
 Project Location: Lawrence, MA
 Project #: 17001426
 Project Manager: Sean Gannon
 ALPHA Quote #:

Turn-Around Time

Standard Rush (ONLY IF PRE-APPROVED)
 Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 9/16/19

ALPHA Job #: L1940717

Report Information Data Deliverables Billing Information

FAX EMAIL
 ADEx Add'l Deliverables - GEI-EFWEDD

Same as Client Info PO #: 17001426

Regulatory Requirements/Report Limits

State/Fed Program	Criteria

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
40717-141	58-1(3-5)	9.5.19	1342	Soil	SF
-142	58-1(5-7)-1		1345		
-143	58-1(5-7)-2		1348		

ANALYSIS

PCB w/ soxhlet	EPH	RCRA-8 Metals	Zinc	Hexavalent Chromium	VOCs													
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE HANDLING
Filtration
 Done
 Not Needed
Preservation
 Lab to do
 Lab to do
 (Please specify below)

Sample Specific Comments:
 Hold

TOTAL # BOTTLES

1
1
7

²⁸¹
 - 58-1(3-5) & 58-1(5-7) only analyzed for PCBs
 - Hold for approval: 58-1(5-7)

Container Type	Preservative
-	-

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	9/16/19 1845	ALP	9/16/19 11:32
R. Moore	9/16/19 2040	R. Moore	9/16/19 1845

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO. 01-010-FUJ (Rev. 5-JAN-12)

**Method Blank Summary
Form 4
Volatiles**

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1284565-5	Lab File ID	: V23190914A05
Instrument ID	: VOA123		
Matrix	: SOIL	Analysis Date	: 09/14/19 09:00

Client Sample No.	Lab Sample ID	Analysis Date
WG1284565-3LCS	WG1284565-3	09/14/19 07:24
WG1284565-4LCSD	WG1284565-4	09/14/19 07:48
SB-2 (5-7)-2	L1940717-27	09/14/19 16:15
D-07 (1-3)	L1940717-44	09/14/19 16:39
D-07 (7-9)	L1940717-45	09/14/19 17:03

Method Blank Summary
Form 4
Volatiles

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1284397-5	Lab File ID	: V17190914A05
Instrument ID	: VOA117		
Matrix	: SOIL	Analysis Date	: 09/14/19 09:06

Client Sample No.	Lab Sample ID	Analysis Date
WG1284397-3LCS	WG1284397-3	09/14/19 07:48
WG1284397-4LCSD	WG1284397-4	09/14/19 08:14
SB-4 (5-7)-2	L1940717-15	09/14/19 13:27
SB-3 (1-2)	L1940717-17	09/14/19 13:53
SB-2 (1-2)	L1940717-23	09/14/19 15:11

Method Blank Summary
Form 4
Volatiles

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1284521-5	Lab File ID	: V17190915A05
Instrument ID	: VOA117		
Matrix	: SOIL	Analysis Date	: 09/15/19 14:14

Client Sample No.	Lab Sample ID	Analysis Date
WG1284521-3LCS	WG1284521-3	09/15/19 12:56
WG1284521-4LCSD	WG1284521-4	09/15/19 13:22
SB-4 (5-7)-2	L1940717-15	09/15/19 17:18

**Method Blank Summary
Form 4
Volatiles**

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1284519-5	Lab File ID	: V17190915A05
Instrument ID	: VOA117		
Matrix	: SOIL	Analysis Date	: 09/15/19 14:14

Client Sample No.	Lab Sample ID	Analysis Date
WG1284519-3LCS	WG1284519-3	09/15/19 12:56
WG1284519-4LCSD	WG1284519-4	09/15/19 13:22
SB-2 (2-3)	L1940717-24	09/15/19 15:07
SB-3 (5-7)-2	L1940717-21	09/15/19 15:33
SB-2 (1-2)	L1940717-23R	09/15/19 15:59

Method Blank Summary Form 4 Volatiles

Client : Credere Associates, LLC Project Name : TOMBARELLO SITE Lab Sample ID : WG1284598-5 Instrument ID : VOA123 Matrix : SOIL	Lab Number : L1940717 Project Number : 17001426 Lab File ID : V23190915A04 Analysis Date : 09/15/19 17:36
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Client Sample No.	Lab Sample ID	Analysis Date
WG1284598-3LCS	WG1284598-3	09/15/19 16:24
WG1284598-4LCSD	WG1284598-4	09/15/19 16:48
SB-4 (1-2)	L1940717-11	09/15/19 20:33
SB-1 (1-2)	L1940717-138	09/15/19 20:57
SB-1 (2-3)	L1940717-139	09/15/19 21:21
E-06 (1-3)	L1940717-55	09/15/19 21:45
E-06 (5-7)-2	L1940717-56	09/15/19 22:09
SB-1 (5-7)-2	L1940717-143	09/15/19 22:33
B-05 (3-5)-2	L1940717-115	09/15/19 22:57
B-09 (1-3)	L1940717-101	09/16/19 01:46

Method Blank Summary

Form 4

Volatiles

Client : Credere Associates, LLC
Project Name : TOMBARELLO SITE
Lab Sample ID : WG1284596-5
Instrument ID : VOA123
Matrix : SOIL

Lab Number : L1940717
Project Number : 17001426
Lab File ID : V23190915A04
Analysis Date : 09/15/19 17:36

Client Sample No.	Lab Sample ID	Analysis Date
WG1284596-3LCS	WG1284596-3	09/15/19 16:24
WG1284596-4LCSD	WG1284596-4	09/15/19 16:48
B-05 (1-3)	L1940717-113	09/15/19 18:32
SB-4 (2-3)	L1940717-12	09/15/19 19:20
SB-DUP-5	L1940717-50	09/15/19 19:44

**Method Blank Summary
Form 4
Volatiles**

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1284780-5	Lab File ID	: V23190916A04
Instrument ID	: VOA123		
Matrix	: SOIL	Analysis Date	: 09/16/19 08:09

Client Sample No.	Lab Sample ID	Analysis Date
WG1284780-3LCS	WG1284780-3	09/16/19 06:56
WG1284780-4LCSD	WG1284780-4	09/16/19 07:20
D-07 (1-3)	L1940717-44	09/16/19 09:21

**Method Blank Summary
Form 4
Volatiles**

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1284781-5	Lab File ID	: V23190916A04
Instrument ID	: VOA123		
Matrix	: SOIL	Analysis Date	: 09/16/19 08:09

Client Sample No.	Lab Sample ID	Analysis Date
WG1284781-3LCS	WG1284781-3	09/16/19 06:56
WG1284781-4LCSD	WG1284781-4	09/16/19 07:20
SB-3 (2-3)	L1940717-18	09/16/19 09:45
B-09 (5-7)-2	L1940717-105	09/16/19 10:09
SB-DUP-1	L1940717-140	09/16/19 10:33

**Method Blank Summary
Form 4
Volatiles**

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1284929-5	Lab File ID	: V23190916N04
Instrument ID	: VOA123		
Matrix	: SOIL	Analysis Date	: 09/16/19 20:21

Client Sample No.	Lab Sample ID	Analysis Date
WG1284929-3LCS	WG1284929-3	09/16/19 19:09
WG1284929-4LCSD	WG1284929-4	09/16/19 19:33
SB-1 (1-2)	L1940717-138	09/16/19 20:46
SB-1 (5-7)-2	L1940717-143	09/16/19 21:10

Method Blank Summary

Form 4

Volatiles

Client	: Credere Associates, LLC	Lab Number	: L1940717
Project Name	: TOMBARELLO SITE	Project Number	: 17001426
Lab Sample ID	: WG1285102-5	Lab File ID	: V23190917A05
Instrument ID	: VOA123		
Matrix	: SOIL	Analysis Date	: 09/17/19 09:02

Client Sample No.	Lab Sample ID	Analysis Date
WG1285102-3LCS	WG1285102-3	09/17/19 07:26
WG1285102-4LCSD	WG1285102-4	09/17/19 07:50
SB-2 (5-7)-2	L1940717-27	09/17/19 12:15

Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190914A01
 Sample No : WG1284565-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/14/19 07:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	80	-.01
Dichlorodifluoromethane	0.268	0.268	-	0	20	68	0
Chloromethane	0.275	0.309	-	-12.4	20	78	0
Vinyl chloride	0.312	0.296	-	5.1	20	64	0
Bromomethane	0.233	0.23	-	1.3	20	74	0
Chloroethane	0.235	0.204	-	13.2	20	62	0
Trichlorofluoromethane	0.429	0.407	-	5.1	20	64	0
Ethyl ether	0.143	0.115	-	19.6	20	57	0
1,1-Dichloroethene	0.214	0.196	-	8.4	20	63	0
Carbon disulfide	0.725	0.638	-	12	20	64	0
Freon-113	0.216	0.201	-	6.9	20	63	0
Acrolein	0.05	0.044*	-	12	20	65	-.01
Methylene chloride	0.28	0.222	-	20.7*	20	61	0
Acetone	20	20.299	-	-1.5	20	73	-.02
trans-1,2-Dichloroethene	0.245	0.225	-	8.2	20	64	0
Methyl acetate	0.187	0.182	-	2.7	20	69	-.02
Methyl tert-butyl ether	0.725	0.57	-	21.4*	20	55	-.01
tert-Butyl alcohol	0.038	0.028*	-	26.3*	20	53	-.01
Diisopropyl ether	0.748	0.766	-	-2.4	20	72	-.01
1,1-Dichloroethane	0.436	0.409	-	6.2	20	65	-.01
Halothane	0.182	0.164	-	9.9	20	61	-.01
Acrylonitrile	0.093	0.084	-	9.7	20	63	-.01
Ethyl tert-butyl ether	0.763	0.657	-	13.9	20	61	-.02
Vinyl acetate	0.662	0.65	-	1.8	20	70	-.01
cis-1,2-Dichloroethene	0.275	0.243	-	11.6	20	62	-.01
2,2-Dichloropropane	0.366	0.333	-	9	20	63	0
Bromochloromethane	0.134	0.119	-	11.2	20	62	-.01
Cyclohexane	0.39	0.372	-	4.6	20	65	0
Chloroform	0.43	0.395	-	8.1	20	64	-.01
Ethyl acetate	0.3	0.275	-	8.3	20	66	-.02
Carbon tetrachloride	0.331	0.31	-	6.3	20	64	-.01
Tetrahydrofuran	0.106	0.101	-	4.7	20	68	-.02
Dibromofluoromethane	0.262	0.249	-	5	20	75	0
1,1,1-Trichloroethane	0.365	0.352	-	3.6	20	64	-.01
2-Butanone	0.139	0.123	-	11.5	20	69	-.02
1,1-Dichloropropene	0.318	0.291	-	8.5	20	61	-.01
Benzene	0.959	0.855	-	10.8	20	61	-.01
tert-Amyl methyl ether	0.734	0.563	-	23.3*	20	54	-.02
1,2-Dichloroethane-d4	0.29	0.281	-	3.1	20	80	-.01
1,2-Dichloroethane	0.342	0.307	-	10.2	20	64	-.02
Methyl cyclohexane	0.415	0.346	-	16.6	20	57	-.01
Trichloroethene	0.249	0.226	-	9.2	20	62	-.01
Dibromomethane	0.164	0.14	-	14.6	20	61	-.02

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190914A01
 Sample No : WG1284565-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/14/19 07:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.254	0.228	-	10.2	20	62	0
2-Chloroethyl vinyl ether	0.185	0.151	-	18.4	20	57	-.01
Bromodichloromethane	0.327	0.298	-	8.9	20	63	-.02
1,4-Dioxane	0.00343	0.00331*	-	3.5	20	71	-.02
cis-1,3-Dichloropropene	0.404	0.353	-	12.6	20	60	0
Chlorobenzene-d5	1	1	-	0	20	77	-.02
Toluene-d8	1.211	1.232	-	-1.7	20	78	-.02
Toluene	0.75	0.687	-	8.4	20	62	-.02
4-Methyl-2-pentanone	0.137	0.109	-	20.4*	20	55	-.02
Tetrachloroethene	0.306	0.286	-	6.5	20	60	-.02
trans-1,3-Dichloropropene	0.447	0.403	-	9.8	20	60	-.02
Ethyl methacrylate	0.415	0.312	-	24.8*	20	51	-.02
1,1,2-Trichloroethane	0.237	0.203	-	14.3	20	58	-.01
Chlorodibromomethane	0.311	0.284	-	8.7	20	61	-.02
1,3-Dichloropropane	0.475	0.405	-	14.7	20	57	-.01
1,2-Dibromoethane	0.286	0.248	-	13.3	20	58	-.01
2-Hexanone	0.245	0.221	-	9.8	20	63	-.02
Chlorobenzene	0.845	0.78	-	7.7	20	62	-.02
Ethylbenzene	1.401	1.308	-	6.6	20	62	-.02
1,1,1,2-Tetrachloroethane	0.297	0.282	-	5.1	20	62	0
p/m Xylene	0.545	0.519	-	4.8	20	63	-.02
o Xylene	0.539	0.497	-	7.8	20	62	-.02
Styrene	0.876	0.815	-	7	20	61	-.02
1,4-Dichlorobenzene-d4	1	1	-	0	20	79	-.01
Bromoform	0.424	0.341	-	19.6	20	61	-.02
Isopropylbenzene	2.578	2.412	-	6.4	20	63	-.02
4-Bromofluorobenzene	0.913	0.881	-	3.5	20	76	-.01
Bromobenzene	0.679	0.586	-	13.7	20	60	-.02
n-Propylbenzene	3.032	2.88	-	5	20	63	-.01
1,4-Dichlorobutane	0.91	0.833	-	8.5	20	65	-.01
1,1,2,2-Tetrachloroethane	0.726	0.612	-	15.7	20	56	-.01
4-Ethyltoluene	2.552	2.377	-	6.9	20	62	0
2-Chlorotoluene	2.106	1.976	-	6.2	20	64	-.01
1,3,5-Trimethylbenzene	2.162	2.036	-	5.8	20	64	-.02
1,2,3-Trichloropropane	0.612	0.505	-	17.5	20	58	-.02
trans-1,4-Dichloro-2-buten	0.212	0.203	-	4.2	20	66	0
4-Chlorotoluene	1.897	1.794	-	5.4	20	65	-.01
tert-Butylbenzene	1.876	1.735	-	7.5	20	62	-.01
1,2,4-Trimethylbenzene	2.172	2.053	-	5.5	20	64	-.02
sec-Butylbenzene	2.799	2.659	-	5	20	63	-.01
p-Isopropyltoluene	2.388	2.268	-	5	20	63	-.02
1,3-Dichlorobenzene	1.306	1.21	-	7.4	20	64	-.01
1,4-Dichlorobenzene	1.32	1.21	-	8.3	20	64	-.01

* Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190914A01
 Sample No : WG1284565-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/14/19 07:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.466	1.335	-	8.9	20	62	-.01
n-Butylbenzene	2.231	2.186	-	2	20	65	-.01
1,2-Dichlorobenzene	1.255	1.122	-	10.6	20	62	-.01
1,2,4,5-Tetramethylbenzene	2.325	2.074	-	10.8	20	61	-.01
1,2-Dibromo-3-chloropropan	0.136	0.101	-	25.7*	20	54	-.01
1,3,5-Trichlorobenzene	0.913	0.842	-	7.8	20	63	-.01
Hexachlorobutadiene	0.428	0.367	-	14.3	20	59	-.01
1,2,4-Trichlorobenzene	0.862	0.789	-	8.5	20	63	-.01
Naphthalene	2.486	2.034	-	18.2	20	56	-.01
1,2,3-Trichlorobenzene	0.842	0.734	-	12.8	20	60	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190914A02
 Sample No : WG1284397-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/14/19 07:48
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	51	0
Dichlorodifluoromethane	0.158	0.241	-	-52.5*	20	76	0
Chloromethane	0.23	0.305	-	-32.6*	20	72	0
Vinyl chloride	0.21	0.199	-	5.2	20	49	0
Bromomethane	0.135	0.107	-	20.7*	20	46	0
Chloroethane	0.13	0.108	-	16.9	20	45	0
Trichlorofluoromethane	0.261	0.345	-	-32.2*	20	68	0
Ethyl ether	0.092	0.071	-	22.8*	20	41	0
1,1-Dichloroethene	0.198	0.172	-	13.1	20	45	0
Carbon disulfide	0.66	0.563	-	14.7	20	46	0
Freon-113	0.194	0.189	-	2.6	20	49	0
Acrolein	0.03	0.024*	-	20	20	43	0
Methylene chloride	0.219	0.201	-	8.2	20	49	0
Acetone	20	22.413	-	-12.1	20	52	0
trans-1,2-Dichloroethene	0.229	0.217	-	5.2	20	50	0
Methyl acetate	0.094	0.101	-	-7.4	20	61	0
Methyl tert-butyl ether	0.503	0.52	-	-3.4	20	53	0
tert-Butyl alcohol	0.017	0.016*	-	5.9	20	47	0
Diisopropyl ether	0.721	0.75	-	-4	20	53	0
1,1-Dichloroethane	0.421	0.458	-	-8.8	20	57	0
Halothane	0.188	0.166	-	11.7	20	46	0
Acrylonitrile	0.044	0.049*	-	-11.4	20	58	0
Ethyl tert-butyl ether	0.703	0.725	-	-3.1	20	53	0
Vinyl acetate	0.414	0.451	-	-8.9	20	55	0
cis-1,2-Dichloroethene	0.247	0.251	-	-1.6	20	54	0
2,2-Dichloropropane	0.376	0.435	-	-15.7	20	61	0
Bromochloromethane	0.098	0.104	-	-6.1	20	55	0
Cyclohexane	0.393	0.429	-	-9.2	20	56	0
Chloroform	0.417	0.486	-	-16.5	20	60	0
Ethyl acetate	0.153	0.159	-	-3.9	20	55	0
Carbon tetrachloride	0.334	0.424	-	-26.9*	20	65	0
Tetrahydrofuran	20	22.839	-	-14.2	20	53	0
Dibromofluoromethane	0.245	0.256	-	-4.5	20	52	0
1,1,1-Trichloroethane	0.382	0.463	-	-21.2*	20	63	0
2-Butanone	20	22.643	-	-13.2	20	61	0
1,1-Dichloropropene	0.316	0.333	-	-5.4	20	55	0
Benzene	0.93	0.911	-	2	20	53	0
tert-Amyl methyl ether	0.589	0.551	-	6.5	20	48	0
1,2-Dichloroethane-d4	0.249	0.307	-	-23.3*	20	63	0
1,2-Dichloroethane	0.268	0.36	-	-34.3*	20	69	0
Methyl cyclohexane	0.395	0.386	-	2.3	20	50	0
Trichloroethene	0.248	0.261	-	-5.2	20	57	0
Dibromomethane	0.112	0.128	-	-14.3	20	58	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190914A02
 Sample No : WG1284397-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/14/19 07:48
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.227	0.246	-	-8.4	20	57	0
2-Chloroethyl vinyl ether	0.109	0.111	-	-1.8	20	51	0
Bromodichloromethane	0.312	0.353	-	-13.1	20	60	0
1,4-Dioxane	0.00149	0.0013*	-	12.8	20	46	0
cis-1,3-Dichloropropene	0.358	0.379	-	-5.9	20	56	0
Chlorobenzene-d5	1	1	-	0	20	57	0
Toluene-d8	1.374	1.244	-	9.5	20	52	0
Toluene	0.82	0.789	-	3.8	20	57	0
4-Methyl-2-pentanone	0.079	0.078*	-	1.3	20	54	0
Tetrachloroethene	0.328	0.332	-	-1.2	20	59	0
trans-1,3-Dichloropropene	0.414	0.425	-	-2.7	20	59	0
Ethyl methacrylate	0.316	0.262	-	17.1	20	49	0
1,1,2-Trichloroethane	0.186	0.184	-	1.1	20	57	0
Chlorodibromomethane	0.279	0.294	-	-5.4	20	62	0
1,3-Dichloropropane	0.389	0.386	-	0.8	20	57	0
1,2-Dibromoethane	0.215	0.213	-	0.9	20	57	0
2-Hexanone	0.142	0.124	-	12.7	20	51	0
Chlorobenzene	0.904	0.88	-	2.7	20	59	0
Ethylbenzene	1.578	1.604	-	-1.6	20	59	0
1,1,1,2-Tetrachloroethane	0.315	0.327	-	-3.8	20	63	0
p/m Xylene	0.614	0.612	-	0.3	20	59	0
o Xylene	0.596	0.584	-	2	20	58	0
Styrene	0.957	0.942	-	1.6	20	58	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	68	0
Bromoform	0.312	0.316	-	-1.3	20	68	0
Isopropylbenzene	3.228	2.814	-	12.8	20	60	0
4-Bromofluorobenzene	1.085	0.913	-	15.9	20	57	0
Bromobenzene	0.692	0.636	-	8.1	20	63	0
n-Propylbenzene	3.81	3.41	-	10.5	20	62	0
1,4-Dichlorobutane	0.842	0.808	-	4	20	67	0
1,1,2,2-Tetrachloroethane	0.56	0.497	-	11.3	20	62	0
4-Ethyltoluene	3.347	2.817	-	15.8	20	59	0
2-Chlorotoluene	2.218	2.031	-	8.4	20	64	0
1,3,5-Trimethylbenzene	2.697	2.458	-	8.9	20	63	0
1,2,3-Trichloropropane	0.423	0.412	-	2.6	20	67	0
trans-1,4-Dichloro-2-buten	0.159	0.159	-	0	20	68	0
4-Chlorotoluene	2.339	2.116	-	9.5	20	63	0
tert-Butylbenzene	2.305	2.069	-	10.2	20	62	0
1,2,4-Trimethylbenzene	2.653	2.431	-	8.4	20	64	0
sec-Butylbenzene	3.508	3.195	-	8.9	20	63	0
p-Isopropyltoluene	2.943	2.695	-	8.4	20	63	0
1,3-Dichlorobenzene	1.397	1.354	-	3.1	20	67	0
1,4-Dichlorobenzene	1.386	1.341	-	3.2	20	68	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
Project Name : TOMBARELLO SITE
Instrument ID : VOA117
Lab File ID : V17190914A02
Sample No : WG1284397-2
Channel :

Lab Number : L1940717
Project Number : 17001426
Calibration Date : 09/14/19 07:48
Init. Calib. Date(s) : 07/26/19 07/26/19
Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.837	1.558	-	15.2	20	59	0
n-Butylbenzene	2.767	2.652	-	4.2	20	66	0
1,2-Dichlorobenzene	1.247	1.203	-	3.5	20	67	0
1,2,4,5-Tetramethylbenzene	2.774	2.346	-	15.4	20	59	0
1,2-Dibromo-3-chloropropan	0.076	0.074	-	2.6	20	66	0
1,3,5-Trichlorobenzene	1.032	0.953	-	7.7	20	65	0
Hexachlorobutadiene	0.472	0.451	-	4.4	20	67	0
1,2,4-Trichlorobenzene	0.835	0.819	-	1.9	20	68	0
Naphthalene	1.699	1.485	-	12.6	20	61	0
1,2,3-Trichlorobenzene	0.731	0.719	-	1.6	20	69	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190915A02
 Sample No : WG1284519-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 12:56
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	73	0
Dichlorodifluoromethane	0.158	0.223	-	-41.1*	20	101	0
Chloromethane	0.23	0.296	-	-28.7*	20	100	0
Vinyl chloride	0.21	0.217	-	-3.3	20	76	0
Bromomethane	0.135	0.121	-	10.4	20	75	0
Chloroethane	0.13	0.123	-	5.4	20	74	0
Trichlorofluoromethane	0.261	0.334	-	-28*	20	95	0
Ethyl ether	0.092	0.074	-	19.6	20	62	0
1,1-Dichloroethene	0.198	0.185	-	6.6	20	69	0
Carbon disulfide	0.66	0.596	-	9.7	20	69	0
Freon-113	0.194	0.196	-	-1	20	74	0
Acrolein	0.03	0.028*	-	6.7	20	70	0
Methylene chloride	0.219	0.211	-	3.7	20	75	0
Acetone	20	22.121	-	-10.6	20	73	0
trans-1,2-Dichloroethene	0.229	0.218	-	4.8	20	72	0
Methyl acetate	0.094	0.098*	-	-4.3	20	85	0
Methyl tert-butyl ether	0.503	0.494	-	1.8	20	72	0
tert-Butyl alcohol	0.017	0.016*	-	5.9	20	66	0
Diisopropyl ether	0.721	0.722	-	-0.1	20	74	0
1,1-Dichloroethane	0.421	0.447	-	-6.2	20	80	0
Halothane	0.188	0.17	-	9.6	20	69	0
Acrylonitrile	0.044	0.049*	-	-11.4	20	85	0
Ethyl tert-butyl ether	0.703	0.685	-	2.6	20	71	0
Vinyl acetate	0.414	0.428	-	-3.4	20	75	0
cis-1,2-Dichloroethene	0.247	0.245	-	0.8	20	75	0
2,2-Dichloropropane	0.376	0.387	-	-2.9	20	78	0
Bromochloromethane	0.098	0.101	-	-3.1	20	77	0
Cyclohexane	0.393	0.436	-	-10.9	20	82	0
Chloroform	0.417	0.435	-	-4.3	20	77	0
Ethyl acetate	0.153	0.154	-	-0.7	20	77	0
Carbon tetrachloride	0.334	0.366	-	-9.6	20	81	0
Tetrahydrofuran	20	23.627	-	-18.1	20	79	0
Dibromofluoromethane	0.245	0.245	-	0	20	72	0
1,1,1-Trichloroethane	0.382	0.408	-	-6.8	20	80	0
2-Butanone	20	22.25	-	-11.3	20	86	0
1,1-Dichloropropene	0.316	0.325	-	-2.8	20	77	0
Benzene	0.93	0.909	-	2.3	20	77	0
tert-Amyl methyl ether	0.589	0.536	-	9	20	67	0
1,2-Dichloroethane-d4	0.249	0.253	-	-1.6	20	74	0
1,2-Dichloroethane	0.268	0.302	-	-12.7	20	84	0
Methyl cyclohexane	0.395	0.399	-	-1	20	74	0
Trichloroethene	0.248	0.254	-	-2.4	20	80	0
Dibromomethane	0.112	0.122	-	-8.9	20	80	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190915A02
 Sample No : WG1284519-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 12:56
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.227	0.248	-	-9.3	20	82	0
2-Chloroethyl vinyl ether	0.109	0.108	-	0.9	20	71	0
Bromodichloromethane	0.312	0.325	-	-4.2	20	80	0
1,4-Dioxane	0.00149	0.00131*	-	12.1	20	66	0
cis-1,3-Dichloropropene	0.358	0.367	-	-2.5	20	78	0
Chlorobenzene-d5	1	1	-	0	20	79	0
Toluene-d8	1.374	1.246	-	9.3	20	72	0
Toluene	0.82	0.787	-	4	20	79	0
4-Methyl-2-pentanone	0.079	0.078*	-	1.3	20	76	0
Tetrachloroethene	0.328	0.323	-	1.5	20	80	0
trans-1,3-Dichloropropene	0.414	0.407	-	1.7	20	78	0
Ethyl methacrylate	0.316	0.266	-	15.8	20	69	0
1,1,2-Trichloroethane	0.186	0.185	-	0.5	20	80	0
Chlorodibromomethane	0.279	0.28	-	-0.4	20	81	0
1,3-Dichloropropane	0.389	0.391	-	-0.5	20	81	0
1,2-Dibromoethane	0.215	0.214	-	0.5	20	81	0
2-Hexanone	0.142	0.122	-	14.1	20	71	0
Chlorobenzene	0.904	0.854	-	5.5	20	80	0
Ethylbenzene	1.578	1.539	-	2.5	20	79	0
1,1,1,2-Tetrachloroethane	0.315	0.309	-	1.9	20	83	0
p/m Xylene	0.614	0.588	-	4.2	20	79	0
o Xylene	0.596	0.562	-	5.7	20	78	0
Styrene	0.957	0.909	-	5	20	78	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	85	0
Bromoform	0.312	0.311	-	0.3	20	84	0
Isopropylbenzene	3.228	2.917	-	9.6	20	78	0
4-Bromofluorobenzene	1.085	0.967	-	10.9	20	76	0
Bromobenzene	0.692	0.651	-	5.9	20	81	0
n-Propylbenzene	3.81	3.583	-	6	20	81	0
1,4-Dichlorobutane	0.842	0.824	-	2.1	20	86	0
1,1,2,2-Tetrachloroethane	0.56	0.529	-	5.5	20	83	0
4-Ethyltoluene	3.347	2.911	-	13	20	76	0
2-Chlorotoluene	2.218	2.084	-	6	20	82	0
1,3,5-Trimethylbenzene	2.697	2.49	-	7.7	20	81	0
1,2,3-Trichloropropane	0.423	0.42	-	0.7	20	85	0
trans-1,4-Dichloro-2-buten	0.159	0.156	-	1.9	20	84	0
4-Chlorotoluene	2.339	2.149	-	8.1	20	81	0
tert-Butylbenzene	2.305	2.109	-	8.5	20	79	0
1,2,4-Trimethylbenzene	2.653	2.451	-	7.6	20	81	0
sec-Butylbenzene	3.508	3.276	-	6.6	20	81	0
p-Isopropyltoluene	2.943	2.735	-	7.1	20	80	0
1,3-Dichlorobenzene	1.397	1.335	-	4.4	20	84	0
1,4-Dichlorobenzene	1.386	1.334	-	3.8	20	85	0

* Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190915A02
 Sample No : WG1284519-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 12:56
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.837	1.6	-	12.9	20	76	0
n-Butylbenzene	2.767	2.69	-	2.8	20	84	0
1,2-Dichlorobenzene	1.247	1.196	-	4.1	20	84	0
1,2,4,5-Tetramethylbenzene	2.774	2.344	-	15.5	20	74	0
1,2-Dibromo-3-chloropropan	0.076	0.073	-	3.9	20	82	0
1,3,5-Trichlorobenzene	1.032	0.949	-	8	20	81	0
Hexachlorobutadiene	0.472	0.446	-	5.5	20	83	0
1,2,4-Trichlorobenzene	0.835	0.827	-	1	20	87	0
Naphthalene	1.699	1.538	-	9.5	20	79	0
1,2,3-Trichlorobenzene	0.731	0.714	-	2.3	20	86	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190915A02
 Sample No : WG1284521-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 12:56
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	73	0
Dichlorodifluoromethane	0.158	0.223	-	-41.1*	20	101	0
Chloromethane	0.23	0.296	-	-28.7*	20	100	0
Vinyl chloride	0.21	0.217	-	-3.3	20	76	0
Bromomethane	0.135	0.121	-	10.4	20	75	0
Chloroethane	0.13	0.123	-	5.4	20	74	0
Trichlorofluoromethane	0.261	0.334	-	-28*	20	95	0
Ethyl ether	0.092	0.074	-	19.6	20	62	0
1,1-Dichloroethene	0.198	0.185	-	6.6	20	69	0
Carbon disulfide	0.66	0.596	-	9.7	20	69	0
Freon-113	0.194	0.196	-	-1	20	74	0
Acrolein	0.03	0.028*	-	6.7	20	70	0
Methylene chloride	0.219	0.211	-	3.7	20	75	0
Acetone	20	22.121	-	-10.6	20	73	0
trans-1,2-Dichloroethene	0.229	0.218	-	4.8	20	72	0
Methyl acetate	0.094	0.098*	-	-4.3	20	85	0
Methyl tert-butyl ether	0.503	0.494	-	1.8	20	72	0
tert-Butyl alcohol	0.017	0.016*	-	5.9	20	66	0
Diisopropyl ether	0.721	0.722	-	-0.1	20	74	0
1,1-Dichloroethane	0.421	0.447	-	-6.2	20	80	0
Halothane	0.188	0.17	-	9.6	20	69	0
Acrylonitrile	0.044	0.049*	-	-11.4	20	85	0
Ethyl tert-butyl ether	0.703	0.685	-	2.6	20	71	0
Vinyl acetate	0.414	0.428	-	-3.4	20	75	0
cis-1,2-Dichloroethene	0.247	0.245	-	0.8	20	75	0
2,2-Dichloropropane	0.376	0.387	-	-2.9	20	78	0
Bromochloromethane	0.098	0.101	-	-3.1	20	77	0
Cyclohexane	0.393	0.436	-	-10.9	20	82	0
Chloroform	0.417	0.435	-	-4.3	20	77	0
Ethyl acetate	0.153	0.154	-	-0.7	20	77	0
Carbon tetrachloride	0.334	0.366	-	-9.6	20	81	0
Tetrahydrofuran	20	23.627	-	-18.1	20	79	0
Dibromofluoromethane	0.245	0.245	-	0	20	72	0
1,1,1-Trichloroethane	0.382	0.408	-	-6.8	20	80	0
2-Butanone	20	22.25	-	-11.3	20	86	0
1,1-Dichloropropene	0.316	0.325	-	-2.8	20	77	0
Benzene	0.93	0.909	-	2.3	20	77	0
tert-Amyl methyl ether	0.589	0.536	-	9	20	67	0
1,2-Dichloroethane-d4	0.249	0.253	-	-1.6	20	74	0
1,2-Dichloroethane	0.268	0.302	-	-12.7	20	84	0
Methyl cyclohexane	0.395	0.399	-	-1	20	74	0
Trichloroethene	0.248	0.254	-	-2.4	20	80	0
Dibromomethane	0.112	0.122	-	-8.9	20	80	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190915A02
 Sample No : WG1284521-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 12:56
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.227	0.248	-	-9.3	20	82	0
2-Chloroethyl vinyl ether	0.109	0.108	-	0.9	20	71	0
Bromodichloromethane	0.312	0.325	-	-4.2	20	80	0
1,4-Dioxane	0.00149	0.00131*	-	12.1	20	66	0
cis-1,3-Dichloropropene	0.358	0.367	-	-2.5	20	78	0
Chlorobenzene-d5	1	1	-	0	20	79	0
Toluene-d8	1.374	1.246	-	9.3	20	72	0
Toluene	0.82	0.787	-	4	20	79	0
4-Methyl-2-pentanone	0.079	0.078*	-	1.3	20	76	0
Tetrachloroethene	0.328	0.323	-	1.5	20	80	0
trans-1,3-Dichloropropene	0.414	0.407	-	1.7	20	78	0
Ethyl methacrylate	0.316	0.266	-	15.8	20	69	0
1,1,2-Trichloroethane	0.186	0.185	-	0.5	20	80	0
Chlorodibromomethane	0.279	0.28	-	-0.4	20	81	0
1,3-Dichloropropane	0.389	0.391	-	-0.5	20	81	0
1,2-Dibromoethane	0.215	0.214	-	0.5	20	81	0
2-Hexanone	0.142	0.122	-	14.1	20	71	0
Chlorobenzene	0.904	0.854	-	5.5	20	80	0
Ethylbenzene	1.578	1.539	-	2.5	20	79	0
1,1,1,2-Tetrachloroethane	0.315	0.309	-	1.9	20	83	0
p/m Xylene	0.614	0.588	-	4.2	20	79	0
o Xylene	0.596	0.562	-	5.7	20	78	0
Styrene	0.957	0.909	-	5	20	78	0
1,4-Dichlorobenzene-d4	1	1	-	0	20	85	0
Bromoform	0.312	0.311	-	0.3	20	84	0
Isopropylbenzene	3.228	2.917	-	9.6	20	78	0
4-Bromofluorobenzene	1.085	0.967	-	10.9	20	76	0
Bromobenzene	0.692	0.651	-	5.9	20	81	0
n-Propylbenzene	3.81	3.583	-	6	20	81	0
1,4-Dichlorobutane	0.842	0.824	-	2.1	20	86	0
1,1,2,2-Tetrachloroethane	0.56	0.529	-	5.5	20	83	0
4-Ethyltoluene	3.347	2.911	-	13	20	76	0
2-Chlorotoluene	2.218	2.084	-	6	20	82	0
1,3,5-Trimethylbenzene	2.697	2.49	-	7.7	20	81	0
1,2,3-Trichloropropane	0.423	0.42	-	0.7	20	85	0
trans-1,4-Dichloro-2-buten	0.159	0.156	-	1.9	20	84	0
4-Chlorotoluene	2.339	2.149	-	8.1	20	81	0
tert-Butylbenzene	2.305	2.109	-	8.5	20	79	0
1,2,4-Trimethylbenzene	2.653	2.451	-	7.6	20	81	0
sec-Butylbenzene	3.508	3.276	-	6.6	20	81	0
p-Isopropyltoluene	2.943	2.735	-	7.1	20	80	0
1,3-Dichlorobenzene	1.397	1.335	-	4.4	20	84	0
1,4-Dichlorobenzene	1.386	1.334	-	3.8	20	85	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA117
 Lab File ID : V17190915A02
 Sample No : WG1284521-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 12:56
 Init. Calib. Date(s) : 07/26/19 07/26/19
 Init. Calib. Times : 20:19 23:46

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.837	1.6	-	12.9	20	76	0
n-Butylbenzene	2.767	2.69	-	2.8	20	84	0
1,2-Dichlorobenzene	1.247	1.196	-	4.1	20	84	0
1,2,4,5-Tetramethylbenzene	2.774	2.344	-	15.5	20	74	0
1,2-Dibromo-3-chloropropan	0.076	0.073	-	3.9	20	82	0
1,3,5-Trichlorobenzene	1.032	0.949	-	8	20	81	0
Hexachlorobutadiene	0.472	0.446	-	5.5	20	83	0
1,2,4-Trichlorobenzene	0.835	0.827	-	1	20	87	0
Naphthalene	1.699	1.538	-	9.5	20	79	0
1,2,3-Trichlorobenzene	0.731	0.714	-	2.3	20	86	0

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190915A01
 Sample No : WG1284596-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 16:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	72	-.01
Dichlorodifluoromethane	0.268	0.296	-	-10.4	20	68	0
Chloromethane	0.275	0.353	-	-28.4*	20	81	0
Vinyl chloride	0.312	0.325	-	-4.2	20	64	0
Bromomethane	0.233	0.224	-	3.9	20	65	0
Chloroethane	0.235	0.225	-	4.3	20	62	0
Trichlorofluoromethane	0.429	0.441	-	-2.8	20	62	0
Ethyl ether	0.143	0.127	-	11.2	20	58	0
1,1-Dichloroethene	0.214	0.21	-	1.9	20	61	0
Carbon disulfide	0.725	0.693	-	4.4	20	63	0
Freon-113	0.216	0.215	-	0.5	20	61	0
Acrolein	0.05	0.053	-	-6	20	71	0
Methylene chloride	0.28	0.249	-	11.1	20	62	0
Acetone	20	24.264	-	-21.3*	20	78	-.01
trans-1,2-Dichloroethene	0.245	0.24	-	2	20	62	0
Methyl acetate	0.187	0.213	-	-13.9	20	74	-.01
Methyl tert-butyl ether	0.725	0.65	-	10.3	20	57	-.01
tert-Butyl alcohol	0.038	0.032*	-	15.8	20	54	-.01
Diisopropyl ether	0.748	0.879	-	-17.5	20	75	-.01
1,1-Dichloroethane	0.436	0.455	-	-4.4	20	66	-.01
Halothane	0.182	0.175	-	3.8	20	60	-.01
Acrylonitrile	0.093	0.097	-	-4.3	20	66	-.01
Ethyl tert-butyl ether	0.763	0.738	-	3.3	20	62	-.02
Vinyl acetate	0.662	0.756	-	-14.2	20	74	-.01
cis-1,2-Dichloroethene	0.275	0.267	-	2.9	20	62	-.01
2,2-Dichloropropane	0.366	0.368	-	-0.5	20	63	-.01
Bromochloromethane	0.134	0.13	-	3	20	61	-.01
Cyclohexane	0.39	0.411	-	-5.4	20	66	0
Chloroform	0.43	0.434	-	-0.9	20	64	-.01
Ethyl acetate	0.3	0.325	-	-8.3	20	71	-.01
Carbon tetrachloride	0.331	0.337	-	-1.8	20	64	-.01
Tetrahydrofuran	0.106	0.117	-	-10.4	20	72	-.02
Dibromofluoromethane	0.262	0.255	-	2.7	20	70	0
1,1,1-Trichloroethane	0.365	0.384	-	-5.2	20	64	-.01
2-Butanone	0.139	0.145	-	-4.3	20	74	-.02
1,1-Dichloropropene	0.318	0.32	-	-0.6	20	61	0
Benzene	0.959	0.945	-	1.5	20	61	-.01
tert-Amyl methyl ether	0.734	0.633	-	13.8	20	55	-.02
1,2-Dichloroethane-d4	0.29	0.294	-	-1.4	20	76	-.01
1,2-Dichloroethane	0.342	0.343	-	-0.3	20	64	-.01
Methyl cyclohexane	0.415	0.383	-	7.7	20	58	-.01
Trichloroethene	0.249	0.249	-	0	20	62	-.01
Dibromomethane	0.164	0.155	-	5.5	20	61	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190915A01
 Sample No : WG1284596-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 16:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.254	0.254	-	0	20	63	0
2-Chloroethyl vinyl ether	0.185	0.171	-	7.6	20	59	-0.01
Bromodichloromethane	0.327	0.331	-	-1.2	20	64	-0.02
1,4-Dioxane	0.00343	0.003*	-	12.5	20	58	-0.02
cis-1,3-Dichloropropene	0.404	0.396	-	2	20	61	0
Chlorobenzene-d5	1	1	-	0	20	71	-0.02
Toluene-d8	1.211	1.215	-	-0.3	20	71	-0.02
Toluene	0.75	0.74	-	1.3	20	62	-0.01
4-Methyl-2-pentanone	0.137	0.131	-	4.4	20	61	-0.02
Tetrachloroethene	0.306	0.3	-	2	20	59	-0.02
trans-1,3-Dichloropropene	0.447	0.441	-	1.3	20	60	-0.01
Ethyl methacrylate	0.415	0.344	-	17.1	20	52	-0.02
1,1,2-Trichloroethane	0.237	0.221	-	6.8	20	58	-0.01
Chlorodibromomethane	0.311	0.304	-	2.3	20	60	-0.02
1,3-Dichloropropane	0.475	0.447	-	5.9	20	59	-0.02
1,2-Dibromoethane	0.286	0.271	-	5.2	20	58	-0.02
2-Hexanone	0.245	0.261	-	-6.5	20	69	-0.02
Chlorobenzene	0.845	0.839	-	0.7	20	61	-0.01
Ethylbenzene	1.401	1.407	-	-0.4	20	62	-0.01
1,1,1,2-Tetrachloroethane	0.297	0.3	-	-1	20	61	-0.02
p/m Xylene	0.545	0.552	-	-1.3	20	62	0
o Xylene	0.539	0.529	-	1.9	20	61	-0.02
Styrene	0.876	0.878	-	-0.2	20	61	-0.02
1,4-Dichlorobenzene-d4	1	1	-	0	20	72	-0.01
Bromoform	0.424	0.367	-	13.4	20	60	-0.01
Isopropylbenzene	2.578	2.613	-	-1.4	20	62	-0.02
4-Bromofluorobenzene	0.913	0.884	-	3.2	20	69	-0.01
Bromobenzene	0.679	0.626	-	7.8	20	58	-0.02
n-Propylbenzene	3.032	3.162	-	-4.3	20	63	-0.01
1,4-Dichlorobutane	0.91	0.941	-	-3.4	20	67	-0.01
1,1,2,2-Tetrachloroethane	0.726	0.695	-	4.3	20	58	-0.01
4-Ethyltoluene	2.552	2.595	-	-1.7	20	62	-0.01
2-Chlorotoluene	2.106	2.154	-	-2.3	20	64	-0.01
1,3,5-Trimethylbenzene	2.162	2.195	-	-1.5	20	63	-0.02
1,2,3-Trichloropropane	0.612	0.571	-	6.7	20	59	-0.02
trans-1,4-Dichloro-2-buten	0.212	0.235	-	-10.8	20	70	0
4-Chlorotoluene	1.897	1.962	-	-3.4	20	65	-0.01
tert-Butylbenzene	1.876	1.87	-	0.3	20	61	-0.01
1,2,4-Trimethylbenzene	2.172	2.244	-	-3.3	20	64	-0.02
sec-Butylbenzene	2.799	2.868	-	-2.5	20	62	-0.01
p-Isopropyltoluene	2.388	2.472	-	-3.5	20	63	-0.01
1,3-Dichlorobenzene	1.306	1.296	-	0.8	20	62	-0.01
1,4-Dichlorobenzene	1.32	1.316	-	0.3	20	63	-0.01

* Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190915A01
 Sample No : WG1284596-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 16:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.466	1.467	-	-0.1	20	62	-0.01
n-Butylbenzene	2.231	2.421	-	-8.5	20	66	-0.01
1,2-Dichlorobenzene	1.255	1.214	-	3.3	20	61	-0.01
1,2,4,5-Tetramethylbenzene	2.325	2.266	-	2.5	20	60	-0.01
1,2-Dibromo-3-chloropropan	0.136	0.114	-	16.2	20	56	-0.01
1,3,5-Trichlorobenzene	0.913	0.901	-	1.3	20	62	-0.01
Hexachlorobutadiene	0.428	0.389	-	9.1	20	57	-0.01
1,2,4-Trichlorobenzene	0.862	0.849	-	1.5	20	62	-0.01
Naphthalene	2.486	2.258	-	9.2	20	57	-0.01
1,2,3-Trichlorobenzene	0.842	0.809	-	3.9	20	60	-0.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190915A01
 Sample No : WG1284598-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 16:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	72	-.01
Dichlorodifluoromethane	0.268	0.296	-	-10.4	20	68	0
Chloromethane	0.275	0.353	-	-28.4*	20	81	0
Vinyl chloride	0.312	0.325	-	-4.2	20	64	0
Bromomethane	0.233	0.224	-	3.9	20	65	0
Chloroethane	0.235	0.225	-	4.3	20	62	0
Trichlorofluoromethane	0.429	0.441	-	-2.8	20	62	0
Ethyl ether	0.143	0.127	-	11.2	20	58	0
1,1-Dichloroethene	0.214	0.21	-	1.9	20	61	0
Carbon disulfide	0.725	0.693	-	4.4	20	63	0
Freon-113	0.216	0.215	-	0.5	20	61	0
Acrolein	0.05	0.053	-	-6	20	71	0
Methylene chloride	0.28	0.249	-	11.1	20	62	0
Acetone	20	24.264	-	-21.3*	20	78	-.01
trans-1,2-Dichloroethene	0.245	0.24	-	2	20	62	0
Methyl acetate	0.187	0.213	-	-13.9	20	74	-.01
Methyl tert-butyl ether	0.725	0.65	-	10.3	20	57	-.01
tert-Butyl alcohol	0.038	0.032*	-	15.8	20	54	-.01
Diisopropyl ether	0.748	0.879	-	-17.5	20	75	-.01
1,1-Dichloroethane	0.436	0.455	-	-4.4	20	66	-.01
Halothane	0.182	0.175	-	3.8	20	60	-.01
Acrylonitrile	0.093	0.097	-	-4.3	20	66	-.01
Ethyl tert-butyl ether	0.763	0.738	-	3.3	20	62	-.02
Vinyl acetate	0.662	0.756	-	-14.2	20	74	-.01
cis-1,2-Dichloroethene	0.275	0.267	-	2.9	20	62	-.01
2,2-Dichloropropane	0.366	0.368	-	-0.5	20	63	-.01
Bromochloromethane	0.134	0.13	-	3	20	61	-.01
Cyclohexane	0.39	0.411	-	-5.4	20	66	0
Chloroform	0.43	0.434	-	-0.9	20	64	-.01
Ethyl acetate	0.3	0.325	-	-8.3	20	71	-.01
Carbon tetrachloride	0.331	0.337	-	-1.8	20	64	-.01
Tetrahydrofuran	0.106	0.117	-	-10.4	20	72	-.02
Dibromofluoromethane	0.262	0.255	-	2.7	20	70	0
1,1,1-Trichloroethane	0.365	0.384	-	-5.2	20	64	-.01
2-Butanone	0.139	0.145	-	-4.3	20	74	-.02
1,1-Dichloropropene	0.318	0.32	-	-0.6	20	61	0
Benzene	0.959	0.945	-	1.5	20	61	-.01
tert-Amyl methyl ether	0.734	0.633	-	13.8	20	55	-.02
1,2-Dichloroethane-d4	0.29	0.294	-	-1.4	20	76	-.01
1,2-Dichloroethane	0.342	0.343	-	-0.3	20	64	-.01
Methyl cyclohexane	0.415	0.383	-	7.7	20	58	-.01
Trichloroethene	0.249	0.249	-	0	20	62	-.01
Dibromomethane	0.164	0.155	-	5.5	20	61	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190915A01
 Sample No : WG1284598-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 16:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.254	0.254	-	0	20	63	0
2-Chloroethyl vinyl ether	0.185	0.171	-	7.6	20	59	-0.01
Bromodichloromethane	0.327	0.331	-	-1.2	20	64	-0.02
1,4-Dioxane	0.00343	0.003*	-	12.5	20	58	-0.02
cis-1,3-Dichloropropene	0.404	0.396	-	2	20	61	0
Chlorobenzene-d5	1	1	-	0	20	71	-0.02
Toluene-d8	1.211	1.215	-	-0.3	20	71	-0.02
Toluene	0.75	0.74	-	1.3	20	62	-0.01
4-Methyl-2-pentanone	0.137	0.131	-	4.4	20	61	-0.02
Tetrachloroethene	0.306	0.3	-	2	20	59	-0.02
trans-1,3-Dichloropropene	0.447	0.441	-	1.3	20	60	-0.01
Ethyl methacrylate	0.415	0.344	-	17.1	20	52	-0.02
1,1,2-Trichloroethane	0.237	0.221	-	6.8	20	58	-0.01
Chlorodibromomethane	0.311	0.304	-	2.3	20	60	-0.02
1,3-Dichloropropane	0.475	0.447	-	5.9	20	59	-0.02
1,2-Dibromoethane	0.286	0.271	-	5.2	20	58	-0.02
2-Hexanone	0.245	0.261	-	-6.5	20	69	-0.02
Chlorobenzene	0.845	0.839	-	0.7	20	61	-0.01
Ethylbenzene	1.401	1.407	-	-0.4	20	62	-0.01
1,1,1,2-Tetrachloroethane	0.297	0.3	-	-1	20	61	-0.02
p/m Xylene	0.545	0.552	-	-1.3	20	62	0
o Xylene	0.539	0.529	-	1.9	20	61	-0.02
Styrene	0.876	0.878	-	-0.2	20	61	-0.02
1,4-Dichlorobenzene-d4	1	1	-	0	20	72	-0.01
Bromoform	0.424	0.367	-	13.4	20	60	-0.01
Isopropylbenzene	2.578	2.613	-	-1.4	20	62	-0.02
4-Bromofluorobenzene	0.913	0.884	-	3.2	20	69	-0.01
Bromobenzene	0.679	0.626	-	7.8	20	58	-0.02
n-Propylbenzene	3.032	3.162	-	-4.3	20	63	-0.01
1,4-Dichlorobutane	0.91	0.941	-	-3.4	20	67	-0.01
1,1,2,2-Tetrachloroethane	0.726	0.695	-	4.3	20	58	-0.01
4-Ethyltoluene	2.552	2.595	-	-1.7	20	62	-0.01
2-Chlorotoluene	2.106	2.154	-	-2.3	20	64	-0.01
1,3,5-Trimethylbenzene	2.162	2.195	-	-1.5	20	63	-0.02
1,2,3-Trichloropropane	0.612	0.571	-	6.7	20	59	-0.02
trans-1,4-Dichloro-2-buten	0.212	0.235	-	-10.8	20	70	0
4-Chlorotoluene	1.897	1.962	-	-3.4	20	65	-0.01
tert-Butylbenzene	1.876	1.87	-	0.3	20	61	-0.01
1,2,4-Trimethylbenzene	2.172	2.244	-	-3.3	20	64	-0.02
sec-Butylbenzene	2.799	2.868	-	-2.5	20	62	-0.01
p-Isopropyltoluene	2.388	2.472	-	-3.5	20	63	-0.01
1,3-Dichlorobenzene	1.306	1.296	-	0.8	20	62	-0.01
1,4-Dichlorobenzene	1.32	1.316	-	0.3	20	63	-0.01

* Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190915A01
 Sample No : WG1284598-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/15/19 16:24
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.466	1.467	-	-0.1	20	62	-.01
n-Butylbenzene	2.231	2.421	-	-8.5	20	66	-.01
1,2-Dichlorobenzene	1.255	1.214	-	3.3	20	61	-.01
1,2,4,5-Tetramethylbenzene	2.325	2.266	-	2.5	20	60	-.01
1,2-Dibromo-3-chloropropan	0.136	0.114	-	16.2	20	56	-.01
1,3,5-Trichlorobenzene	0.913	0.901	-	1.3	20	62	-.01
Hexachlorobutadiene	0.428	0.389	-	9.1	20	57	-.01
1,2,4-Trichlorobenzene	0.862	0.849	-	1.5	20	62	-.01
Naphthalene	2.486	2.258	-	9.2	20	57	-.01
1,2,3-Trichlorobenzene	0.842	0.809	-	3.9	20	60	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916A01
 Sample No : WG1284781-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 06:56
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	71	-.01
Dichlorodifluoromethane	0.268	0.224	-	16.4	20	51	0
Chloromethane	0.275	0.31	-	-12.7	20	70	0
Vinyl chloride	0.312	0.301	-	3.5	20	59	0
Bromomethane	0.233	0.217	-	6.9	20	63	0
Chloroethane	0.235	0.219	-	6.8	20	60	0
Trichlorofluoromethane	0.429	0.453	-	-5.6	20	63	0
Ethyl ether	0.143	0.132	-	7.7	20	59	0
1,1-Dichloroethene	0.214	0.214	-	0	20	61	0
Carbon disulfide	0.725	0.681	-	6.1	20	61	0
Freon-113	0.216	0.22	-	-1.9	20	62	0
Acrolein	0.05	0.054	-	-8	20	73	0
Methylene chloride	0.28	0.252	-	10	20	62	0
Acetone	20	24.255	-	-21.3*	20	77	-.01
trans-1,2-Dichloroethene	0.245	0.247	-	-0.8	20	63	0
Methyl acetate	0.187	0.229	-	-22.5*	20	78	-.02
Methyl tert-butyl ether	0.725	0.668	-	7.9	20	58	-.01
tert-Butyl alcohol	0.038	0.035*	-	7.9	20	58	-.01
Diisopropyl ether	0.748	0.909	-	-21.5*	20	76	-.01
1,1-Dichloroethane	0.436	0.466	-	-6.9	20	66	-.01
Halothane	0.182	0.186	-	-2.2	20	63	-.01
Acrylonitrile	0.093	0.101	-	-8.6	20	68	-.01
Ethyl tert-butyl ether	0.763	0.766	-	-0.4	20	63	-.02
Vinyl acetate	0.662	0.779	-	-17.7	20	75	-.01
cis-1,2-Dichloroethene	0.275	0.27	-	1.8	20	62	-.01
2,2-Dichloropropane	0.366	0.379	-	-3.6	20	64	-.01
Bromochloromethane	0.134	0.133	-	0.7	20	62	-.01
Cyclohexane	0.39	0.428	-	-9.7	20	67	0
Chloroform	0.43	0.452	-	-5.1	20	66	-.01
Ethyl acetate	0.3	0.335	-	-11.7	20	72	-.02
Carbon tetrachloride	0.331	0.355	-	-7.3	20	66	0
Tetrahydrofuran	0.106	0.123	-	-16	20	74	-.02
Dibromofluoromethane	0.262	0.254	-	3.1	20	69	-.01
1,1,1-Trichloroethane	0.365	0.398	-	-9	20	65	-.01
2-Butanone	0.139	0.155	-	-11.5	20	78	-.02
1,1-Dichloropropene	0.318	0.332	-	-4.4	20	63	-.01
Benzene	0.959	0.971	-	-1.3	20	62	-.01
tert-Amyl methyl ether	0.734	0.657	-	10.5	20	56	-.02
1,2-Dichloroethane-d4	0.29	0.298	-	-2.8	20	75	-.02
1,2-Dichloroethane	0.342	0.359	-	-5	20	67	-.02
Methyl cyclohexane	0.415	0.391	-	5.8	20	58	-.01
Trichloroethene	0.249	0.258	-	-3.6	20	63	-.01
Dibromomethane	0.164	0.162	-	1.2	20	63	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916A01
 Sample No : WG1284781-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 06:56
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.254	0.264	-	-3.9	20	65	-.02
2-Chloroethyl vinyl ether	0.185	0.177	-	4.3	20	60	-.01
Bromodichloromethane	0.327	0.346	-	-5.8	20	66	-.02
1,4-Dioxane	0.00343	0.00304*	-	11.4	20	58	-.02
cis-1,3-Dichloropropene	0.404	0.411	-	-1.7	20	62	0
Chlorobenzene-d5	1	1	-	0	20	70	-.02
Toluene-d8	1.211	1.205	-	0.5	20	70	-.02
Toluene	0.75	0.756	-	-0.8	20	62	-.02
4-Methyl-2-pentanone	0.137	0.133	-	2.9	20	61	-.02
Tetrachloroethene	0.306	0.314	-	-2.6	20	60	-.02
trans-1,3-Dichloropropene	0.447	0.46	-	-2.9	20	62	-.02
Ethyl methacrylate	0.415	0.365	-	12	20	54	-.02
1,1,2-Trichloroethane	0.237	0.233	-	1.7	20	61	-.01
Chlorodibromomethane	0.311	0.324	-	-4.2	20	64	-.02
1,3-Dichloropropane	0.475	0.47	-	1.1	20	61	-.01
1,2-Dibromoethane	0.286	0.286	-	0	20	61	-.02
2-Hexanone	0.245	0.269	-	-9.8	20	70	-.02
Chlorobenzene	0.845	0.869	-	-2.8	20	63	-.02
Ethylbenzene	1.401	1.469	-	-4.9	20	64	-.02
1,1,1,2-Tetrachloroethane	0.297	0.315	-	-6.1	20	63	-.02
p/m Xylene	0.545	0.575	-	-5.5	20	64	-.02
o Xylene	0.539	0.552	-	-2.4	20	62	-.02
Styrene	0.876	0.911	-	-4	20	62	-.02
1,4-Dichlorobenzene-d4	1	1	-	0	20	72	-.01
Bromoform	0.424	0.386	-	9	20	63	-.02
Isopropylbenzene	2.578	2.686	-	-4.2	20	64	-.02
4-Bromofluorobenzene	0.913	0.883	-	3.3	20	69	-.01
Bromobenzene	0.679	0.647	-	4.7	20	61	-.02
n-Propylbenzene	3.032	3.237	-	-6.8	20	65	-.01
1,4-Dichlorobutane	0.91	0.983	-	-8	20	70	-.01
1,1,2,2-Tetrachloroethane	0.726	0.73	-	-0.6	20	61	-.01
4-Ethyltoluene	2.552	2.632	-	-3.1	20	63	-.01
2-Chlorotoluene	2.106	2.196	-	-4.3	20	65	-.01
1,3,5-Trimethylbenzene	2.162	2.259	-	-4.5	20	65	-.02
1,2,3-Trichloropropane	0.612	0.595	-	2.8	20	62	-.02
trans-1,4-Dichloro-2-buten	0.212	0.248	-	-17	20	74	-.02
4-Chlorotoluene	1.897	2.008	-	-5.9	20	66	-.02
tert-Butylbenzene	1.876	1.917	-	-2.2	20	62	-.01
1,2,4-Trimethylbenzene	2.172	2.277	-	-4.8	20	65	-.02
sec-Butylbenzene	2.799	2.943	-	-5.1	20	64	-.01
p-Isopropyltoluene	2.388	2.502	-	-4.8	20	64	-.02
1,3-Dichlorobenzene	1.306	1.339	-	-2.5	20	65	-.01
1,4-Dichlorobenzene	1.32	1.352	-	-2.4	20	65	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
Project Name : TOMBARELLO SITE
Instrument ID : VOA123
Lab File ID : V23190916A01
Sample No : WG1284781-2
Channel :

Lab Number : L1940717
Project Number : 17001426
Calibration Date : 09/16/19 06:56
Init. Calib. Date(s) : 06/21/19 06/21/19
Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.466	1.468	-	-0.1	20	62	-.01
n-Butylbenzene	2.231	2.436	-	-9.2	20	67	-.01
1,2-Dichlorobenzene	1.255	1.253	-	0.2	20	63	-.01
1,2,4,5-Tetramethylbenzene	2.325	2.304	-	0.9	20	62	-.01
1,2-Dibromo-3-chloropropan	0.136	0.119	-	12.5	20	58	-.01
1,3,5-Trichlorobenzene	0.913	0.902	-	1.2	20	62	-.01
Hexachlorobutadiene	0.428	0.378	-	11.7	20	56	-.01
1,2,4-Trichlorobenzene	0.862	0.858	-	0.5	20	63	-.01
Naphthalene	2.486	2.385	-	4.1	20	60	-.01
1,2,3-Trichlorobenzene	0.842	0.82	-	2.6	20	62	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916A01
 Sample No : WG1284780-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 06:56
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	71	-.01
Dichlorodifluoromethane	0.268	0.224	-	16.4	20	51	0
Chloromethane	0.275	0.31	-	-12.7	20	70	0
Vinyl chloride	0.312	0.301	-	3.5	20	59	0
Bromomethane	0.233	0.217	-	6.9	20	63	0
Chloroethane	0.235	0.219	-	6.8	20	60	0
Trichlorofluoromethane	0.429	0.453	-	-5.6	20	63	0
Ethyl ether	0.143	0.132	-	7.7	20	59	0
1,1-Dichloroethene	0.214	0.214	-	0	20	61	0
Carbon disulfide	0.725	0.681	-	6.1	20	61	0
Freon-113	0.216	0.22	-	-1.9	20	62	0
Acrolein	0.05	0.054	-	-8	20	73	0
Methylene chloride	0.28	0.252	-	10	20	62	0
Acetone	20	24.255	-	-21.3*	20	77	-.01
trans-1,2-Dichloroethene	0.245	0.247	-	-0.8	20	63	0
Methyl acetate	0.187	0.229	-	-22.5*	20	78	-.02
Methyl tert-butyl ether	0.725	0.668	-	7.9	20	58	-.01
tert-Butyl alcohol	0.038	0.035*	-	7.9	20	58	-.01
Diisopropyl ether	0.748	0.909	-	-21.5*	20	76	-.01
1,1-Dichloroethane	0.436	0.466	-	-6.9	20	66	-.01
Halothane	0.182	0.186	-	-2.2	20	63	-.01
Acrylonitrile	0.093	0.101	-	-8.6	20	68	-.01
Ethyl tert-butyl ether	0.763	0.766	-	-0.4	20	63	-.02
Vinyl acetate	0.662	0.779	-	-17.7	20	75	-.01
cis-1,2-Dichloroethene	0.275	0.27	-	1.8	20	62	-.01
2,2-Dichloropropane	0.366	0.379	-	-3.6	20	64	-.01
Bromochloromethane	0.134	0.133	-	0.7	20	62	-.01
Cyclohexane	0.39	0.428	-	-9.7	20	67	0
Chloroform	0.43	0.452	-	-5.1	20	66	-.01
Ethyl acetate	0.3	0.335	-	-11.7	20	72	-.02
Carbon tetrachloride	0.331	0.355	-	-7.3	20	66	0
Tetrahydrofuran	0.106	0.123	-	-16	20	74	-.02
Dibromofluoromethane	0.262	0.254	-	3.1	20	69	-.01
1,1,1-Trichloroethane	0.365	0.398	-	-9	20	65	-.01
2-Butanone	0.139	0.155	-	-11.5	20	78	-.02
1,1-Dichloropropene	0.318	0.332	-	-4.4	20	63	-.01
Benzene	0.959	0.971	-	-1.3	20	62	-.01
tert-Amyl methyl ether	0.734	0.657	-	10.5	20	56	-.02
1,2-Dichloroethane-d4	0.29	0.298	-	-2.8	20	75	-.02
1,2-Dichloroethane	0.342	0.359	-	-5	20	67	-.02
Methyl cyclohexane	0.415	0.391	-	5.8	20	58	-.01
Trichloroethene	0.249	0.258	-	-3.6	20	63	-.01
Dibromomethane	0.164	0.162	-	1.2	20	63	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916A01
 Sample No : WG1284780-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 06:56
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.254	0.264	-	-3.9	20	65	-.02
2-Chloroethyl vinyl ether	0.185	0.177	-	4.3	20	60	-.01
Bromodichloromethane	0.327	0.346	-	-5.8	20	66	-.02
1,4-Dioxane	0.00343	0.00304*	-	11.4	20	58	-.02
cis-1,3-Dichloropropene	0.404	0.411	-	-1.7	20	62	0
Chlorobenzene-d5	1	1	-	0	20	70	-.02
Toluene-d8	1.211	1.205	-	0.5	20	70	-.02
Toluene	0.75	0.756	-	-0.8	20	62	-.02
4-Methyl-2-pentanone	0.137	0.133	-	2.9	20	61	-.02
Tetrachloroethene	0.306	0.314	-	-2.6	20	60	-.02
trans-1,3-Dichloropropene	0.447	0.46	-	-2.9	20	62	-.02
Ethyl methacrylate	0.415	0.365	-	12	20	54	-.02
1,1,2-Trichloroethane	0.237	0.233	-	1.7	20	61	-.01
Chlorodibromomethane	0.311	0.324	-	-4.2	20	64	-.02
1,3-Dichloropropane	0.475	0.47	-	1.1	20	61	-.01
1,2-Dibromoethane	0.286	0.286	-	0	20	61	-.02
2-Hexanone	0.245	0.269	-	-9.8	20	70	-.02
Chlorobenzene	0.845	0.869	-	-2.8	20	63	-.02
Ethylbenzene	1.401	1.469	-	-4.9	20	64	-.02
1,1,1,2-Tetrachloroethane	0.297	0.315	-	-6.1	20	63	-.02
p/m Xylene	0.545	0.575	-	-5.5	20	64	-.02
o Xylene	0.539	0.552	-	-2.4	20	62	-.02
Styrene	0.876	0.911	-	-4	20	62	-.02
1,4-Dichlorobenzene-d4	1	1	-	0	20	72	-.01
Bromoform	0.424	0.386	-	9	20	63	-.02
Isopropylbenzene	2.578	2.686	-	-4.2	20	64	-.02
4-Bromofluorobenzene	0.913	0.883	-	3.3	20	69	-.01
Bromobenzene	0.679	0.647	-	4.7	20	61	-.02
n-Propylbenzene	3.032	3.237	-	-6.8	20	65	-.01
1,4-Dichlorobutane	0.91	0.983	-	-8	20	70	-.01
1,1,2,2-Tetrachloroethane	0.726	0.73	-	-0.6	20	61	-.01
4-Ethyltoluene	2.552	2.632	-	-3.1	20	63	-.01
2-Chlorotoluene	2.106	2.196	-	-4.3	20	65	-.01
1,3,5-Trimethylbenzene	2.162	2.259	-	-4.5	20	65	-.02
1,2,3-Trichloropropane	0.612	0.595	-	2.8	20	62	-.02
trans-1,4-Dichloro-2-buten	0.212	0.248	-	-17	20	74	-.02
4-Chlorotoluene	1.897	2.008	-	-5.9	20	66	-.02
tert-Butylbenzene	1.876	1.917	-	-2.2	20	62	-.01
1,2,4-Trimethylbenzene	2.172	2.277	-	-4.8	20	65	-.02
sec-Butylbenzene	2.799	2.943	-	-5.1	20	64	-.01
p-Isopropyltoluene	2.388	2.502	-	-4.8	20	64	-.02
1,3-Dichlorobenzene	1.306	1.339	-	-2.5	20	65	-.01
1,4-Dichlorobenzene	1.32	1.352	-	-2.4	20	65	-.01

* Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916A01
 Sample No : WG1284780-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 06:56
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.466	1.468	-	-0.1	20	62	-0.01
n-Butylbenzene	2.231	2.436	-	-9.2	20	67	-0.01
1,2-Dichlorobenzene	1.255	1.253	-	0.2	20	63	-0.01
1,2,4,5-Tetramethylbenzene	2.325	2.304	-	0.9	20	62	-0.01
1,2-Dibromo-3-chloropropan	0.136	0.119	-	12.5	20	58	-0.01
1,3,5-Trichlorobenzene	0.913	0.902	-	1.2	20	62	-0.01
Hexachlorobutadiene	0.428	0.378	-	11.7	20	56	-0.01
1,2,4-Trichlorobenzene	0.862	0.858	-	0.5	20	63	-0.01
Naphthalene	2.486	2.385	-	4.1	20	60	-0.01
1,2,3-Trichlorobenzene	0.842	0.82	-	2.6	20	62	-0.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916N01
 Sample No : WG1284929-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 19:09
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	65	-.01
Dichlorodifluoromethane	0.268	0.319	-	-19	20	65	0
Chloromethane	0.275	0.377	-	-37.1*	20	77	0
Vinyl chloride	0.312	0.361	-	-15.7	20	64	0
Bromomethane	0.233	0.242	-	-3.9	20	63	0
Chloroethane	0.235	0.242	-	-3	20	60	0
Trichlorofluoromethane	0.429	0.48	-	-11.9	20	61	0
Ethyl ether	0.143	0.129	-	9.8	20	52	0
1,1-Dichloroethene	0.214	0.228	-	-6.5	20	59	0
Carbon disulfide	0.725	0.745	-	-2.8	20	60	0
Freon-113	0.216	0.231	-	-6.9	20	59	0
Acrolein	0.05	0.057	-	-14	20	69	0
Methylene chloride	0.28	0.259	-	7.5	20	57	0
Acetone	20	26.629	-	-33.1*	20	76	-.02
trans-1,2-Dichloroethene	0.245	0.259	-	-5.7	20	59	0
Methyl acetate	0.187	0.226	-	-20.9*	20	70	-.01
Methyl tert-butyl ether	0.725	0.638	-	12	20	50	-.01
tert-Butyl alcohol	0.038	0.034*	-	10.5	20	51	-.02
Diisopropyl ether	0.748	0.896	-	-19.8	20	68	-.01
1,1-Dichloroethane	0.436	0.481	-	-10.3	20	62	0
Halothane	0.182	0.185	-	-1.6	20	56	-.01
Acrylonitrile	0.093	0.101	-	-8.6	20	62	-.01
Ethyl tert-butyl ether	0.763	0.739	-	3.1	20	55	-.01
Vinyl acetate	0.662	0.76	-	-14.8	20	66	-.01
cis-1,2-Dichloroethene	0.275	0.277	-	-0.7	20	57	-.01
2,2-Dichloropropane	0.366	0.389	-	-6.3	20	60	0
Bromochloromethane	0.134	0.129	-	3.7	20	54	-.01
Cyclohexane	0.39	0.448	-	-14.9	20	64	0
Chloroform	0.43	0.46	-	-7	20	60	-.01
Ethyl acetate	0.3	0.33	-	-10	20	64	-.02
Carbon tetrachloride	0.331	0.357	-	-7.9	20	60	-.01
Tetrahydrofuran	0.106	0.12	-	-13.2	20	66	-.02
Dibromofluoromethane	0.262	0.253	-	3.4	20	62	0
1,1,1-Trichloroethane	0.365	0.405	-	-11	20	60	-.01
2-Butanone	0.139	0.157	-	-12.9	20	71	-.02
1,1-Dichloropropene	0.318	0.347	-	-9.1	20	59	-.01
Benzene	0.959	1	-	-4.3	20	58	-.01
tert-Amyl methyl ether	0.734	0.621	-	15.4	20	48	-.02
1,2-Dichloroethane-d4	0.29	0.286	-	1.4	20	66	-.01
1,2-Dichloroethane	0.342	0.352	-	-2.9	20	59	-.01
Methyl cyclohexane	0.415	0.405	-	2.4	20	54	-.01
Trichloroethene	0.249	0.263	-	-5.6	20	58	-.01
Dibromomethane	0.164	0.156	-	4.9	20	55	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916N01
 Sample No : WG1284929-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 19:09
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.254	0.258	-	-1.6	20	57	0
2-Chloroethyl vinyl ether	0.185	0.172	-	7	20	53	-0.01
Bromodichloromethane	0.327	0.342	-	-4.6	20	59	-0.02
1,4-Dioxane	0.00343	0.00322*	-	6.1	20	56	-0.02
cis-1,3-Dichloropropene	0.404	0.399	-	1.2	20	55	0
Chlorobenzene-d5	1	1	-	0	20	63	-0.01
Toluene-d8	1.211	1.219	-	-0.7	20	63	-0.02
Toluene	0.75	0.77	-	-2.7	20	57	-0.02
4-Methyl-2-pentanone	0.137	0.13	-	5.1	20	54	-0.02
Tetrachloroethene	0.306	0.316	-	-3.3	20	55	-0.01
trans-1,3-Dichloropropene	0.447	0.444	-	0.7	20	54	-0.01
Ethyl methacrylate	0.415	0.339	-	18.3	20	45	-0.02
1,1,2-Trichloroethane	0.237	0.226	-	4.6	20	53	-0.01
Chlorodibromomethane	0.311	0.31	-	0.3	20	55	-0.02
1,3-Dichloropropane	0.475	0.452	-	4.8	20	53	-0.01
1,2-Dibromoethane	0.286	0.271	-	5.2	20	51	-0.01
2-Hexanone	0.245	0.261	-	-6.5	20	61	-0.02
Chlorobenzene	0.845	0.872	-	-3.2	20	57	-0.02
Ethylbenzene	1.401	1.495	-	-6.7	20	58	-0.01
1,1,1,2-Tetrachloroethane	0.297	0.308	-	-3.7	20	55	-0.02
p/m Xylene	0.545	0.576	-	-5.7	20	57	0
o Xylene	0.539	0.554	-	-2.8	20	56	-0.01
Styrene	0.876	0.907	-	-3.5	20	56	-0.02
1,4-Dichlorobenzene-d4	1	1	-	0	20	64	-0.01
Bromoform	0.424	0.36	-	15.1	20	52	-0.01
Isopropylbenzene	2.578	2.753	-	-6.8	20	58	-0.02
4-Bromofluorobenzene	0.913	0.892	-	2.3	20	62	-0.01
Bromobenzene	0.679	0.65	-	4.3	20	54	-0.02
n-Propylbenzene	3.032	3.344	-	-10.3	20	59	-0.01
1,4-Dichlorobutane	0.91	0.95	-	-4.4	20	60	-0.01
1,1,2,2-Tetrachloroethane	0.726	0.704	-	3	20	52	-0.01
4-Ethyltoluene	2.552	2.738	-	-7.3	20	58	0
2-Chlorotoluene	2.106	2.252	-	-6.9	20	59	-0.01
1,3,5-Trimethylbenzene	2.162	2.333	-	-7.9	20	59	-0.02
1,2,3-Trichloropropane	0.612	0.583	-	4.7	20	54	-0.01
trans-1,4-Dichloro-2-buten	0.212	0.235	-	-10.8	20	62	0
4-Chlorotoluene	1.897	2.034	-	-7.2	20	59	-0.01
tert-Butylbenzene	1.876	1.976	-	-5.3	20	57	-0.01
1,2,4-Trimethylbenzene	2.172	2.323	-	-7	20	58	-0.02
sec-Butylbenzene	2.799	3.106	-	-11	20	60	-0.01
p-Isopropyltoluene	2.388	2.608	-	-9.2	20	59	-0.02
1,3-Dichlorobenzene	1.306	1.341	-	-2.7	20	57	-0.01
1,4-Dichlorobenzene	1.32	1.342	-	-1.7	20	57	-0.01

* Value outside of QC limits.



Calibration Verification Summary Form 7 Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190916N01
 Sample No : WG1284929-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/16/19 19:09
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.466	1.542	-	-5.2	20	58	-0.1
n-Butylbenzene	2.231	2.568	-	-15.1	20	62	-0.1
1,2-Dichlorobenzene	1.255	1.25	-	0.4	20	56	-0.1
1,2,4,5-Tetramethylbenzene	2.325	2.321	-	0.2	20	55	-0.1
1,2-Dibromo-3-chloropropan	0.136	0.116	-	14.7	20	50	-0.1
1,3,5-Trichlorobenzene	0.913	0.916	-	-0.3	20	56	-0.1
Hexachlorobutadiene	0.428	0.415	-	3	20	54	0
1,2,4-Trichlorobenzene	0.862	0.834	-	3.2	20	54	-0.1
Naphthalene	2.486	2.258	-	9.2	20	50	-0.1
1,2,3-Trichlorobenzene	0.842	0.788	-	6.4	20	52	-0.1

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190917A01
 Sample No : WG1285102-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/17/19 07:26
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
Fluorobenzene	1	1	-	0	20	82	-.01
Dichlorodifluoromethane	0.268	0.274	-	-2.2	20	71	0
Chloromethane	0.275	0.325	-	-18.2	20	85	0
Vinyl chloride	0.312	0.308	-	1.3	20	69	0
Bromomethane	0.233	0.209	-	10.3	20	69	0
Chloroethane	0.235	0.215	-	8.5	20	67	0
Trichlorofluoromethane	0.429	0.424	-	1.2	20	68	0
Ethyl ether	0.143	0.125	-	12.6	20	64	0
1,1-Dichloroethene	0.214	0.206	-	3.7	20	68	0
Carbon disulfide	0.725	0.674	-	7	20	69	0
Freon-113	0.216	0.207	-	4.2	20	66	0
Acrolein	0.05	0.051	-	-2	20	78	0
Methylene chloride	0.28	0.26	-	7.1	20	73	0
Acetone	20	22.467	-	-12.3	20	82	-.01
trans-1,2-Dichloroethene	0.245	0.236	-	3.7	20	69	0
Methyl acetate	0.187	0.21	-	-12.3	20	82	-.01
Methyl tert-butyl ether	0.725	0.625	-	13.8	20	62	-.01
tert-Butyl alcohol	0.038	0.033*	-	13.2	20	64	-.02
Diisopropyl ether	0.748	0.823	-	-10	20	79	-.01
1,1-Dichloroethane	0.436	0.43	-	1.4	20	70	-.01
Halothane	0.182	0.172	-	5.5	20	66	-.01
Acrylonitrile	0.093	0.096	-	-3.2	20	74	-.01
Ethyl tert-butyl ether	0.763	0.708	-	7.2	20	67	-.02
Vinyl acetate	0.662	0.71	-	-7.3	20	78	-.01
cis-1,2-Dichloroethene	0.275	0.255	-	7.3	20	67	-.01
2,2-Dichloropropane	0.366	0.354	-	3.3	20	69	-.01
Bromochloromethane	0.134	0.127	-	5.2	20	68	-.01
Cyclohexane	0.39	0.385	-	1.3	20	70	0
Chloroform	0.43	0.415	-	3.5	20	69	-.01
Ethyl acetate	0.3	0.303	-	-1	20	75	-.02
Carbon tetrachloride	0.331	0.326	-	1.5	20	70	0
Tetrahydrofuran	0.106	0.111	-	-4.7	20	77	-.02
Dibromofluoromethane	0.262	0.251	-	4.2	20	78	0
1,1,1-Trichloroethane	0.365	0.371	-	-1.6	20	70	-.01
2-Butanone	0.139	0.138	-	0.7	20	79	-.02
1,1-Dichloropropene	0.318	0.312	-	1.9	20	67	-.01
Benzene	0.959	0.906	-	5.5	20	67	-.01
tert-Amyl methyl ether	0.734	0.608	-	17.2	20	60	-.02
1,2-Dichloroethane-d4	0.29	0.283	-	2.4	20	82	-.01
1,2-Dichloroethane	0.342	0.331	-	3.2	20	70	-.01
Methyl cyclohexane	0.415	0.355	-	14.5	20	60	-.02
Trichloroethene	0.249	0.24	-	3.6	20	67	-.01
Dibromomethane	0.164	0.152	-	7.3	20	67	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
 Project Name : TOMBARELLO SITE
 Instrument ID : VOA123
 Lab File ID : V23190917A01
 Sample No : WG1285102-2
 Channel :

Lab Number : L1940717
 Project Number : 17001426
 Calibration Date : 09/17/19 07:26
 Init. Calib. Date(s) : 06/21/19 06/21/19
 Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
1,2-Dichloropropane	0.254	0.242	-	4.7	20	68	0
2-Chloroethyl vinyl ether	0.185	0.167	-	9.7	20	65	-.01
Bromodichloromethane	0.327	0.317	-	3.1	20	69	-.02
1,4-Dioxane	0.00343	0.00325*	-	5.2	20	72	-.02
cis-1,3-Dichloropropene	0.404	0.38	-	5.9	20	66	0
Chlorobenzene-d5	1	1	-	0	20	83	-.02
Toluene-d8	1.211	1.193	-	1.5	20	81	-.02
Toluene	0.75	0.691	-	7.9	20	67	-.01
4-Methyl-2-pentanone	0.137	0.122	-	10.9	20	65	-.02
Tetrachloroethene	0.306	0.296	-	3.3	20	67	-.02
trans-1,3-Dichloropropene	0.447	0.414	-	7.4	20	66	-.01
Ethyl methacrylate	0.415	0.33	-	20.5*	20	58	-.02
1,1,2-Trichloroethane	0.237	0.209	-	11.8	20	64	-.01
Chlorodibromomethane	0.311	0.293	-	5.8	20	67	-.02
1,3-Dichloropropane	0.475	0.423	-	10.9	20	64	-.01
1,2-Dibromoethane	0.286	0.263	-	8	20	65	-.02
2-Hexanone	0.245	0.244	-	0.4	20	75	-.02
Chlorobenzene	0.845	0.798	-	5.6	20	68	-.02
Ethylbenzene	1.401	1.338	-	4.5	20	68	-.02
1,1,1,2-Tetrachloroethane	0.297	0.288	-	3	20	68	-.02
p/m Xylene	0.545	0.527	-	3.3	20	69	0
o Xylene	0.539	0.508	-	5.8	20	67	-.02
Styrene	0.876	0.829	-	5.4	20	67	-.02
1,4-Dichlorobenzene-d4	1	1	-	0	20	86	-.01
Bromoform	0.424	0.354	-	16.5	20	68	-.02
Isopropylbenzene	2.578	2.443	-	5.2	20	69	-.02
4-Bromofluorobenzene	0.913	0.872	-	4.5	20	81	-.01
Bromobenzene	0.679	0.597	-	12.1	20	66	-.02
n-Propylbenzene	3.032	2.903	-	4.3	20	69	-.01
1,4-Dichlorobutane	0.91	0.866	-	4.8	20	73	-.01
1,1,2,2-Tetrachloroethane	0.726	0.644	-	11.3	20	64	-.01
4-Ethyltoluene	2.552	2.385	-	6.5	20	67	-.01
2-Chlorotoluene	2.106	1.988	-	5.6	20	70	-.01
1,3,5-Trimethylbenzene	2.162	2.059	-	4.8	20	70	-.02
1,2,3-Trichloropropane	0.612	0.538	-	12.1	20	66	-.01
trans-1,4-Dichloro-2-buten	0.212	0.221	-	-4.2	20	78	0
4-Chlorotoluene	1.897	1.816	-	4.3	20	71	-.01
tert-Butylbenzene	1.876	1.747	-	6.9	20	67	-.01
1,2,4-Trimethylbenzene	2.172	2.067	-	4.8	20	70	-.02
sec-Butylbenzene	2.799	2.638	-	5.8	20	68	-.01
p-Isopropyltoluene	2.388	2.253	-	5.7	20	68	-.02
1,3-Dichlorobenzene	1.306	1.222	-	6.4	20	70	-.01
1,4-Dichlorobenzene	1.32	1.239	-	6.1	20	71	-.01

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Volatiles

Client : Credere Associates, LLC
Project Name : TOMBARELLO SITE
Instrument ID : VOA123
Lab File ID : V23190917A01
Sample No : WG1285102-2
Channel :

Lab Number : L1940717
Project Number : 17001426
Calibration Date : 09/17/19 07:26
Init. Calib. Date(s) : 06/21/19 06/21/19
Init. Calib. Times : 03:09 06:33

Compound	Ave. RRF	RRF	Min RRF	%D	Max %D	Area%	Dev(min)
p-Diethylbenzene	1.466	1.352	-	7.8	20	68	-.01
n-Butylbenzene	2.231	2.158	-	3.3	20	70	-.01
1,2-Dichlorobenzene	1.255	1.149	-	8.4	20	69	-.01
1,2,4,5-Tetramethylbenzene	2.325	2.087	-	10.2	20	66	-.01
1,2-Dibromo-3-chloropropan	0.136	0.114	-	16.2	20	66	-.01
1,3,5-Trichlorobenzene	0.913	0.844	-	7.6	20	69	-.01
Hexachlorobutadiene	0.428	0.355	-	17.1	20	62	-.01
1,2,4-Trichlorobenzene	0.862	0.791	-	8.2	20	68	-.01
Naphthalene	2.486	2.175	-	12.5	20	65	-.01
1,2,3-Trichlorobenzene	0.842	0.737	-	12.5	20	65	-.01

* Value outside of QC limits.

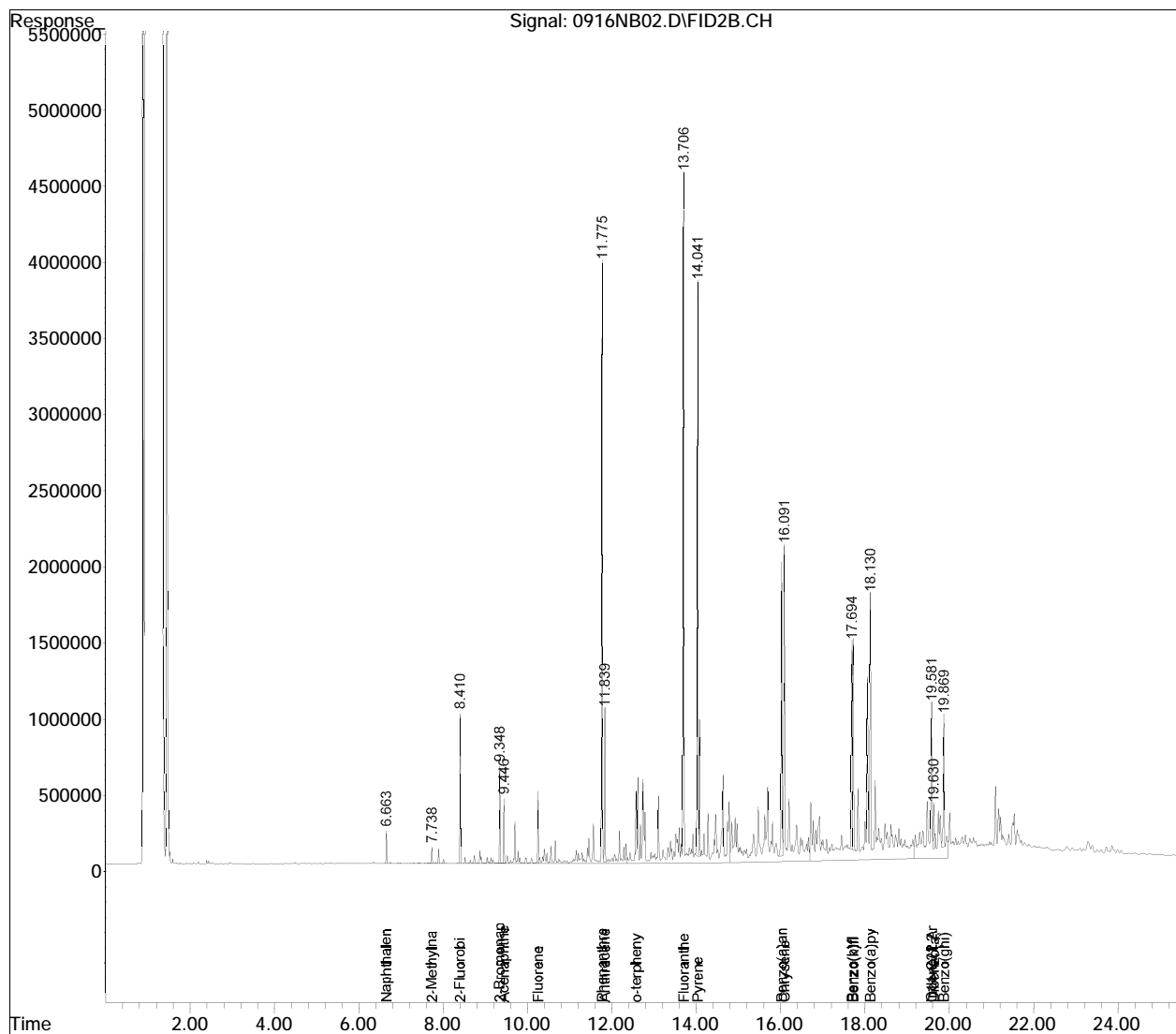


Sub List : Default - All compounds listed Reviewed)

Data Path : I:\Petro10\190916n.sec\
 Data File : 0916NB02.D
 Signal(s) : FID2B.CH
 Acq On : 17 Sep 2019 1:10 am
 Operator : Petro10b:meo
 Sample : 11940717-50d,42,6, rf2x fv3
 Misc : wg1284851,wg1283558,ical12178
 ALS Vial : 52 Sample Multiplier: 1

Integration File: events.e
 Quant Time: Sep 17 09:30:17 2019
 Quant Method : I:\Petro10\190916n.sec\MAARO160318.M
 Quant Title : MA EPH Aromatic
 QLast Update : Sun Sep 15 15:13:40 2019
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
 Signal Phase :
 Signal Info :





ANALYTICAL REPORT

Lab Number:	L1961521
Client:	Crede Associates, LLC 776 Main Street Westbrook, ME 04092
ATTN:	Rick Vandenberg
Phone:	(207) 828-1272
Project Name:	TOMBARELLO
Project Number:	17001426
Report Date:	01/03/20

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1961521-01	SB-13 1'-1.5'	SOIL	MA	12/23/19 08:50	12/23/19
L1961521-02	SB-13 2'-3'	SOIL	MA	12/23/19 08:52	12/23/19
L1961521-03	SB-13 3'-4'	SOIL	MA	12/23/19 08:54	12/23/19
L1961521-04	SB-13 4'-5'	SOIL	MA	12/23/19 08:56	12/23/19
L1961521-05	SB-13 5'-7'	SOIL	MA	12/23/19 08:58	12/23/19
L1961521-06	SB-11 1'-1.5'	SOIL	MA	12/23/19 09:20	12/23/19
L1961521-07	SB-11 2'-3'	SOIL	MA	12/23/19 09:22	12/23/19
L1961521-08	SB-11 3'-4'	SOIL	MA	12/23/19 09:24	12/23/19
L1961521-09	SB-11 4'-5'	SOIL	MA	12/23/19 09:26	12/23/19
L1961521-10	SB-11 5'-7'	SOIL	MA	12/23/19 09:28	12/23/19
L1961521-11	SB-14 1'-1.5'	SOIL	MA	12/23/19 09:35	12/23/19
L1961521-12	SB-14 2'-3'	SOIL	MA	12/23/19 09:37	12/23/19
L1961521-13	SB-14 3'-4'	SOIL	MA	12/23/19 09:39	12/23/19
L1961521-14	SB-14 4'-5'	SOIL	MA	12/23/19 09:41	12/23/19
L1961521-15	SB-14 5'-7'	SOIL	MA	12/23/19 09:43	12/23/19
L1961521-16	SB-15 1'-1.5'	SOIL	MA	12/23/19 09:55	12/23/19
L1961521-17	SB-15 2'-3'	SOIL	MA	12/23/19 09:57	12/23/19
L1961521-18	SB-15 3'-4'	SOIL	MA	12/23/19 09:58	12/23/19
L1961521-19	SB-15 4'-5'	SOIL	MA	12/23/19 10:00	12/23/19
L1961521-20	SB-15 5'-7'	SOIL	MA	12/23/19 10:02	12/23/19
L1961521-21	SB-12 1'-1.5'	SOIL	MA	12/23/19 10:30	12/23/19
L1961521-22	SB-12 2'-3'	SOIL	MA	12/23/19 10:32	12/23/19
L1961521-23	SB-12 3'-4'	SOIL	MA	12/23/19 10:35	12/23/19
L1961521-24	SB-12 4'-5'	SOIL	MA	12/23/19 10:37	12/23/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1961521-25	SB-12 5'-7'	SOIL	MA	12/23/19 10:40	12/23/19
L1961521-26	SB-10	SOIL	MA	12/23/19 11:20	12/23/19
L1961521-27	SB-8	SOIL	MA	12/23/19 11:45	12/23/19
L1961521-28	SB-DUP-7	SOIL	MA	12/23/19 11:47	12/23/19
L1961521-29	SB-7	SOIL	MA	12/23/19 12:05	12/23/19
L1961521-30	SB-6	SOIL	MA	12/23/19 12:25	12/23/19
L1961521-31	SB-9	SOIL	MA	12/23/19 12:45	12/23/19
L1961521-32	SB-5	SOIL	MA	12/23/19 12:50	12/23/19

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES
A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	NO
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO
For any questions answered "No", please refer to the case narrative section on the following page(s).		

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Case Narrative (continued)

MCP Related Narratives

PCBs

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1961521-21: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

Total Metals

In reference to question H:

The WG1326468-4 MS recovery, performed on L1961521-26, is outside the acceptance criteria for lead (0%). Re-analysis of the MS yielded an unacceptable recovery of <30%. The MS % recovery is <30%, but the sample detection is above the RL. The LCS recovery is acceptable; therefore, no further action was taken. The WG1326468-5 MSD recovery, performed on L1961521-26, is outside the acceptance criteria for lead (2680%). Re-analysis of the MS yielded an unacceptable recovery of 2680%. The LCS recovery was within acceptance criteria for this analyte; therefore, no further action was taken. The WG1326468-4/-5 MS/MSD RPD for lead (118%) is above the acceptance criteria.

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 01/03/20

QC OUTLIER SUMMARY REPORT

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment
MCP Polychlorinated Biphenyls - Westborough Lab								
8082A	SB-12 1'-1.5'	L1961521-21 D	2,4,5,6-Tetrachloro-m-xylene (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-12 1'-1.5'	L1961521-21 D	2,4,5,6-Tetrachloro-m-xylene (B)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-12 1'-1.5'	L1961521-21 D	Decachlorobiphenyl (A)	Surrogate	0	30-150	-	-- not applicable --
8082A	SB-12 1'-1.5'	L1961521-21 D	Decachlorobiphenyl (B)	Surrogate	0	30-150	-	-- not applicable --
MCP Total Metals - Mansfield Lab								
6020B	Batch QC (L1961521-26)	WG1326468-4	Lead, Total	MS	0	75-125	26	potential low bias
6020B	Batch QC (L1961521-26)	WG1326468-5	Lead, Total	MSD	118	35	26	non-directional bias
6020B	Batch QC (L1961521-26)	WG1326468-5	Lead, Total	MSD	2680	75-125	26	potential high bias

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**SAMPLE RESULTS**

Lab ID: L1961521-26

Date Collected: 12/23/19 11:20

Client ID: SB-10

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Extraction Method: EPA 3546

Analytical Method: 98,EPH-04-1.1

Extraction Date: 12/24/19 21:47

Analytical Date: 12/27/19 15:50

Cleanup Method1: EPH-04-1

Analyst: SR

Cleanup Date1: 12/26/19

Percent Solids: 69%

Quality Control Information

Condition of sample received:

Satisfactory

Sample Temperature upon receipt:

Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.60	--	1
C19-C36 Aliphatics	26.3		mg/kg	9.60	--	1
C11-C22 Aromatics	82.8		mg/kg	9.60	--	1
C11-C22 Aromatics, Adjusted	46.0		mg/kg	9.60	--	1
Naphthalene	ND		mg/kg	0.480	--	1
2-Methylnaphthalene	ND		mg/kg	0.480	--	1
Acenaphthylene	ND		mg/kg	0.480	--	1
Acenaphthene	ND		mg/kg	0.480	--	1
Fluorene	ND		mg/kg	0.480	--	1
Phenanthrene	7.37		mg/kg	0.480	--	1
Anthracene	1.59		mg/kg	0.480	--	1
Fluoranthene	7.09		mg/kg	0.480	--	1
Pyrene	6.04		mg/kg	0.480	--	1
Benzo(a)anthracene	2.74		mg/kg	0.480	--	1
Chrysene	2.78		mg/kg	0.480	--	1
Benzo(b)fluoranthene	2.05		mg/kg	0.480	--	1
Benzo(k)fluoranthene	2.13		mg/kg	0.480	--	1
Benzo(a)pyrene	2.31		mg/kg	0.480	--	1
Indeno(1,2,3-cd)Pyrene	1.37		mg/kg	0.480	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.480	--	1
Benzo(ghi)perylene	1.32		mg/kg	0.480	--	1

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**SAMPLE RESULTS**

Lab ID: L1961521-26

Date Collected: 12/23/19 11:20

Client ID: SB-10

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	54		40-140
o-Terphenyl	64		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	84		40-140

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-27
 Client ID: SB-8
 Sample Location: MA

 Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 12/27/19 16:29
 Analyst: SR
 Percent Solids: 66%

Date Collected: 12/23/19 11:45
 Date Received: 12/23/19
 Field Prep: Not Specified

Extraction Method: EPA 3546
 Extraction Date: 12/24/19 21:47
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 12/26/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.88	--	1
C19-C36 Aliphatics	340		mg/kg	9.88	--	1
C11-C22 Aromatics	15.4		mg/kg	9.88	--	1
C11-C22 Aromatics, Adjusted	15.4		mg/kg	9.88	--	1
Naphthalene	ND		mg/kg	0.494	--	1
2-Methylnaphthalene	ND		mg/kg	0.494	--	1
Acenaphthylene	ND		mg/kg	0.494	--	1
Acenaphthene	ND		mg/kg	0.494	--	1
Fluorene	ND		mg/kg	0.494	--	1
Phenanthrene	ND		mg/kg	0.494	--	1
Anthracene	ND		mg/kg	0.494	--	1
Fluoranthene	ND		mg/kg	0.494	--	1
Pyrene	ND		mg/kg	0.494	--	1
Benzo(a)anthracene	ND		mg/kg	0.494	--	1
Chrysene	ND		mg/kg	0.494	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.494	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.494	--	1
Benzo(a)pyrene	ND		mg/kg	0.494	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.494	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.494	--	1
Benzo(ghi)perylene	ND		mg/kg	0.494	--	1

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**SAMPLE RESULTS**

Lab ID: L1961521-27

Date Collected: 12/23/19 11:45

Client ID: SB-8

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	59		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	75		40-140

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-28
 Client ID: SB-DUP-7
 Sample Location: MA

Date Collected: 12/23/19 11:47
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 12/27/19 17:07
 Analyst: SR
 Percent Solids: 66%

Extraction Method: EPA 3546
 Extraction Date: 12/24/19 21:47
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 12/26/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.62	--	1
C19-C36 Aliphatics	211		mg/kg	9.62	--	1
C11-C22 Aromatics	177		mg/kg	9.62	--	1
C11-C22 Aromatics, Adjusted	176		mg/kg	9.62	--	1
Naphthalene	ND		mg/kg	0.481	--	1
2-Methylnaphthalene	ND		mg/kg	0.481	--	1
Acenaphthylene	ND		mg/kg	0.481	--	1
Acenaphthene	ND		mg/kg	0.481	--	1
Fluorene	ND		mg/kg	0.481	--	1
Phenanthrene	ND		mg/kg	0.481	--	1
Anthracene	ND		mg/kg	0.481	--	1
Fluoranthene	0.697		mg/kg	0.481	--	1
Pyrene	0.696		mg/kg	0.481	--	1
Benzo(a)anthracene	ND		mg/kg	0.481	--	1
Chrysene	ND		mg/kg	0.481	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.481	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.481	--	1
Benzo(a)pyrene	ND		mg/kg	0.481	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.481	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.481	--	1
Benzo(ghi)perylene	ND		mg/kg	0.481	--	1

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-28

Date Collected: 12/23/19 11:47

Client ID: SB-DUP-7

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	55		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	83		40-140

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-29
 Client ID: SB-7
 Sample Location: MA

Date Collected: 12/23/19 12:05
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 12/27/19 17:46
 Analyst: SR
 Percent Solids: 61%

Extraction Method: EPA 3546
 Extraction Date: 12/24/19 21:47
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 12/26/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	10.8	--	1
C19-C36 Aliphatics	26.1		mg/kg	10.8	--	1
C11-C22 Aromatics	256		mg/kg	10.8	--	1
C11-C22 Aromatics, Adjusted	254		mg/kg	10.8	--	1
Naphthalene	ND		mg/kg	0.538	--	1
2-Methylnaphthalene	ND		mg/kg	0.538	--	1
Acenaphthylene	ND		mg/kg	0.538	--	1
Acenaphthene	ND		mg/kg	0.538	--	1
Fluorene	ND		mg/kg	0.538	--	1
Phenanthrene	ND		mg/kg	0.538	--	1
Anthracene	ND		mg/kg	0.538	--	1
Fluoranthene	0.620		mg/kg	0.538	--	1
Pyrene	0.641		mg/kg	0.538	--	1
Benzo(a)anthracene	ND		mg/kg	0.538	--	1
Chrysene	ND		mg/kg	0.538	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.538	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.538	--	1
Benzo(a)pyrene	ND		mg/kg	0.538	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.538	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.538	--	1
Benzo(ghi)perylene	ND		mg/kg	0.538	--	1

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**SAMPLE RESULTS**

Lab ID: L1961521-29

Date Collected: 12/23/19 12:05

Client ID: SB-7

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	43		40-140
o-Terphenyl	63		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	87		40-140

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-30
 Client ID: SB-6
 Sample Location: MA

Date Collected: 12/23/19 12:25
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 12/27/19 18:24
 Analyst: SR
 Percent Solids: 63%

Extraction Method: EPA 3546
 Extraction Date: 12/24/19 21:47
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 12/26/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	10.2	--	1
C19-C36 Aliphatics	16.4		mg/kg	10.2	--	1
C11-C22 Aromatics	156		mg/kg	10.2	--	1
C11-C22 Aromatics, Adjusted	105		mg/kg	10.2	--	1
Naphthalene	ND		mg/kg	0.511	--	1
2-Methylnaphthalene	ND		mg/kg	0.511	--	1
Acenaphthylene	ND		mg/kg	0.511	--	1
Acenaphthene	0.794		mg/kg	0.511	--	1
Fluorene	0.645		mg/kg	0.511	--	1
Phenanthrene	8.95		mg/kg	0.511	--	1
Anthracene	1.49		mg/kg	0.511	--	1
Fluoranthene	7.30		mg/kg	0.511	--	1
Pyrene	9.88		mg/kg	0.511	--	1
Benzo(a)anthracene	4.32		mg/kg	0.511	--	1
Chrysene	4.80		mg/kg	0.511	--	1
Benzo(b)fluoranthene	2.49		mg/kg	0.511	--	1
Benzo(k)fluoranthene	2.82		mg/kg	0.511	--	1
Benzo(a)pyrene	3.58		mg/kg	0.511	--	1
Indeno(1,2,3-cd)Pyrene	1.98		mg/kg	0.511	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.511	--	1
Benzo(ghi)perylene	2.01		mg/kg	0.511	--	1



Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**SAMPLE RESULTS**

Lab ID: L1961521-30

Date Collected: 12/23/19 12:25

Client ID: SB-6

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	44		40-140
o-Terphenyl	54		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	83		40-140

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-31
 Client ID: SB-9
 Sample Location: MA

Date Collected: 12/23/19 12:45
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 12/27/19 11:42
 Analyst: SC
 Percent Solids: 68%

Extraction Method: EPA 3546
 Extraction Date: 12/24/19 21:47
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 12/26/19

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	9.70	--	1
C19-C36 Aliphatics	40.4		mg/kg	9.70	--	1
C11-C22 Aromatics	16.0		mg/kg	9.70	--	1
C11-C22 Aromatics, Adjusted	16.0		mg/kg	9.70	--	1
Naphthalene	ND		mg/kg	0.485	--	1
2-Methylnaphthalene	ND		mg/kg	0.485	--	1
Acenaphthylene	ND		mg/kg	0.485	--	1
Acenaphthene	ND		mg/kg	0.485	--	1
Fluorene	ND		mg/kg	0.485	--	1
Phenanthrene	ND		mg/kg	0.485	--	1
Anthracene	ND		mg/kg	0.485	--	1
Fluoranthene	ND		mg/kg	0.485	--	1
Pyrene	ND		mg/kg	0.485	--	1
Benzo(a)anthracene	ND		mg/kg	0.485	--	1
Chrysene	ND		mg/kg	0.485	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.485	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.485	--	1
Benzo(a)pyrene	ND		mg/kg	0.485	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.485	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.485	--	1
Benzo(ghi)perylene	ND		mg/kg	0.485	--	1

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**SAMPLE RESULTS**

Lab ID: L1961521-31

Date Collected: 12/23/19 12:45

Client ID: SB-9

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	60		40-140
o-Terphenyl	42		40-140
2-Fluorobiphenyl	65		40-140
2-Bromonaphthalene	65		40-140

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-32

Date Collected: 12/23/19 12:50

Client ID: SB-5

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Extraction Method: EPA 3546

Analytical Method: 98,EPH-04-1.1

Extraction Date: 12/24/19 21:47

Analytical Date: 12/27/19 12:14

Cleanup Method1: EPH-04-1

Analyst: SC

Cleanup Date1: 12/26/19

Percent Solids: 63%

Quality Control Information

Condition of sample received:

Satisfactory

Sample Temperature upon receipt:

Received on Ice

Sample Extraction method:

Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		mg/kg	10.5	--	1
C19-C36 Aliphatics	ND		mg/kg	10.5	--	1
C11-C22 Aromatics	ND		mg/kg	10.5	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	10.5	--	1
Naphthalene	ND		mg/kg	0.526	--	1
2-Methylnaphthalene	ND		mg/kg	0.526	--	1
Acenaphthylene	ND		mg/kg	0.526	--	1
Acenaphthene	ND		mg/kg	0.526	--	1
Fluorene	ND		mg/kg	0.526	--	1
Phenanthrene	ND		mg/kg	0.526	--	1
Anthracene	ND		mg/kg	0.526	--	1
Fluoranthene	ND		mg/kg	0.526	--	1
Pyrene	ND		mg/kg	0.526	--	1
Benzo(a)anthracene	ND		mg/kg	0.526	--	1
Chrysene	ND		mg/kg	0.526	--	1
Benzo(b)fluoranthene	ND		mg/kg	0.526	--	1
Benzo(k)fluoranthene	ND		mg/kg	0.526	--	1
Benzo(a)pyrene	ND		mg/kg	0.526	--	1
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.526	--	1
Dibenzo(a,h)anthracene	ND		mg/kg	0.526	--	1
Benzo(ghi)perylene	ND		mg/kg	0.526	--	1

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**SAMPLE RESULTS**

Lab ID: L1961521-32

Date Collected: 12/23/19 12:50

Client ID: SB-5

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	65		40-140
o-Terphenyl	54		40-140
2-Fluorobiphenyl	63		40-140
2-Bromonaphthalene	62		40-140

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 12/27/19 10:05
Analyst: SR

Extraction Method: EPA 3546
Extraction Date: 12/24/19 21:46
Cleanup Method: EPH-04-1
Cleanup Date: 12/26/19

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 26-32 Batch: WG1324676-1					
C9-C18 Aliphatics	ND		mg/kg	6.56	--
C19-C36 Aliphatics	ND		mg/kg	6.56	--
C11-C22 Aromatics	ND		mg/kg	6.56	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.56	--
Naphthalene	ND		mg/kg	0.328	--
2-Methylnaphthalene	ND		mg/kg	0.328	--
Acenaphthylene	ND		mg/kg	0.328	--
Acenaphthene	ND		mg/kg	0.328	--
Fluorene	ND		mg/kg	0.328	--
Phenanthrene	ND		mg/kg	0.328	--
Anthracene	ND		mg/kg	0.328	--
Fluoranthene	ND		mg/kg	0.328	--
Pyrene	ND		mg/kg	0.328	--
Benzo(a)anthracene	ND		mg/kg	0.328	--
Chrysene	ND		mg/kg	0.328	--
Benzo(b)fluoranthene	ND		mg/kg	0.328	--
Benzo(k)fluoranthene	ND		mg/kg	0.328	--
Benzo(a)pyrene	ND		mg/kg	0.328	--
Indeno(1,2,3-cd)Pyrene	ND		mg/kg	0.328	--
Dibenzo(a,h)anthracene	ND		mg/kg	0.328	--
Benzo(ghi)perylene	ND		mg/kg	0.328	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	56		40-140
o-Terphenyl	65		40-140
2-Fluorobiphenyl	81		40-140
2-Bromonaphthalene	80		40-140



Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 26-32 Batch: WG1324676-2 WG1324676-3								
C9-C18 Aliphatics	60		57		40-140	5		25
C19-C36 Aliphatics	76		68		40-140	11		25
C11-C22 Aromatics	77		68		40-140	12		25
Naphthalene	58		57		40-140	2		25
2-Methylnaphthalene	62		60		40-140	3		25
Acenaphthylene	62		60		40-140	3		25
Acenaphthene	66		63		40-140	5		25
Fluorene	67		62		40-140	8		25
Phenanthrene	76		67		40-140	13		25
Anthracene	77		67		40-140	14		25
Fluoranthene	79		68		40-140	15		25
Pyrene	81		70		40-140	15		25
Benzo(a)anthracene	79		68		40-140	15		25
Chrysene	79		70		40-140	12		25
Benzo(b)fluoranthene	78		67		40-140	15		25
Benzo(k)fluoranthene	77		68		40-140	12		25
Benzo(a)pyrene	76		66		40-140	14		25
Indeno(1,2,3-cd)Pyrene	75		65		40-140	14		25
Dibenzo(a,h)anthracene	74		65		40-140	13		25
Benzo(ghi)perylene	70		62		40-140	12		25
Nonane (C9)	43		46		30-140	7		25
Decane (C10)	49		52		40-140	6		25
Dodecane (C12)	50		52		40-140	4		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 26-32 Batch: WG1324676-2 WG1324676-3								
Tetradecane (C14)	50		52		40-140	4		25
Hexadecane (C16)	56		54		40-140	4		25
Octadecane (C18)	64		59		40-140	8		25
Nonadecane (C19)	67		59		40-140	13		25
Eicosane (C20)	69		61		40-140	12		25
Docosane (C22)	71		62		40-140	14		25
Tetracosane (C24)	72		63		40-140	13		25
Hexacosane (C26)	75		65		40-140	14		25
Octacosane (C28)	76		66		40-140	14		25
Triacontane (C30)	78		68		40-140	14		25
Hexatriacontane (C36)	79		70		40-140	12		25

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Chloro-Octadecane	65		57		40-140
o-Terphenyl	74		63		40-140
2-Fluorobiphenyl	83		79		40-140
2-Bromonaphthalene	82		78		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		

PCBS

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-01
 Client ID: SB-13 1'-1.5'
 Sample Location: MA

Date Collected: 12/23/19 08:50
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 12:14
 Analyst: HT
 Percent Solids: 89%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.5	--	1	A
Aroclor 1221	ND		ug/kg	36.5	--	1	A
Aroclor 1232	ND		ug/kg	36.5	--	1	A
Aroclor 1242	65.4		ug/kg	36.5	--	1	B
Aroclor 1248	ND		ug/kg	36.5	--	1	A
Aroclor 1254	ND		ug/kg	36.5	--	1	A
Aroclor 1260	531		ug/kg	36.5	--	1	B
Aroclor 1262	ND		ug/kg	36.5	--	1	A
Aroclor 1268	ND		ug/kg	36.5	--	1	A
PCBs, Total	596		ug/kg	36.5	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	64		30-150	B
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	55		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-02
 Client ID: SB-13 2'-3'
 Sample Location: MA

Date Collected: 12/23/19 08:52
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 12:26
 Analyst: HT
 Percent Solids: 80%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	40.8	--	1	A
Aroclor 1221	ND		ug/kg	40.8	--	1	A
Aroclor 1232	ND		ug/kg	40.8	--	1	A
Aroclor 1242	ND		ug/kg	40.8	--	1	A
Aroclor 1248	ND		ug/kg	40.8	--	1	A
Aroclor 1254	ND		ug/kg	40.8	--	1	A
Aroclor 1260	ND		ug/kg	40.8	--	1	B
Aroclor 1262	ND		ug/kg	40.8	--	1	A
Aroclor 1268	ND		ug/kg	40.8	--	1	A
PCBs, Total	ND		ug/kg	40.8	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	88		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	60		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-03
 Client ID: SB-13 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 08:54
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 12:38
 Analyst: HT
 Percent Solids: 89%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.2	--	1	A
Aroclor 1221	ND		ug/kg	36.2	--	1	A
Aroclor 1232	ND		ug/kg	36.2	--	1	A
Aroclor 1242	ND		ug/kg	36.2	--	1	A
Aroclor 1248	ND		ug/kg	36.2	--	1	A
Aroclor 1254	ND		ug/kg	36.2	--	1	A
Aroclor 1260	ND		ug/kg	36.2	--	1	B
Aroclor 1262	ND		ug/kg	36.2	--	1	A
Aroclor 1268	ND		ug/kg	36.2	--	1	A
PCBs, Total	ND		ug/kg	36.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	89		30-150	B
2,4,5,6-Tetrachloro-m-xylene	65		30-150	A
Decachlorobiphenyl	56		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-06
 Client ID: SB-11 1'-1.5'
 Sample Location: MA

Date Collected: 12/23/19 09:20
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 12:50
 Analyst: HT
 Percent Solids: 90%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.0	--	1	A
Aroclor 1221	ND		ug/kg	36.0	--	1	A
Aroclor 1232	ND		ug/kg	36.0	--	1	A
Aroclor 1242	ND		ug/kg	36.0	--	1	A
Aroclor 1248	ND		ug/kg	36.0	--	1	A
Aroclor 1254	ND		ug/kg	36.0	--	1	A
Aroclor 1260	ND		ug/kg	36.0	--	1	A
Aroclor 1262	ND		ug/kg	36.0	--	1	A
Aroclor 1268	ND		ug/kg	36.0	--	1	A
PCBs, Total	ND		ug/kg	36.0	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	57		30-150	B
Decachlorobiphenyl	113		30-150	B
2,4,5,6-Tetrachloro-m-xylene	61		30-150	A
Decachlorobiphenyl	71		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-07
 Client ID: SB-11 2'-3'
 Sample Location: MA

Date Collected: 12/23/19 09:22
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 13:02
 Analyst: HT
 Percent Solids: 92%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.9	--	1	A
Aroclor 1221	ND		ug/kg	35.9	--	1	A
Aroclor 1232	ND		ug/kg	35.9	--	1	A
Aroclor 1242	ND		ug/kg	35.9	--	1	A
Aroclor 1248	ND		ug/kg	35.9	--	1	A
Aroclor 1254	ND		ug/kg	35.9	--	1	A
Aroclor 1260	ND		ug/kg	35.9	--	1	A
Aroclor 1262	ND		ug/kg	35.9	--	1	A
Aroclor 1268	ND		ug/kg	35.9	--	1	A
PCBs, Total	ND		ug/kg	35.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	53		30-150	B
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	70		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-08
 Client ID: SB-11 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 09:24
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 13:15
 Analyst: HT
 Percent Solids: 91%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.2	--	1	A
Aroclor 1221	ND		ug/kg	36.2	--	1	A
Aroclor 1232	ND		ug/kg	36.2	--	1	A
Aroclor 1242	ND		ug/kg	36.2	--	1	A
Aroclor 1248	ND		ug/kg	36.2	--	1	A
Aroclor 1254	ND		ug/kg	36.2	--	1	A
Aroclor 1260	ND		ug/kg	36.2	--	1	A
Aroclor 1262	ND		ug/kg	36.2	--	1	A
Aroclor 1268	ND		ug/kg	36.2	--	1	A
PCBs, Total	ND		ug/kg	36.2	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	B
Decachlorobiphenyl	126		30-150	B
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	64		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-11
 Client ID: SB-14 1'-1.5'
 Sample Location: MA

Date Collected: 12/23/19 09:35
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 01/01/20 22:29
 Analyst: HT
 Percent Solids: 89%

Extraction Method: EPA 3540C
 Extraction Date: 12/31/19 03:23
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/31/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 01/01/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.4	--	1	A
Aroclor 1221	ND		ug/kg	35.4	--	1	A
Aroclor 1232	ND		ug/kg	35.4	--	1	A
Aroclor 1242	ND		ug/kg	35.4	--	1	A
Aroclor 1248	ND		ug/kg	35.4	--	1	A
Aroclor 1254	102		ug/kg	35.4	--	1	B
Aroclor 1260	54.0		ug/kg	35.4	--	1	A
Aroclor 1262	ND		ug/kg	35.4	--	1	A
Aroclor 1268	ND		ug/kg	35.4	--	1	A
PCBs, Total	156		ug/kg	35.4	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	71		30-150	B
Decachlorobiphenyl	85		30-150	B
2,4,5,6-Tetrachloro-m-xylene	71		30-150	A
Decachlorobiphenyl	70		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-12
 Client ID: SB-14 2'-3'
 Sample Location: MA

Date Collected: 12/23/19 09:37
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 13:39
 Analyst: HT
 Percent Solids: 92%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.1	--	1	A
Aroclor 1221	ND		ug/kg	35.1	--	1	A
Aroclor 1232	ND		ug/kg	35.1	--	1	A
Aroclor 1242	ND		ug/kg	35.1	--	1	A
Aroclor 1248	ND		ug/kg	35.1	--	1	A
Aroclor 1254	ND		ug/kg	35.1	--	1	A
Aroclor 1260	ND		ug/kg	35.1	--	1	B
Aroclor 1262	ND		ug/kg	35.1	--	1	A
Aroclor 1268	ND		ug/kg	35.1	--	1	A
PCBs, Total	ND		ug/kg	35.1	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	81		30-150	B
2,4,5,6-Tetrachloro-m-xylene	73		30-150	A
Decachlorobiphenyl	72		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-13
 Client ID: SB-14 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 09:39
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 13:51
 Analyst: HT
 Percent Solids: 95%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.0	--	1	A
Aroclor 1221	ND		ug/kg	34.0	--	1	A
Aroclor 1232	ND		ug/kg	34.0	--	1	A
Aroclor 1242	ND		ug/kg	34.0	--	1	A
Aroclor 1248	ND		ug/kg	34.0	--	1	A
Aroclor 1254	ND		ug/kg	34.0	--	1	A
Aroclor 1260	ND		ug/kg	34.0	--	1	A
Aroclor 1262	ND		ug/kg	34.0	--	1	A
Aroclor 1268	ND		ug/kg	34.0	--	1	A
PCBs, Total	ND		ug/kg	34.0	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	69		30-150	B
Decachlorobiphenyl	92		30-150	B
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	61		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-16
 Client ID: SB-15 1'-1.5'
 Sample Location: MA

Date Collected: 12/23/19 09:55
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 14:03
 Analyst: HT
 Percent Solids: 88%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.4	--	1	A
Aroclor 1221	ND		ug/kg	36.4	--	1	A
Aroclor 1232	ND		ug/kg	36.4	--	1	A
Aroclor 1242	ND		ug/kg	36.4	--	1	A
Aroclor 1248	ND		ug/kg	36.4	--	1	A
Aroclor 1254	ND		ug/kg	36.4	--	1	A
Aroclor 1260	132		ug/kg	36.4	--	1	B
Aroclor 1262	ND		ug/kg	36.4	--	1	A
Aroclor 1268	ND		ug/kg	36.4	--	1	A
PCBs, Total	132		ug/kg	36.4	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	53		30-150	B
Decachlorobiphenyl	66		30-150	B
2,4,5,6-Tetrachloro-m-xylene	51		30-150	A
Decachlorobiphenyl	49		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-17
 Client ID: SB-15 2'-3'
 Sample Location: MA

Date Collected: 12/23/19 09:57
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 14:16
 Analyst: HT
 Percent Solids: 87%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	37.6	--	1	A
Aroclor 1221	ND		ug/kg	37.6	--	1	A
Aroclor 1232	ND		ug/kg	37.6	--	1	A
Aroclor 1242	ND		ug/kg	37.6	--	1	A
Aroclor 1248	ND		ug/kg	37.6	--	1	A
Aroclor 1254	ND		ug/kg	37.6	--	1	A
Aroclor 1260	ND		ug/kg	37.6	--	1	A
Aroclor 1262	ND		ug/kg	37.6	--	1	A
Aroclor 1268	ND		ug/kg	37.6	--	1	A
PCBs, Total	ND		ug/kg	37.6	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		30-150	B
Decachlorobiphenyl	57		30-150	B
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	57		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-18
 Client ID: SB-15 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 09:58
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 14:28
 Analyst: HT
 Percent Solids: 90%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.1	--	1	A
Aroclor 1221	ND		ug/kg	36.1	--	1	A
Aroclor 1232	ND		ug/kg	36.1	--	1	A
Aroclor 1242	ND		ug/kg	36.1	--	1	A
Aroclor 1248	ND		ug/kg	36.1	--	1	A
Aroclor 1254	ND		ug/kg	36.1	--	1	A
Aroclor 1260	ND		ug/kg	36.1	--	1	A
Aroclor 1262	ND		ug/kg	36.1	--	1	A
Aroclor 1268	ND		ug/kg	36.1	--	1	B
PCBs, Total	ND		ug/kg	36.1	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	104		30-150	B
2,4,5,6-Tetrachloro-m-xylene	69		30-150	A
Decachlorobiphenyl	71		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-21 D
 Client ID: SB-12 1'-1.5'
 Sample Location: MA

Date Collected: 12/23/19 10:30
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/30/19 16:01
 Analyst: WR
 Percent Solids: 80%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	398	--	10	A
Aroclor 1221	ND		ug/kg	398	--	10	A
Aroclor 1232	ND		ug/kg	398	--	10	A
Aroclor 1242	ND		ug/kg	398	--	10	A
Aroclor 1248	ND		ug/kg	398	--	10	A
Aroclor 1254	ND		ug/kg	398	--	10	A
Aroclor 1260	3020		ug/kg	398	--	10	A
Aroclor 1262	ND		ug/kg	398	--	10	A
Aroclor 1268	ND		ug/kg	398	--	10	A
PCBs, Total	3020		ug/kg	398	--	10	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-22
 Client ID: SB-12 2'-3'
 Sample Location: MA

Date Collected: 12/23/19 10:32
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 14:52
 Analyst: HT
 Percent Solids: 84%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.8	--	1	A
Aroclor 1221	ND		ug/kg	38.8	--	1	A
Aroclor 1232	ND		ug/kg	38.8	--	1	A
Aroclor 1242	ND		ug/kg	38.8	--	1	A
Aroclor 1248	ND		ug/kg	38.8	--	1	A
Aroclor 1254	ND		ug/kg	38.8	--	1	A
Aroclor 1260	77.5		ug/kg	38.8	--	1	B
Aroclor 1262	ND		ug/kg	38.8	--	1	A
Aroclor 1268	ND		ug/kg	38.8	--	1	A
PCBs, Total	77.5		ug/kg	38.8	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	B
Decachlorobiphenyl	86		30-150	B
2,4,5,6-Tetrachloro-m-xylene	72		30-150	A
Decachlorobiphenyl	71		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-23
 Client ID: SB-12 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 10:35
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Soil
 Analytical Method: 97,8082A
 Analytical Date: 12/29/19 15:04
 Analyst: HT
 Percent Solids: 82%

Extraction Method: EPA 3540C
 Extraction Date: 12/26/19 10:00
 Cleanup Method: EPA 3665A
 Cleanup Date: 12/27/19
 Cleanup Method: EPA 3660B
 Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	40.3	--	1	A
Aroclor 1221	ND		ug/kg	40.3	--	1	A
Aroclor 1232	ND		ug/kg	40.3	--	1	A
Aroclor 1242	ND		ug/kg	40.3	--	1	A
Aroclor 1248	ND		ug/kg	40.3	--	1	A
Aroclor 1254	ND		ug/kg	40.3	--	1	A
Aroclor 1260	ND		ug/kg	40.3	--	1	A
Aroclor 1262	ND		ug/kg	40.3	--	1	A
Aroclor 1268	ND		ug/kg	40.3	--	1	B
PCBs, Total	ND		ug/kg	40.3	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	61		30-150	B
Decachlorobiphenyl	83		30-150	B
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	62		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 12/27/19 15:40
Analyst: HT

Extraction Method: EPA 3540C
Extraction Date: 12/26/19 10:00
Cleanup Method: EPA 3665A
Cleanup Date: 12/27/19
Cleanup Method: EPA 3660B
Cleanup Date: 12/27/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01-03,06-08,12-13,16-18,21-23						
Batch: WG1324802-1						
Aroclor 1016	ND		ug/kg	32.3	--	A
Aroclor 1221	ND		ug/kg	32.3	--	A
Aroclor 1232	ND		ug/kg	32.3	--	A
Aroclor 1242	ND		ug/kg	32.3	--	A
Aroclor 1248	ND		ug/kg	32.3	--	A
Aroclor 1254	ND		ug/kg	32.3	--	A
Aroclor 1260	ND		ug/kg	32.3	--	A
Aroclor 1262	ND		ug/kg	32.3	--	A
Aroclor 1268	ND		ug/kg	32.3	--	A
PCBs, Total	ND		ug/kg	32.3	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	48		30-150	B
Decachlorobiphenyl	52		30-150	B
2,4,5,6-Tetrachloro-m-xylene	48		30-150	A
Decachlorobiphenyl	53		30-150	A

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 12/31/19 15:34
Analyst: HT

Extraction Method: EPA 3540C
Extraction Date: 12/30/19 19:40
Cleanup Method: EPA 3665A
Cleanup Date: 12/31/19
Cleanup Method: EPA 3660B
Cleanup Date: 12/31/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 11 Batch: WG1325910-1						
Aroclor 1016	ND		ug/kg	33.2	--	A
Aroclor 1221	ND		ug/kg	33.2	--	A
Aroclor 1232	ND		ug/kg	33.2	--	A
Aroclor 1242	ND		ug/kg	33.2	--	A
Aroclor 1248	ND		ug/kg	33.2	--	A
Aroclor 1254	ND		ug/kg	33.2	--	A
Aroclor 1260	ND		ug/kg	33.2	--	A
Aroclor 1262	ND		ug/kg	33.2	--	A
Aroclor 1268	ND		ug/kg	33.2	--	A
PCBs, Total	ND		ug/kg	33.2	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	59		30-150	B
Decachlorobiphenyl	50		30-150	B
2,4,5,6-Tetrachloro-m-xylene	55		30-150	A
Decachlorobiphenyl	42		30-150	A

Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01-03,06-08,12-13,16-18,21-23 Batch: WG1324802-2 WG1324802-3									
Aroclor 1016	61		79		40-140	26		30	A
Aroclor 1260	66		86		40-140	26		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		86		30-150	B
Decachlorobiphenyl	69		95		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		82		30-150	A
Decachlorobiphenyl	68		88		30-150	A



Lab Control Sample Analysis Batch Quality Control

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 11 Batch: WG1325910-2 WG1325910-3									
Aroclor 1016	92		98		40-140	6		30	A
Aroclor 1260	67		72		40-140	7		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	61		63		30-150	B
Decachlorobiphenyl	46		47		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		64		30-150	A
Decachlorobiphenyl	42		45		30-150	A



METALS

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-26

Date Collected: 12/23/19 11:20

Client ID: SB-10

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 69%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	7000		mg/kg	4.2	--	50	12/27/19 06:15	01/02/20 19:35	EPA 3050B	97,6020B	MG



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-27

Date Collected: 12/23/19 11:45

Client ID: SB-8

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	240		mg/kg	0.90	--	10	12/28/19 01:00	12/30/19 23:36	EPA 3050B	97,6020B	MG



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-28

Date Collected: 12/23/19 11:47

Client ID: SB-DUP-7

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	190		mg/kg	0.89	--	10	12/28/19 01:00	12/30/19 23:40	EPA 3050B	97,6020B	MG



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-29

Date Collected: 12/23/19 12:05

Client ID: SB-7

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 61%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	2800		mg/kg	0.96	--	10	12/28/19 01:00	12/30/19 23:44	EPA 3050B	97,6020B	MG



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-30

Date Collected: 12/23/19 12:25

Client ID: SB-6

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	1100		mg/kg	0.91	--	10	12/28/19 01:00	12/30/19 23:49	EPA 3050B	97,6020B	MG



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-31

Date Collected: 12/23/19 12:45

Client ID: SB-9

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	25		mg/kg	0.88	--	10	12/28/19 01:00	12/30/19 23:53	EPA 3050B	97,6020B	MG



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-32

Date Collected: 12/23/19 12:50

Client ID: SB-5

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 63%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	110		mg/kg	0.93	--	10	12/28/19 01:00	12/30/19 23:57	EPA 3050B	97,6020B	MG



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

Method Blank Analysis Batch Quality Control

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 27-32 Batch: WG1325444-1									
Lead, Total	ND	mg/kg	0.60	--	10	12/28/19 01:00	12/30/19 23:23	97,6020B	MG

Prep Information

Digestion Method: EPA 3050B

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 26 Batch: WG1326468-1									
Lead, Total	ND	mg/kg	0.60	--	10	12/27/19 06:15	01/02/20 18:03	97,6020B	MG

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Total Metals - Mansfield Lab Associated sample(s): 27-32 Batch: WG1325444-2 WG1325444-3 SRM Lot Number: D105-540								
Lead, Total	88		88		71-128	0		30
MCP Total Metals - Mansfield Lab Associated sample(s): 26 Batch: WG1326468-2 WG1326468-3 SRM Lot Number: D105-540								
Lead, Total	96		96		71-128	0		30

Matrix Spike Analysis Batch Quality Control

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 26 QC Batch ID: WG1326468-4 WG1326468-5 QC Sample: L1961521-26 Client ID: SB-10												
Lead, Total	7000	57.6	2200	0	Q	8500	2680	Q	75-125	118	Q	35

Project Name: TOMBARELLO

Project Number: 17001426

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L1961521

Report Date: 01/03/20

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 26 QC Batch ID: WG1326468-6 QC Sample: L1961521-26 Client ID: SB-10						
Lead, Total	7000	7000	mg/kg	0		20

INORGANICS & MISCELLANEOUS

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-01
Client ID: SB-13 1'-1.5'
Sample Location: MA

Date Collected: 12/23/19 08:50
Date Received: 12/23/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.7		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-02

Client ID: SB-13 2'-3'

Sample Location: MA

Date Collected: 12/23/19 08:52

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-03

Client ID: SB-13 3'-4'

Sample Location: MA

Date Collected: 12/23/19 08:54

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-06

Client ID: SB-11 1'-1.5'

Sample Location: MA

Date Collected: 12/23/19 09:20

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.9		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-07

Date Collected: 12/23/19 09:22

Client ID: SB-11 2'-3'

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-08

Client ID: SB-11 3'-4'

Sample Location: MA

Date Collected: 12/23/19 09:24

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.6		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-11

Client ID: SB-14 1'-1.5'

Sample Location: MA

Date Collected: 12/23/19 09:35

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-12

Client ID: SB-14 2'-3'

Sample Location: MA

Date Collected: 12/23/19 09:37

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.3		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-13
 Client ID: SB-14 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 09:39
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.3		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-16

Client ID: SB-15 1'-1.5'

Sample Location: MA

Date Collected: 12/23/19 09:55

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-17

Client ID: SB-15 2'-3'

Sample Location: MA

Date Collected: 12/23/19 09:57

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-18
 Client ID: SB-15 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 09:58
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-21

Client ID: SB-12 1'-1.5'

Sample Location: MA

Date Collected: 12/23/19 10:30

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-22

Client ID: SB-12 2'-3'

Sample Location: MA

Date Collected: 12/23/19 10:32

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-23
 Client ID: SB-12 3'-4'
 Sample Location: MA

Date Collected: 12/23/19 10:35
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-26

Client ID: SB-10

Sample Location: MA

Date Collected: 12/23/19 11:20

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69.0		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-27

Client ID: SB-8

Sample Location: MA

Date Collected: 12/23/19 11:45

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	66.4		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-28
 Client ID: SB-DUP-7
 Sample Location: MA

Date Collected: 12/23/19 11:47
 Date Received: 12/23/19
 Field Prep: Not Specified

Sample Depth:
 Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	65.5		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-29

Date Collected: 12/23/19 12:05

Client ID: SB-7

Date Received: 12/23/19

Sample Location: MA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	61.2		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-30

Client ID: SB-6

Sample Location: MA

Date Collected: 12/23/19 12:25

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	62.8		%	0.100	NA	1	-	12/24/19 12:53	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-31

Client ID: SB-9

Sample Location: MA

Date Collected: 12/23/19 12:45

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	67.6		%	0.100	NA	1	-	12/24/19 12:06	121,2540G	RI



Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

SAMPLE RESULTS

Lab ID: L1961521-32

Client ID: SB-5

Sample Location: MA

Date Collected: 12/23/19 12:50

Date Received: 12/23/19

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	62.5		%	0.100	NA	1	-	12/24/19 12:06	121,2540G	RI



Lab Duplicate Analysis

Batch Quality Control

Project Name: TOMBARELLO

Project Number: 17001426

Lab Number: L1961521

Report Date: 01/03/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,06-08,11-13,16-18,21-23,26-30 QC Batch ID: WG1324563-1 QC Sample: L1961521-01 Client ID: SB-13 1'-1.5'						
Solids, Total	88.7	88.9	%	0		20

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1961521-01A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-02A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-03A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-04A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-05A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-06A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-07A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-08A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-09A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-10A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-11A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-12A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-13A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-14A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-15A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-16A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-17A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-18A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-19A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-20A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-21A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-22A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)

Project Name: TOMBARELLO**Lab Number:** L1961521**Project Number:** 17001426**Report Date:** 01/03/20**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1961521-23A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),MCP-8082-10-3540C(365)
L1961521-24A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-25A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		HOLD-WETCHEM(),HOLD-8082(14)
L1961521-26A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-26B	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-26C	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)
L1961521-26D	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)
L1961521-27A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-27B	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)
L1961521-28A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-28B	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)
L1961521-29A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-29B	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)
L1961521-30A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-30B	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)
L1961521-31A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-31B	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)
L1961521-32A	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		TS(7),EPH-DELUX-10(14)
L1961521-32B	Glass 120ml/4oz unpreserved	B	NA		4.4	Y	Absent		MCP-PB-6020T-10(180)

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report



Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.

Report Format: Data Usability Report



Project Name: TOMBARELLO

Lab Number: L1961521

Project Number: 17001426

Report Date: 01/03/20

Data Qualifiers

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name: TOMBARELLO
Project Number: 17001426

Lab Number: L1961521
Report Date: 01/03/20

REFERENCES

- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



CHAIN OF CUSTODY

PAGE 1 OF 4

Date Rec'd in Lab: 12/23/19

ALPHA Job #: L1961521

8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Project Information

Project Name: TOMBARELLO

Project Location: MA

Project #: 17001426

Project Manager: R. VANDIENREGL

ALPHA Quote #:

Report Information - Data Deliverables

ADEX EMAIL

Billing Information

Same as Client info PO #:

Client Information

Client: CREDERE ASSOCIATE

Address: 476 MAIN ST

WESTBROOK ME 04092

Phone: 207-528-1272

5 Fook E credere.com

Email: RVANDIENREGL@credere.com

Additional Project Information:

TOMBARELLO SUPPLEMENTAL SUB SURFACE INVESTIGATION

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due:

Regulatory Requirements & Project Information Requirements

- Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
- Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
- Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
- Yes No NPDES RGP
- Other State /Fed Program Criteria

ANALYSIS VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> 8242 SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15 METALS: <input type="checkbox"/> RCRAS <input type="checkbox"/> RCRAS <input type="checkbox"/> RCP 13 EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only PCBs: <input type="checkbox"/> PEST <input type="checkbox"/> X-FLUOR <input type="checkbox"/> XT TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint		SAMPLE INFO Filtration <input type="checkbox"/> Field <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do
TOTAL BOTTLES		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials	ANALYSIS										SAMPLE INFO	Sample Comments				
		Date	Time			VOC	SVOC	METALS	METALS	EPH	VPH	PCBs	TPH	Filtration	Preservation						
61521-01	SB-13 1'-1.5'	12/23/19	0850	S	ST.																
	02 SB-13 2'-3'	12/22/19	0852	S	S.T																
	03 SB-13 3'-4'	12/23/19	0854	S	S.T																
	04 SB-13 4'-5'	12/23/19	0856	S	S.T																HOLD
	05 SB-13 5'-7'	12/23/19	0858	S	S.T																HOLD
	06 SB-11 1'-1.5'	12/23/19	0920	S	S.T																
	07 SB-11 2'-3'	12/23/19	0922	S	S.T																
	08 SB-11 3'-4'	12/23/19	0924	S	S.T																
	09 SB-11 4'-5'	12/23/19	0926	S	S.T																HOLD
	W SB-11 5'-7'	12/23/19	0928	S	S.T																HOLD

Container Type Preservative

- P= Plastic
- A= Amber glass
- V= Vial
- G= Glass
- B= Bacteria cup
- C= Cube
- O= Other
- E= Encore
- D= BOD Bottle
- A= None
- B= HCl
- C= HNO₃
- D= H₂SO₄
- E= NaOH
- F= MeOH
- G= NaHSO₄
- H= Na₂S₂O₈
- I= Ascorbic Acid
- J= NH₄Cl
- K= Zn Acetate
- Q= Other

Container Type

Preservative

A

A

Relinquished By:

Date/Time

Received By:

Date/Time

Stef [Signature]

12/23/19 1430

NHSC EDUCC OFFICE

Storage locker 12/23/19 1715

12/23/19 1715

Rob Maerto AAL 12/23/19 1715

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)



CHAIN OF CUSTODY

PAGE 3 OF 4

11 Walkup Drive
Westboro, MA 01581
Tel: 508-896-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-0300

Project Information

Project Name: **TOMBARELLO**

Project Location: **MA**

Project #: **17001426**

Project Manager: **R. VAN DEN BERG**

ALPHA Quote #:

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due:

Date Rec'd in Lab: **12/23/19**

ALPHA Job #: **1961521**

Report Information - Data Deliverables

ADEX EMAIL

Billing Information

Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program _____ Criteria _____

Client Information

Client: **CREDERE ASSOCIATES**

Address: **776 MAIN ST**

WESTBROOK ME 04092

Phone: **207-928-1292**

Email:

Additional Project Information:

TOMBARELLO SUPPLEMENTAL SUB SURFACE INVESTIGATION

ANALYSIS	VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 824 <input type="checkbox"/> 824.2	METALS: <input type="checkbox"/> ABN <input type="checkbox"/> PAH	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15	EPH: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8	VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	TPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint	Pb - 6020A	SAMPLE INFO	TOTAL # BOTTLES		
	SVOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 824 <input type="checkbox"/> 824.2										SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH	SVOC: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials	ANALYSIS	TOTAL # BOTTLES
		Date	Time				
61521-21	SB-12 1'-1.5'	12/23/19	1030	S	S.T.		
22	SB-12 2'-3'	12/23/19	1032	S	S.T.		
23	SB-12 3'-4'	12/23/19	1035	S	S.T.		
24	SB-12 4'-5'	12/23/19	1037	S	S.T.		HOLD
25	SB-12 5'-7'	12/27/19	1040	S	S.T.		HOLD
26	SB-10	12/23/19	1120	S	C.B.	X	X
27	SB-8	12/23/19	1145	S	C.B.	X	X
28	SB-DUP-7	12/23/19	1147	S	C.B.	X	X
29	SB-7	12/23/19	1205	S	C.B.	X	X
30	SB-6	12/23/19	1225	S	C.B.	X	X

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO3
D= H2SO4
E= NaOH
F= MeOH
G= NaHSO4
H= Na2S2O8
I= Ascorbic Acid
J= NH4Cl
K= Zn Acetate
O= Other

Container Type

Preservative

A G

A A

Relinquished By:	Date/Time	Received By:	Date/Time
<i>Stacy Spence</i>	12/23/19 1715	<i>Rob Maerz</i>	12/23/19 1715
<i>Rob Maerz</i>	12/23/19 1930	<i>Alissa King</i>	12/23/19 1930

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
FORM NO: 01-01 (rev. 12-Mar-2012)



CHAIN OF CUSTODY

PAGE 4 OF 4

Date Rec'd in Lab: 12/23/19

ALPHA Job #: L1961521

8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Project Information

Project Name: TOMBARELLO

Project Location: MA

Project #: 1700142L

Project Manager: R. VANONBERG

ALPHA Quote #:

Turn-Around Time

Standard RUSH (only confirmed if pre-approved)

Date Due:

Report Information - Data Deliverables

ADEX EMAIL

Billing Information

Same as Client info PO #:

Client Information

Client: CREDERE ASSOCIATES

Address: 776 MAIN ST

WESTBROOK ME

Phone: 207-528-1272

Email: sfonte@credere.com
rvandenberg@credere.com

Additional Project Information:

TOMBARELLO SUPPLEMENTAL SUB SURFACE INVESTIGATION

Regulatory Requirements & Project Information Requirements

Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program _____ Criteria _____

ANALYSIS	TOTAL # BOTTLES	
	Filtration	Preservation
VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> 8242	<input type="checkbox"/> Field	<input type="checkbox"/> Lab to do
SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH	<input type="checkbox"/> Lab to do	<input type="checkbox"/> Lab to do
METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15		
METALS: <input type="checkbox"/> RCRAS <input type="checkbox"/> RCRAS		
EPH: <input checked="" type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only		
VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only		
PCB <input type="checkbox"/> PEST		
TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint		
<u>Pb 6020A</u>		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
<u>G1521-31</u>	<u>SB-9</u>	<u>12/23/19</u>	<u>1245</u>	<u>S</u>	<u>C.B.</u>
<u>32</u>	<u>SB-5</u>	<u>12/23/19</u>	<u>1250</u>	<u>S</u>	<u>C.B.</u>

Container Type
 P= Plastic
 A= Amber glass
 V= Vial
 G= Glass
 B= Bacteria cup
 C= Cube
 O= Other
 E= Encore
 D= BOD Bottle

Preservative
 A= None
 B= HCl
 C= HNO3
 D= H2SO4
 E= NaOH
 F= MeOH
 G= NaHSO4
 H= Na2S2O8
 J= Ascorbic Acid
 K= NH4Cl
 L= Zn Acetate
 O= Other

Container Type	A	G
Preservative	A	A

Relinquished By:	Date/Time	Received By:	Date/Time
<i>Stacy P...</i>	<u>12/23/19 1430</u>	<u>NHSC STORAGE LOCKER</u>	<u>12/23/19 1715</u>
<u>Rob Maloto</u>	<u>12/23/19 1715</u>	<u>Rob Maloto</u>	<u>12/23/19 1715</u>
<u>Rob Maloto</u>	<u>12/23/19 1930</u>	<u>Alana Krupp</u>	<u>12/23/19 1930</u>

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19G0955

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 11:49 am, Aug 13, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

SAMPLE RECEIPT

The following samples were received on July 31, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
19G0955-01	1802441-BBerm-01N 0-1	Soil	8082A
19G0955-02	1802441-MBerm-01N 5-6	Soil	8082A
19G0955-03	1802441-BBerm-02N 0-1	Soil	8082A
19G0955-04	1802441-MBerm-02N 5-6	Soil	8082A
19G0955-05	1802441-BBerm-03N 0-1	Soil	8082A
19G0955-06	1802441-MBerm-03N 4-5	Soil	6010C, 6020A, 7471B, 8082A, EPH8270, MADEP-EPH
19G0955-07	1802441-BBerm-04N 0-1	Soil	8082A
19G0955-08	1802441-MBerm-04N 5-6	Soil	8082A
19G0955-09	1802441-BBerm-05N 0-1	Soil	8082A
19G0955-10	1802441-MBerm-05N 5-6	Soil	8082A
19G0955-11	1802441-FD-01	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19G0955-01 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (407% @ 30-150%)
- 19G0955-02 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (304% @ 30-150%), Decachlorobiphenyl [2C] (396% @ 30-150%)
- 19G0955-03 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (411% @ 30-150%)
- 19G0955-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19G0955-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19G0955-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19G0955-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19G0955-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19G0955-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19G0955-07 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (204% @ 30-150%)
- 19G0955-08 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19G0955-08 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19G0955-08 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19G0955-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19G0955-09 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (410% @ 30-150%)
- 19G0955-10 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (234% @ 30-150%)
- 19G0955-11 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (303% @ 30-150%), Decachlorobiphenyl [2C] (452% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- 19G0955-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19G0955-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
1-Chlorooctadecane (% @ 40-140%)
- C9H0127-CCV2 [Continuing Calibration %Diff/Drift is above control limit \(CD+\).](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

Dodecane (C12) (29% @ 25%), Hexadecane (C16) (27% @ 25%), Hexatriacontane (C36) (33% @ 25%),
Tetradecane (C14) (27% @ 25%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19G0955-01 through 19G0955-11**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- | | | |
|---|--|--|
| A | Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? | Yes <input checked="" type="checkbox"/> No () |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | Yes <input checked="" type="checkbox"/> No () |
| C | Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? | Yes <input checked="" type="checkbox"/> No () |
| D | Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? | Yes <input checked="" type="checkbox"/> No () |
| E | VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? | Yes <input checked="" type="checkbox"/> No () |
| F | Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? | Yes <input checked="" type="checkbox"/> No () |

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- | | | |
|---|---|--|
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350. | Yes () No <input checked="" type="checkbox"/> * |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | Yes () No <input checked="" type="checkbox"/> * |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | Yes () No <input checked="" type="checkbox"/> * |

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 13, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-01N 0-1
Date Sampled: 07/30/19 09:05
Percent Solids: 74
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/02/19 23:35		CH90119
Aroclor 1221	ND (0.07)		8082A		1	08/02/19 23:35		CH90119
Aroclor 1232	ND (0.07)		8082A		1	08/02/19 23:35		CH90119
Aroclor 1242	2.9 (0.3)		8082A		5	08/03/19 14:36		CH90119
Aroclor 1248	ND (0.07)		8082A		1	08/02/19 23:35		CH90119
Aroclor 1254 [2C]	4.0 (0.3)		8082A		5	08/03/19 14:36		CH90119
Aroclor 1260 [2C]	2.2 (0.3)		8082A		5	08/03/19 14:36		CH90119
Aroclor 1262	ND (0.07)		8082A		1	08/02/19 23:35		CH90119
Aroclor 1268	ND (0.07)		8082A		1	08/02/19 23:35		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	70 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	407 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	45 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-01N 5-6
Date Sampled: 07/30/19 08:45
Percent Solids: 87
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/02/19 23:54		CH90119
Aroclor 1221	ND (0.06)		8082A		1	08/02/19 23:54		CH90119
Aroclor 1232	ND (0.06)		8082A		1	08/02/19 23:54		CH90119
Aroclor 1242	0.7 (0.06)		8082A		1	08/02/19 23:54		CH90119
Aroclor 1248	ND (0.06)		8082A		1	08/02/19 23:54		CH90119
Aroclor 1254	ND (0.06)		8082A		1	08/02/19 23:54		CH90119
Aroclor 1260	4.2 (0.3)		8082A		5	08/03/19 14:55		CH90119
Aroclor 1262	ND (0.06)		8082A		1	08/02/19 23:54		CH90119
Aroclor 1268	ND (0.06)		8082A		1	08/02/19 23:54		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	<i>304 %</i>	<i>SM</i>	<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>396 %</i>	<i>SM</i>	<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>37 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>48 %</i>		<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-02N 0-1
Date Sampled: 07/30/19 10:15
Percent Solids: 91
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/03/19 0:13		CH90119
Aroclor 1221	ND (0.06)		8082A		1	08/03/19 0:13		CH90119
Aroclor 1232	ND (0.06)		8082A		1	08/03/19 0:13		CH90119
Aroclor 1242	1.1 (0.06)		8082A		1	08/03/19 0:13		CH90119
Aroclor 1248	ND (0.06)		8082A		1	08/03/19 0:13		CH90119
Aroclor 1254 [2C]	3.9 (0.3)		8082A		5	08/03/19 15:14		CH90119
Aroclor 1260	3.4 (0.3)		8082A		5	08/03/19 15:14		CH90119
Aroclor 1262	ND (0.06)		8082A		1	08/03/19 0:13		CH90119
Aroclor 1268	ND (0.06)		8082A		1	08/03/19 0:13		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	411 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	38 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	47 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-02N 5-6
Date Sampled: 07/30/19 10:05
Percent Solids: 85
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1221	ND (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1232	ND (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1242	3.1 (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1248	ND (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1254	ND (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1260	21.5 (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1262	ND (1.2)		8082A		20	08/03/19 15:33		CH90119
Aroclor 1268	ND (1.2)		8082A		20	08/03/19 15:33		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-03N 0-1
 Date Sampled: 07/30/19 11:35
 Percent Solids: 89
 Initial Volume: 20
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
 ESS Laboratory Sample ID: 19G0955-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1221	ND (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1232	ND (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1242	3.0 (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1248	ND (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1254	ND (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1260	15.9 (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1262	ND (1.1)		8082A		20	08/03/19 15:52		CH90119
Aroclor 1268	ND (1.1)		8082A		20	08/03/19 15:52		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-03N 4-5
Date Sampled: 07/30/19 11:20
Percent Solids: 86

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	5.44 (1.04)		6010C		1	NAR	08/06/19 3:24	5.58	100	CH90562
Barium	173 (1.04)		6010C		1	NAR	08/06/19 3:24	5.58	100	CH90562
Cadmium	9.58 (0.21)		6010C		1	NAR	08/06/19 3:24	5.58	100	CH90562
Chromium	69.7 (0.42)		6010C		1	NAR	08/06/19 3:24	5.58	100	CH90562
Lead	728 (2.09)		6010C		1	NAR	08/06/19 3:24	5.58	100	CH90562
Mercury	3.13 (0.475)		7471B		50	MKS	08/06/19 16:31	2.43	40	CH90563
Selenium	0.75 (0.21)		6020A		1	NAR	08/07/19 3:35	5.58	100	CH90562
Silver	2.20 (0.21)		6010C		1	NAR	08/06/19 3:24	5.58	100	CH90562
Zinc	2300 (10.4)		6010C		10	KJK	08/06/19 20:45	5.58	100	CH90562



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-03N 4-5
Date Sampled: 07/30/19 11:20
Percent Solids: 86
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1221	ND (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1232	ND (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1242	3.6 (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1248	ND (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1254	ND (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1260	18.7 (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1262	ND (1.1)		8082A		20	08/03/19 16:11		CH90119
Aroclor 1268	ND (1.1)		8082A		20	08/03/19 16:11		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-03N 4-5
Date Sampled: 07/30/19 11:20
Percent Solids: 86
Initial Volume: 24
Final Volume: 10
Extraction Method: 3546

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-06
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/1/19 11:35

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (182)		MADEP-EPH		1	CAD	08/06/19 23:08	C9H0127	CH90116
C19-C36 Aliphatics1	266 (182)		MADEP-EPH		1	CAD	08/06/19 23:08	C9H0127	CH90116
C11-C22 Unadjusted Aromatics1	316 (182)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
C11-C22 Aromatics1,2	261 (182)		EPH8270			VSC	08/12/19 6:18		[CALC]
2-Methylnaphthalene	ND (0.61)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Acenaphthene	ND (0.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Naphthalene	ND (0.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Phenanthrene	8.96 (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Acenaphthylene	ND (0.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Anthracene	ND (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Benzo(a)anthracene	5.44 (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Benzo(a)pyrene	5.00 (0.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Benzo(b)fluoranthene	7.09 (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Benzo(g,h,i)perylene	ND (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Benzo(k)fluoranthene	ND (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Chrysene	5.40 (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Dibenzo(a,h)Anthracene	1.49 (0.61)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Fluoranthene	11.9 (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Fluorene	ND (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Indeno(1,2,3-cd)Pyrene	ND (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116
Pyrene	10.2 (4.85)		EPH8270		1	VSC	08/12/19 6:18	C9H0229	CH90116

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	%	SD	40-140
<i>Surrogate: 2-Bromonaphthalene</i>	110 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	86 %		40-140
<i>Surrogate: O-Terphenyl</i>	84 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-04N 0-1
Date Sampled: 07/30/19 12:30
Percent Solids: 88
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/03/19 1:30		CH90119
Aroclor 1221	ND (0.06)		8082A		1	08/03/19 1:30		CH90119
Aroclor 1232	ND (0.06)		8082A		1	08/03/19 1:30		CH90119
Aroclor 1242	2.1 (0.3)		8082A		5	08/03/19 16:31		CH90119
Aroclor 1248	ND (0.06)		8082A		1	08/03/19 1:30		CH90119
Aroclor 1254 [2C]	4.8 (0.3)		8082A		5	08/03/19 16:31		CH90119
Aroclor 1260	3.3 (0.3)		8082A		5	08/03/19 16:31		CH90119
Aroclor 1262	ND (0.06)		8082A		1	08/03/19 1:30		CH90119
Aroclor 1268	ND (0.06)		8082A		1	08/03/19 1:30		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	58 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	204 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	37 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	41 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-MBerm-04N 5-6
 Date Sampled: 07/30/19 12:15
 Percent Solids: 84
 Initial Volume: 20.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
 ESS Laboratory Sample ID: 19G0955-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1221	ND (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1232	ND (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1242 [2C]	P, LC 1.6 (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1248	ND (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1254	ND (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1260	15.9 (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1262	ND (1.2)		8082A		20	08/03/19 16:50		CH90119
Aroclor 1268	ND (1.2)		8082A		20	08/03/19 16:50		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-05N 0-1
Date Sampled: 07/30/19 14:05
Percent Solids: 87
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/03/19 2:08		CH90119
Aroclor 1221	ND (0.06)		8082A		1	08/03/19 2:08		CH90119
Aroclor 1232	ND (0.06)		8082A		1	08/03/19 2:08		CH90119
Aroclor 1242	1.0 (0.06)		8082A		1	08/03/19 2:08		CH90119
Aroclor 1248	ND (0.06)		8082A		1	08/03/19 2:08		CH90119
Aroclor 1254 [2C]	4.1 (0.3)		8082A		5	08/03/19 17:09		CH90119
Aroclor 1260	3.5 (0.3)		8082A		5	08/03/19 17:09		CH90119
Aroclor 1262	ND (0.06)		8082A		1	08/03/19 2:08		CH90119
Aroclor 1268	ND (0.06)		8082A		1	08/03/19 2:08		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	101 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	410 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	36 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	45 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-05N 5-6
Date Sampled: 07/30/19 13:45
Percent Solids: 85
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
ESS Laboratory Sample ID: 19G0955-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/03/19 2:28		CH90119
Aroclor 1221	ND (0.06)		8082A		1	08/03/19 2:28		CH90119
Aroclor 1232	ND (0.06)		8082A		1	08/03/19 2:28		CH90119
Aroclor 1242	5.7 (0.6)		8082A		10	08/03/19 17:28		CH90119
Aroclor 1248	ND (0.06)		8082A		1	08/03/19 2:28		CH90119
Aroclor 1254 [2C]	8.2 (0.6)		8082A		10	08/03/19 17:28		CH90119
Aroclor 1260	6.1 (0.6)		8082A		10	08/03/19 17:28		CH90119
Aroclor 1262	ND (0.06)		8082A		1	08/03/19 2:28		CH90119
Aroclor 1268	ND (0.06)		8082A		1	08/03/19 2:28		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	54 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	234 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	32 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	49 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-FD-01
 Date Sampled: 07/30/19 12:00
 Percent Solids: 76
 Initial Volume: 19.8
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19G0955
 ESS Laboratory Sample ID: 19G0955-11
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/1/19 16:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/03/19 2:47		CH90119
Aroclor 1221	ND (0.07)		8082A		1	08/03/19 2:47		CH90119
Aroclor 1232	ND (0.07)		8082A		1	08/03/19 2:47		CH90119
Aroclor 1242	0.9 (0.07)		8082A		1	08/03/19 2:47		CH90119
Aroclor 1248	ND (0.07)		8082A		1	08/03/19 2:47		CH90119
Aroclor 1254	ND (0.07)		8082A		1	08/03/19 2:47		CH90119
Aroclor 1260	2.9 (0.3)		8082A		5	08/03/19 17:47		CH90119
Aroclor 1262	ND (0.07)		8082A		1	08/03/19 2:47		CH90119
Aroclor 1268	ND (0.07)		8082A		1	08/03/19 2:47		CH90119

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	303 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	452 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	39 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	52 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH90562 - 3050B

Blank

Arsenic	ND	2.50	mg/kg wet
Barium	ND	2.50	mg/kg wet
Cadmium	ND	0.50	mg/kg wet
Chromium	ND	1.00	mg/kg wet
Lead	ND	5.00	mg/kg wet
Selenium	ND	0.50	mg/kg wet
Silver	ND	0.50	mg/kg wet
Zinc	ND	2.50	mg/kg wet

LCS

Arsenic	113	9.62	mg/kg wet	128.0	88	85-114
Barium	546	9.62	mg/kg wet	536.0	102	82-118
Cadmium	92.1	1.92	mg/kg wet	99.00	93	87-113
Chromium	113	3.85	mg/kg wet	116.0	98	82-118
Lead	290	19.2	mg/kg wet	277.0	105	84-116
Selenium	239	9.62	mg/kg wet	242.0	99	80-120
Silver	61.1	1.92	mg/kg wet	64.30	95	86-114
Zinc	545	9.62	mg/kg wet	561.0	97	86-114

LCS Dup

Arsenic	113	8.47	mg/kg wet	128.0	88	85-114	0.03	20
Barium	487	8.47	mg/kg wet	536.0	91	82-118	11	20
Cadmium	92.3	1.69	mg/kg wet	99.00	93	87-113	0.1	20
Chromium	114	3.39	mg/kg wet	116.0	98	82-118	0.6	20
Lead	291	16.9	mg/kg wet	277.0	105	84-116	0.6	20
Selenium	251	8.47	mg/kg wet	242.0	104	80-120	5	30
Silver	60.9	1.69	mg/kg wet	64.30	95	86-114	0.4	20
Zinc	547	8.47	mg/kg wet	561.0	98	86-114	0.5	20

Batch CH90563 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS

Mercury	23.0	3.67	mg/kg wet	27.30	84	80-120
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LCS Dup

Mercury	22.6	3.60	mg/kg wet	27.30	83	80-120	2	20
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90119 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet
Aroclor 1016 [2C]	ND	0.02	mg/kg wet
Aroclor 1221	ND	0.02	mg/kg wet
Aroclor 1221 [2C]	ND	0.02	mg/kg wet
Aroclor 1232	ND	0.02	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90119 - 3540C

Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0164		mg/kg wet	0.02500		65	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene	0.0170		mg/kg wet	0.02500		68	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0194		mg/kg wet	0.02500		78	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		84	40-140			

Surrogate: Decachlorobiphenyl	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0203		mg/kg wet	0.02500		81	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		87	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140	4	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0224		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0239		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0203		mg/kg wet	0.02500		81	30-150			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90116 - 3546

Blank										
C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90116 - 3546										
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.31</i>		mg/kg wet	<i>2.020</i>		<i>65</i>	<i>40-140</i>			
Blank										
2-Methylnaphthalene	ND	0.05	mg/kg wet							
Acenaphthene	ND	0.07	mg/kg wet							
Acenaphthylene	ND	0.07	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.07	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.05	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.07	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							
<i>Surrogate: 2-Bromonaphthalene</i>	<i>44.4</i>		mg/L	<i>50.00</i>		<i>89</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>35.9</i>		mg/L	<i>50.00</i>		<i>72</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.41</i>		mg/kg wet	<i>2.008</i>		<i>70</i>	<i>40-140</i>			
LCS										
C19-C36 Aliphatics1	14.7	15.0	mg/kg wet	16.00		92	40-140			
C9-C18 Aliphatics1	8.6	15.0	mg/kg wet	12.00		71	40-140			
Decane (C10)	1.0	0.5	mg/kg wet	2.000		50	40-140			
Docosane (C22)	1.7	0.5	mg/kg wet	2.000		85	40-140			
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		58	40-140			
Eicosane (C20)	1.7	0.5	mg/kg wet	2.000		84	40-140			
Hexacosane (C26)	1.6	0.5	mg/kg wet	2.000		81	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90116 - 3546										
Hexadecane (C16)	1.6	0.5	mg/kg wet	2.000		80	40-140			
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		92	40-140			
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		83	40-140			
Nonane (C9)	0.8	0.5	mg/kg wet	2.000		40	30-140			
Octacosane (C28)	1.6	0.5	mg/kg wet	2.000		80	40-140			
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		86	40-140			
Tetracosane (C24)	1.7	0.5	mg/kg wet	2.000		83	40-140			
Tetradecane (C14)	1.3	0.5	mg/kg wet	2.000		67	40-140			
Triacotane (C30)	1.6	0.5	mg/kg wet	2.000		80	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.47</i>		mg/kg wet	<i>2.020</i>		<i>73</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene	1.42	0.20	mg/kg wet	2.000		71	40-140			
Acenaphthene	1.46	0.40	mg/kg wet	2.000		73	40-140			
Acenaphthylene	1.53	0.20	mg/kg wet	2.000		76	40-140			
Anthracene	1.73	0.40	mg/kg wet	2.000		87	40-140			
Benzo(a)anthracene	1.72	0.40	mg/kg wet	2.000		86	40-140			
Benzo(a)pyrene	1.62	0.40	mg/kg wet	2.000		81	40-140			
Benzo(b)fluoranthene	1.88	0.40	mg/kg wet	2.000		94	40-140			
Benzo(g,h,i)perylene	1.45	0.40	mg/kg wet	2.000		72	40-140			
Benzo(k)fluoranthene	1.74	0.40	mg/kg wet	2.000		87	40-140			
C11-C22 Unadjusted Aromatics1	32.3	15.0	mg/kg wet	34.00		95	40-140			
Chrysene	1.79	0.40	mg/kg wet	2.000		90	40-140			
Dibenzo(a,h)Anthracene	1.70	0.20	mg/kg wet	2.000		85	40-140			
Fluoranthene	1.75	0.40	mg/kg wet	2.000		88	40-140			
Fluorene	1.62	0.40	mg/kg wet	2.000		81	40-140			
Indeno(1,2,3-cd)Pyrene	1.55	0.40	mg/kg wet	2.000		78	40-140			
Naphthalene	1.30	0.40	mg/kg wet	2.000		65	40-140			
Phenanthrene	1.75	0.40	mg/kg wet	2.000		88	40-140			
Pyrene	1.73	0.40	mg/kg wet	2.000		87	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>51.3</i>		mg/L	<i>50.00</i>		<i>103</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>43.3</i>		mg/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.49</i>		mg/kg wet	<i>2.008</i>		<i>74</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS Dup										
C19-C36 Aliphatics1	15.0	15.6	mg/kg wet	16.67		90	40-140	2	25	
C9-C18 Aliphatics1	8.7	15.6	mg/kg wet	12.50		70	40-140	2	25	
Decane (C10)	1.0	0.5	mg/kg wet	2.083		48	40-140	0.1	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.083		85	40-140	4	25	
Dodecane (C12)	1.2	0.5	mg/kg wet	2.083		56	40-140	0.9	25	
Eicosane (C20)	1.7	0.5	mg/kg wet	2.083		84	40-140	4	25	
Hexacosane (C26)	1.7	0.5	mg/kg wet	2.083		81	40-140	4	25	
Hexadecane (C16)	1.7	0.5	mg/kg wet	2.083		79	40-140	3	25	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90116 - 3546										
Hexatriacontane (C36)	1.9	0.5	mg/kg wet	2.083		92	40-140	5	25	
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.083		83	40-140	4	25	
Nonane (C9)	0.8	0.5	mg/kg wet	2.083		39	30-140	0.2	25	
Octacosane (C28)	1.7	0.5	mg/kg wet	2.083		81	40-140	4	25	
Octadecane (C18)	1.8	0.5	mg/kg wet	2.083		86	40-140	4	25	
Tetracosane (C24)	1.7	0.5	mg/kg wet	2.083		83	40-140	4	25	
Tetradecane (C14)	1.4	0.5	mg/kg wet	2.083		67	40-140	3	25	
Triacontane (C30)	1.7	0.5	mg/kg wet	2.083		80	40-140	4	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.54</i>		mg/kg wet	<i>2.104</i>		<i>73</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene	1.23	0.20	mg/kg wet	2.000		61	40-140	14	30	
Acenaphthene	1.36	0.40	mg/kg wet	2.000		68	40-140	8	30	
Acenaphthylene	1.38	0.20	mg/kg wet	2.000		69	40-140	10	30	
Anthracene	1.74	0.40	mg/kg wet	2.000		87	40-140	0.6	30	
Benzo(a)anthracene	1.69	0.40	mg/kg wet	2.000		84	40-140	2	30	
Benzo(a)pyrene	1.58	0.40	mg/kg wet	2.000		79	40-140	3	30	
Benzo(b)fluoranthene	1.82	0.40	mg/kg wet	2.000		91	40-140	3	30	
Benzo(g,h,i)perylene	1.42	0.40	mg/kg wet	2.000		71	40-140	2	30	
Benzo(k)fluoranthene	1.71	0.40	mg/kg wet	2.000		85	40-140	2	30	
C11-C22 Unadjusted Aromatics1	31.2	15.0	mg/kg wet	34.00		92	40-140	4	25	
Chrysene	1.77	0.40	mg/kg wet	2.000		88	40-140	1	30	
Dibenzo(a,h)Anthracene	1.66	0.20	mg/kg wet	2.000		83	40-140	2	30	
Fluoranthene	1.74	0.40	mg/kg wet	2.000		87	40-140	0.6	30	
Fluorene	1.57	0.40	mg/kg wet	2.000		79	40-140	3	30	
Indeno(1,2,3-cd)Pyrene	1.51	0.40	mg/kg wet	2.000		75	40-140	3	30	
Naphthalene	1.06	0.40	mg/kg wet	2.000		53	40-140	20	30	
Phenanthrene	1.79	0.40	mg/kg wet	2.000		90	40-140	2	30	
Pyrene	1.73	0.40	mg/kg wet	2.000		87	40-140	0.05	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>43.5</i>		mg/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>35.0</i>		mg/L	<i>50.00</i>		<i>70</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.49</i>		mg/kg wet	<i>2.008</i>		<i>74</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- P Percent difference between primary and confirmation results exceeds 40% (P).
- LC Lower value is used due to matrix interferences (LC).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0955

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19G0955

Date Received: 7/31/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/7/2019

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
Temp: 0.3 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

COC = FD-01 aqueous; sample is soil

14. Was there a need to contact Project Manager? Yes No
a. Was there a need to contact the client? Yes No
Who was contacted? Leslie Lombardi Date: 8/1/19 Time: _____ By: hdm

updated sample matrix on revised COC

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	371805	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	371804	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	371803	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	371802	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	371801	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	371807	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	371800	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	371806	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	371799	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	371798	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	371797	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	371796	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	371795	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials [Signature]

- Yes / No Yes No
- Yes / No / NA Yes No NA
- Yes / No / NA Yes No NA
- Yes / No / NA Yes No NA
- Yes / No / NA Yes No NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19G0955

Date Received: 7/31/2019

Completed By: [Signature]

Date & Time: 7/31/19 1937

Reviewed By: [Signature]

Date & Time: 7/31/19 1943

Delivered By: [Signature]

Date & Time: 7/31/19 1943



Project Information
 Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfrongmurdock@geiconsultants.com
 CSaledas@geiconsultants.com, llee@geiconsultants.com
 Send EDD to: labdata@geiconsultants.com

Preservative	
None	None
Analysis	
PCBs (8082)	None
EPH with Target PAHs (MAEPH)	None
RCRA 8 Metals plus Zinc (6010, 7471 Hg)	None
PCBs (aqueous)	None

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 Hg)	PCBs (aqueous)													
		Date	Time																				
1	1802441-BBerm-01N(0-1)	7/30/2019	0905	Soil	1	CWS	x																
2	1802441-MBerm-01N(5-6)	7/30/2019	0845	Soil	1	CWS	x																
3	1802441-BBerm-02N(0-1)	7/30/2019	1015	Soil	1	CWS	x																
4	1802441-MBerm-02N(5-6)	7/30/2019	1005	Soil	1	CWS	x																
5	1802441-BBerm-03N(0-1)	7/30/2019	1135	Soil	2	CWS	x	x	x														
6	1802441-MBerm-03N(4-5)	7/30/2019	1120	Soil	2	CWS	x	x	x														
7	1802441-BBerm-04N(0-1)	7/30/2019	1230	Soil	1	CWS	x																
8	1802441-MBerm-04N(5-6)	7/30/2019	1215	Soil	1	CWS	x																
9	1802441-BBerm-05N(0-1)	7/30/2019	1405	Soil	1	CWS	x																
10	1802441-MBerm-05N(5-6)	7/30/2019	1345	Soil	1	CWS	x																
	1802441-EB-01	7/30/2019	0900	Soil	1	CWS				x													
11	1802441-FD-01	7/30/2019	1200	Aqueous	1	CWS	x																

Sample Handling
 Samples Field Filtered: YES NO NA
 Sampled Shipped With Ice: YES NO
 Sample Specific Remarks:

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days): Normal Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Relinquished by (signature)	Date	Time	Received by (signature)
1. <i>[Signature]</i>	7/30/2019	1515	1. GEI Refrigerator
2. GEI Refrigerator	7/31/19	1307	2. <i>[Signature]</i>
3. <i>[Signature]</i>	7/31/19	1307	3. <i>[Signature]</i>
4. <i>[Signature]</i>	7/31/19	17:10	4. <i>[Signature]</i> 7/31/19 1921

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

redemp: -0.3



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19G0956

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 3:18 pm, Aug 06, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0956

SAMPLE RECEIPT

The following samples were received on July 31, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19G0956-01	1802441-EB-01	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0956

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0956

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0956

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19G0956-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 05, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-01
Date Sampled: 07/30/19 09:00
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19G0956
ESS Laboratory Sample ID: 19G0956-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 8/1/19 11:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1221	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1232	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1242	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1248	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1254	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1260	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1262	ND (0.10)		8082A		1	08/01/19 15:53		CH90113
Aroclor 1268	ND (0.10)		8082A		1	08/01/19 15:53		CH90113

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	74 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	67 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	65 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	73 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0956

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90113 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							
<hr/>										
Surrogate: Decachlorobiphenyl	0.0307		ug/L	0.05000		61	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0273		ug/L	0.05000		55	30-150			
Surrogate: Tetrachloro-m-xylene	0.0264		ug/L	0.05000		53	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0271		ug/L	0.05000		54	30-150			

LCS

Aroclor 1016	0.87	0.10	ug/L	1.000		87	40-140			
Aroclor 1016 [2C]	0.87	0.10	ug/L	1.000		87	40-140			
Aroclor 1260	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260 [2C]	0.90	0.10	ug/L	1.000		90	40-140			
<hr/>										
Surrogate: Decachlorobiphenyl	0.0461		ug/L	0.05000		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0418		ug/L	0.05000		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0290		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0306		ug/L	0.05000		61	30-150			

LCS Dup

Aroclor 1016	0.82	0.10	ug/L	1.000		82	40-140	6	20	
Aroclor 1016 [2C]	0.80	0.10	ug/L	1.000		80	40-140	9	20	
Aroclor 1260	0.86	0.10	ug/L	1.000		86	40-140	8	20	
Aroclor 1260 [2C]	0.83	0.10	ug/L	1.000		83	40-140	9	20	
<hr/>										
Surrogate: Decachlorobiphenyl	0.0398		ug/L	0.05000		80	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0362		ug/L	0.05000		72	30-150			
Surrogate: Tetrachloro-m-xylene	0.0260		ug/L	0.05000		52	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0279		ug/L	0.05000		56	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0956

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19G0956

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19G0956

Date Received: 7/31/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/7/2019

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
Temp: 0.3 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes W
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes No
a. Air bubbles in aqueous VOAs? Yes / No / NA
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

COC = soil ; sample is water

14. Was there a need to contact Project Manager? Yes No W
a. Was there a need to contact the client? Yes No
Who was contacted? Leslie Lombardo Date: 8/1/19 Time: _____ By: hdm

Sample Matrix updated on revised COC

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	371808	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials: [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

Completed By: [Signature] Date & Time: 7/31/19 1934
 Reviewed By: [Signature] Date & Time: 7/31/19 1939
 Delivered By: [Signature] Date & Time: 7/31/19 1939

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job # **1990956**

(Lab use only)



**400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073**

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com
csawedasy@geiconsultants.com btee@geiconsultants.com

Send EDD to: labdata@geiconsultants.com
eastregiondata@geiconsultants.com

Project Information

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 Hg10)	PCBs (aqueous)
		Date	Time							
	1802441-BBerm-01N(0-1)	7/30/2019	0905	Soil	1	CWS	x			
	1802441-MBerm-01N(5-6)	7/30/2019	0845	Soil	1	CWS	x			
	1802441-BBerm-02N(0-1)	7/30/2019	1015	Soil	1	CWS	x			
	1802441-MBerm-02N(5-6)	7/30/2019	1005	Soil	1	CWS	x			
	1802441-BBerm-03N(0-1)	7/30/2019	1135	Soil	2	CWS	x	x	x	
	1802441-MBerm-03N(4-5)	7/30/2019	1120	Soil	2	CWS	x	x	x	
	1802441-BBerm-04N(0-1)	7/30/2019	1230	Soil	1	CWS	x			
	1802441-MBerm-04N(5-6)	7/30/2019	1215	Soil	1	CWS	x			
	1802441-BBerm-05N(0-1)	7/30/2019	1405	Soil	1	CWS	x			
	1802441-MBerm-05N(5-6)	7/30/2019	1345	Soil	1	CWS	x			
	1802441-EB-01	7/30/2019	0900	Soil Aq	1	CWS			x	
	1802441-FD-01	7/30/2019	1200	Aqueous	1	CWS	x			
					hdm	8/1/19				

Preservative													
Analysis													
None	None	None	None										

Sample Handling

Samples Field Filtered
YES NO **NA**

Sampled Shipped With Ice
YES NO

Sample Specific Remarks

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal X Other _____

10-Day _____ 7-Day _____

5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Email updated 8/1/19 - PRB

Relinquished by: (signature) <u>Wanda Selas</u>	Date: 7/30/2019	Time: 1515	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 7/31/19	Time: 1307	Received by: (signature) 2. Ryan Kelly
Relinquished by: (signature) 3. Ryan Kelly	Date: 7/31/19	Time: 1357	Received by: (signature) 3. [Signature]
Relinquished by: (signature) 4. [Signature]	Date: 7/31/19	Time: 17:10	Received by: (signature) 4. [Signature] 7/31/19 1921

Additional Requirements/Comments/Remarks:

cc temp: -0.3



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0015

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 4:12 pm, Sep 05, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

SAMPLE RECEIPT

The following samples were received on August 01, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Revision 1 September 5, 2019: This report has been revised to include a corrected dilution factor for 19H0015-07 for PCB analysis.

Lab Number	Sample Name	Matrix	Analysis
19H0015-01	1802441-FD-02	Soil	8082A
19H0015-02	1802441-FD-03	Soil	8082A
19H0015-03	1802441-FD-04	Soil	8082A
19H0015-04	1802441-BBerm-06N 0-1	Soil	8082A
19H0015-05	1802441-MBerm-06N 4-5	Soil	6010C, 6020A, 7471B, 8082A, EPH8270, MADEP-EPH
19H0015-06	1802441-BBerm-08N 0-1	Soil	8082A
19H0015-07	1802441-MBerm-08N 5-6	Soil	8082A
19H0015-08	1802441-BBerm-10W 0-1	Soil	8082A
19H0015-09	1802441-MBerm-10W 5-6	Soil	8082A
19H0015-10	1802441-BBerm-11W 0-1	Soil	8082A
19H0015-11	1802441-MBerm-11W 5-6	Soil	8082A
19H0015-12	1802441-TBerm-01 0-1	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0015-01 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-01 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0015-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0015-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0015-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0015-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0015-07 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0015-08 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (234% @ 30-150%)
- 19H0015-09 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0015-12 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0015-12 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- 19H0015-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- C9H0144-CCV4 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
Benzo(g,h,i)perylene (22% @ 20%)

Total Metals



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

CH90705-SRM1 [Standard Reference Material is biased low \(R-\).](#)

Lead (76% @ 83-113%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0015-01 through 19H0015-12**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- | | | |
|---|--|--|
| A | Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? | Yes <input checked="" type="checkbox"/> No () |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | Yes <input checked="" type="checkbox"/> No () |
| C | Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? | Yes <input checked="" type="checkbox"/> No () |
| D | Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? | Yes <input checked="" type="checkbox"/> No () |
| E | VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? | Yes <input checked="" type="checkbox"/> No () |
| F | Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? | Yes <input checked="" type="checkbox"/> No () |

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- | | | |
|---|---|--|
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350. | Yes () No <input checked="" type="checkbox"/> * |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | Yes () No <input checked="" type="checkbox"/> * |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | Yes () No <input checked="" type="checkbox"/> * |

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 13, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-02
Date Sampled: 07/31/19 12:01
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1221	ND (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1232	ND (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1242	ND (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1248	ND (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1254 [2C]	36.2 (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1260	51.0 (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1262	ND (5.7)		8082A		100	08/06/19 9:49		CH90206
Aroclor 1268	ND (5.7)		8082A		100	08/06/19 9:49		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-03
Date Sampled: 07/31/19 12:02
Percent Solids: 88
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1221	ND (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1232	ND (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1242	ND (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1248	ND (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1254 [2C]	23.3 (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1260	30.4 (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1262	ND (2.8)		8082A		50	08/06/19 10:06		CH90206
Aroclor 1268	ND (2.8)		8082A		50	08/06/19 10:06		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-04
Date Sampled: 07/31/19 12:03
Percent Solids: 74
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1221	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1232	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1242	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1248	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1254	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1260	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1262	ND (0.07)		8082A		1	08/05/19 20:06		CH90206
Aroclor 1268	ND (0.07)		8082A		1	08/05/19 20:06		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	73 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	107 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	66 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	79 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-06N 0-1
Date Sampled: 07/31/19 09:20
Percent Solids: 87
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1221	ND (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1232	ND (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1242	ND (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1248	ND (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1254 [2C]	26.5 (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1260	30.2 (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1262	ND (2.9)		8082A		50	08/06/19 10:25		CH90206
Aroclor 1268	ND (2.9)		8082A		50	08/06/19 10:25		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-06N 4-5
Date Sampled: 07/31/19 09:00
Percent Solids: 86

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	15.5 (2.58)		6010C		1	KJK	08/08/19 16:17	2.24	100	CH90705
Barium	625 (2.58)		6010C		1	KJK	08/08/19 16:17	2.24	100	CH90705
Cadmium	12.4 (0.52)		6010C		1	KJK	08/08/19 16:17	2.24	100	CH90705
Chromium	88.6 (1.03)		6010C		1	KJK	08/08/19 16:17	2.24	100	CH90705
Lead	1530 (5.16)		6010C		1	KJK	08/08/19 16:17	2.24	100	CH90705
Mercury	2.91 (0.842)		7471B		25	MKS	08/08/19 15:10	0.68	40	CH90729
Selenium	1.39 (0.52)		6020A		1	NAR	08/09/19 19:07	2.24	100	CH90705
Silver	0.82 (0.52)		6010C		1	KJK	08/08/19 16:17	2.24	100	CH90705
Zinc	2880 (258)		6010C		100	BJV	08/09/19 13:59	2.24	100	CH90705



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-MBerm-06N 4-5
 Date Sampled: 07/31/19 09:00
 Percent Solids: 86
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
 ESS Laboratory Sample ID: 19H0015-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1221	ND (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1232	ND (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1242	ND (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1248	ND (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1254 [2C]	50.6 (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1260	47.1 (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1262	ND (6.0)		8082A		100	08/06/19 10:44		CH90206
Aroclor 1268	ND (6.0)		8082A		100	08/06/19 10:44		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-06N 4-5
Date Sampled: 07/31/19 09:00
Percent Solids: 86
Initial Volume: 24.9
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-05
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/7/19 9:55

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (87.1)		MADEP-EPH		1	CAD	08/08/19 22:34	C9H0125	CH90659
C19-C36 Aliphatics1	565 (87.1)		MADEP-EPH		1	CAD	08/08/19 22:34	C9H0125	CH90659
C11-C22 Unadjusted Aromatics1	547 (87.1)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
C11-C22 Aromatics1,2	438 (87.1)		EPH8270			VSC	08/11/19 6:18		[CALC]
2-Methylnaphthalene	0.50 (0.41)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Acenaphthene	ND (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Naphthalene	ND (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Phenanthrene	16.0 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Acenaphthylene	0.87 (0.41)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Anthracene	3.73 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Benzo(a)anthracene	9.25 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Benzo(a)pyrene	7.92 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Benzo(b)fluoranthene	10.9 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Benzo(g,h,i)perylene	4.23 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Benzo(k)fluoranthene	4.24 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Chrysene	9.15 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Dibenzo(a,h)Anthracene	1.51 (1.16)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Fluoranthene	19.5 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Fluorene	ND (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Indeno(1,2,3-cd)Pyrene	5.20 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659
Pyrene	16.5 (2.32)		EPH8270		1	VSC	08/11/19 6:18	C9H0217	CH90659

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	77 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	106 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	88 %		40-140
<i>Surrogate: O-Terphenyl</i>	73 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-08N 0-1
Date Sampled: 07/31/19 13:30
Percent Solids: 87
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1221	ND (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1232	ND (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1242	ND (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1248	ND (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1254 [2C]	18.4 (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1260	23.9 (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1262	ND (3.0)		8082A		50	08/06/19 11:04		CH90206
Aroclor 1268	ND (3.0)		8082A		50	08/06/19 11:04		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-MBerm-08N 5-6
 Date Sampled: 07/31/19 13:10
 Percent Solids: 87
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
 ESS Laboratory Sample ID: 19H0015-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1221	ND (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1232	ND (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1242	ND (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1248	ND (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1254 [2C]	15.4 (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1260	21.7 (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1262	ND (3.0)		8082A		50	08/06/19 11:23		CH90206
Aroclor 1268	ND (3.0)		8082A		50	08/06/19 11:23		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-10W 0-1
Date Sampled: 07/31/19 11:35
Percent Solids: 87
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/06/19 0:16		CH90206
Aroclor 1221	ND (0.06)		8082A		1	08/06/19 0:16		CH90206
Aroclor 1232	ND (0.06)		8082A		1	08/06/19 0:16		CH90206
Aroclor 1242	1.2 (0.06)		8082A		1	08/06/19 0:16		CH90206
Aroclor 1248	ND (0.06)		8082A		1	08/06/19 0:16		CH90206
Aroclor 1254 [2C]	4.4 (0.6)		8082A		10	08/06/19 11:42		CH90206
Aroclor 1260 [2C]	2.5 (0.6)		8082A		10	08/06/19 11:42		CH90206
Aroclor 1262	ND (0.06)		8082A		1	08/06/19 0:16		CH90206
Aroclor 1268	ND (0.06)		8082A		1	08/06/19 0:16		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	234 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	47 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-MBerm-10W 5-6
 Date Sampled: 07/31/19 11:25
 Percent Solids: 86
 Initial Volume: 19.4
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
 ESS Laboratory Sample ID: 19H0015-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1221	ND (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1232	ND (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1242	3.2 (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1248	ND (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1254 [2C]	7.3 (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1260	9.9 (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1262	ND (1.2)		8082A		20	08/06/19 12:01		CH90206
Aroclor 1268	ND (1.2)		8082A		20	08/06/19 12:01		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-11W 0-1
 Date Sampled: 07/31/19 12:20
 Percent Solids: 93
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
 ESS Laboratory Sample ID: 19H0015-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/2/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 0:55		CH90206
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 0:55		CH90206
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 0:55		CH90206
Aroclor 1242	0.5 (0.05)		8082A		1	08/06/19 0:55		CH90206
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 0:55		CH90206
Aroclor 1254 [2C]	2.6 (0.3)		8082A		5	08/06/19 12:21		CH90206
Aroclor 1260 [2C]	1.6 (0.3)		8082A		5	08/06/19 12:21		CH90206
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 0:55		CH90206
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 0:55		CH90206

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	150 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	39 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	45 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-11W 5-6
Date Sampled: 07/31/19 12:10
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/06/19 16:53		CH90504
Aroclor 1221	ND (0.06)		8082A		1	08/06/19 16:53		CH90504
Aroclor 1232	ND (0.06)		8082A		1	08/06/19 16:53		CH90504
Aroclor 1242	2.4 (0.6)		8082A		10	08/07/19 11:48		CH90504
Aroclor 1248	ND (0.06)		8082A		1	08/06/19 16:53		CH90504
Aroclor 1254 [2C]	7.6 (0.6)		8082A		10	08/07/19 11:48		CH90504
Aroclor 1260	3.9 (0.6)		8082A		10	08/07/19 11:48		CH90504
Aroclor 1262	ND (0.06)		8082A		1	08/06/19 16:53		CH90504
Aroclor 1268	ND (0.06)		8082A		1	08/06/19 16:53		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	79 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	142 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	39 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	47 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-01 0-1
Date Sampled: 07/31/19 07:40
Percent Solids: 95
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0015
ESS Laboratory Sample ID: 19H0015-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1221	ND (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1232	ND (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1242	ND (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1248	ND (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1254 [2C]	25.2 (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1260	28.5 (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1262	ND (2.8)		8082A		50	08/07/19 12:07		CH90504
Aroclor 1268	ND (2.8)		8082A		50	08/07/19 12:07		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH90705 - 3050B

Blank

Arsenic	ND	8.33	mg/kg wet
Barium	ND	8.33	mg/kg wet
Cadmium	ND	1.67	mg/kg wet
Chromium	ND	3.33	mg/kg wet
Lead	ND	16.7	mg/kg wet
Selenium	ND	1.67	mg/kg wet
Silver	ND	1.67	mg/kg wet
Zinc	ND	8.33	mg/kg wet

LCS

Arsenic	111	7.81	mg/kg wet	128.0	87	80-120
Barium	508	7.81	mg/kg wet	536.0	95	80-120
Cadmium	85.1	1.56	mg/kg wet	99.00	86	80-120
Chromium	106	3.12	mg/kg wet	116.0	91	80-120
Lead	271	15.6	mg/kg wet	277.0	98	80-120
Selenium	230	7.81	mg/kg wet	242.0	95	80-120
Silver	61.7	1.56	mg/kg wet	64.30	96	80-120
Zinc	527	7.81	mg/kg wet	561.0	94	80-120

LCS Dup

Arsenic	111	7.14	mg/kg wet	128.0	87	80-120	0.2	20
Barium	513	7.14	mg/kg wet	536.0	96	80-120	1	20
Cadmium	84.8	1.43	mg/kg wet	99.00	86	80-120	0.5	20
Chromium	106	2.86	mg/kg wet	116.0	92	80-120	0.8	20
Lead	269	14.3	mg/kg wet	277.0	97	80-120	0.6	20
Selenium	216	7.14	mg/kg wet	242.0	89	80-120	6	30
Silver	62.2	1.43	mg/kg wet	64.30	97	80-120	0.8	20
Zinc	535	7.14	mg/kg wet	561.0	95	80-120	1	20

Reference

Lead	3400	19.2	mg/kg wet	4490	76	83-113		R-
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Batch CH90729 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS

Mercury	21.9	3.25	mg/kg wet	27.30	80	80-120
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LCS Dup

Mercury	22.3	2.87	mg/kg wet	27.30	82	80-120	2	20
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90206 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet
Aroclor 1016 [2C]	ND	0.05	mg/kg wet
Aroclor 1221	ND	0.05	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90206 - 3540C

Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0214		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		92	30-150			
Surrogate: Tetrachloro-m-xylene	0.0147		mg/kg wet	0.02500		59	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0189		mg/kg wet	0.02500		75	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140			

Surrogate: Decachlorobiphenyl	0.0225		mg/kg wet	0.02500		90	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0238		mg/kg wet	0.02500		95	30-150			
Surrogate: Tetrachloro-m-xylene	0.0177		mg/kg wet	0.02500		71	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0194		mg/kg wet	0.02500		78	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		87	40-140	0.8	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	0.6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		98	40-140	0.02	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140	0.4	30	

Surrogate: Decachlorobiphenyl	0.0230		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0241		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0183		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0199		mg/kg wet	0.02500		80	30-150			

Batch CH90504 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90504 - 3540C

Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0222		mg/kg wet	0.02500		89	30-150			
Surrogate: Tetrachloro-m-xylene	0.0161		mg/kg wet	0.02500		64	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0206		mg/kg wet	0.02500		82	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			

Surrogate: Decachlorobiphenyl	0.0237		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0260		mg/kg wet	0.02500		104	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0221		mg/kg wet	0.02500		88	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		92	40-140	0.9	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140	0.8	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140	0.8	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	

Surrogate: Decachlorobiphenyl	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0253		mg/kg wet	0.02500		101	30-150			
Surrogate: Tetrachloro-m-xylene	0.0198		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0219		mg/kg wet	0.02500		88	30-150			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Blank										
C19-C36 Aliphatics1	ND	15.0	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							

<i>Surrogate: 1-Chlorooctadecane</i>	1.73		mg/kg wet	2.020		85	40-140			
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Blank

2-Methylnaphthalene	ND	0.14	mg/kg wet							
Acenaphthene	ND	0.20	mg/kg wet							
Acenaphthylene	ND	0.14	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.20	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.20	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.20	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							
<i>Surrogate: 2-Bromonaphthalene</i>	48.3		mg/L	50.00		97	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	41.8		mg/L	50.00		84	40-140			
<i>Surrogate: O-Terphenyl</i>	1.56		mg/kg wet	2.008		78	40-140			

LCS

C19-C36 Aliphatics1	16.1	15.0	mg/kg wet	16.00		101	40-140			
C9-C18 Aliphatics1	8.8	15.0	mg/kg wet	12.00		74	40-140			
Decane (C10)	0.9	0.5	mg/kg wet	2.000		46	40-140			
Docosane (C22)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Dodecane (C12)	1.0	0.5	mg/kg wet	2.000		51	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Eicosane (C20)	1.9	0.5	mg/kg wet	2.000		93	40-140			
Hexacosane (C26)	1.9	0.5	mg/kg wet	2.000		94	40-140			
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		77	40-140			
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Nonadecane (C19)	1.8	0.5	mg/kg wet	2.000		91	40-140			
Nonane (C9)	0.7	0.5	mg/kg wet	2.000		37	30-140			
Octacosane (C28)	1.9	0.5	mg/kg wet	2.000		94	40-140			
Octadecane (C18)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Tetracosane (C24)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		60	40-140			
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		92	40-140			

Surrogate: 1-Chlorooctadecane

	1.72		mg/kg wet	2.020		85	40-140			
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LCS

2-Methylnaphthalene	1.51	0.14	mg/kg wet	2.000		75	40-140			
Acenaphthene	1.58	0.20	mg/kg wet	2.000		79	40-140			
Acenaphthylene	1.67	0.14	mg/kg wet	2.000		84	40-140			
Anthracene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(a)anthracene	2.00	0.40	mg/kg wet	2.000		100	40-140			
Benzo(a)pyrene	1.84	0.20	mg/kg wet	2.000		92	40-140			
Benzo(b)fluoranthene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(g,h,i)perylene	1.72	0.40	mg/kg wet	2.000		86	40-140			
Benzo(k)fluoranthene	1.97	0.40	mg/kg wet	2.000		99	40-140			
C11-C22 Unadjusted Aromatics1	34.9	15.0	mg/kg wet	34.00		103	40-140			
Chrysene	2.04	0.40	mg/kg wet	2.000		102	40-140			
Dibenzo(a,h)Anthracene	2.03	0.20	mg/kg wet	2.000		102	40-140			
Fluoranthene	2.02	0.40	mg/kg wet	2.000		101	40-140			
Fluorene	1.80	0.40	mg/kg wet	2.000		90	40-140			
Indeno(1,2,3-cd)Pyrene	1.91	0.40	mg/kg wet	2.000		95	40-140			
Naphthalene	1.35	0.20	mg/kg wet	2.000		67	40-140			
Phenanthrene	1.96	0.40	mg/kg wet	2.000		98	40-140			
Pyrene	1.99	0.40	mg/kg wet	2.000		100	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	50.1		mg/L	50.00		100	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	44.1		mg/L	50.00		88	40-140			
<i>Surrogate: O-Terphenyl</i>	1.70		mg/kg wet	2.008		84	40-140			

LCS

2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			

LCS Dup

C19-C36 Aliphatics1	15.3	15.0	mg/kg wet	16.00		96	40-140	5	25	
C9-C18 Aliphatics1	8.9	15.0	mg/kg wet	12.00		74	40-140	0.05	25	
Decane (C10)	1.0	0.5	mg/kg wet	2.000		51	40-140	10	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		91	40-140	5	25	
Dodecane (C12)	1.1	0.5	mg/kg wet	2.000		55	40-140	7	25	
Eicosane (C20)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90659 - 3546										
Hexacosane (C26)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		75	40-140	3	25	
Hexatriacontane (C36)	1.7	0.5	mg/kg wet	2.000		87	40-140	4	25	
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		87	40-140	5	25	
Nonane (C9)	0.8	0.5	mg/kg wet	2.000		42	30-140	12	25	
Octacosane (C28)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		85	40-140	5	25	
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		62	40-140	3	25	
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		88	40-140	5	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.64</i>		mg/kg wet	<i>2.020</i>		<i>81</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene	1.64	0.14	mg/kg wet	2.000		82	40-140	8	30	
Acenaphthene	1.65	0.20	mg/kg wet	2.000		83	40-140	4	30	
Acenaphthylene	1.76	0.14	mg/kg wet	2.000		88	40-140	5	30	
Anthracene	1.91	0.40	mg/kg wet	2.000		96	40-140	4	30	
Benzo(a)anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140	6	30	
Benzo(a)pyrene	1.76	0.20	mg/kg wet	2.000		88	40-140	5	30	
Benzo(b)fluoranthene	1.83	0.40	mg/kg wet	2.000		92	40-140	8	30	
Benzo(g,h,i)perylene	1.64	0.40	mg/kg wet	2.000		82	40-140	5	30	
Benzo(k)fluoranthene	1.92	0.40	mg/kg wet	2.000		96	40-140	3	30	
C11-C22 Unadjusted Aromatics1	33.9	15.0	mg/kg wet	34.00		100	40-140	3	25	
Chrysene	1.93	0.40	mg/kg wet	2.000		96	40-140	5	30	
Dibenzo(a,h)Anthracene	1.93	0.20	mg/kg wet	2.000		96	40-140	5	30	
Fluoranthene	1.90	0.40	mg/kg wet	2.000		95	40-140	6	30	
Fluorene	1.81	0.40	mg/kg wet	2.000		90	40-140	0.2	30	
Indeno(1,2,3-cd)Pyrene	1.82	0.40	mg/kg wet	2.000		91	40-140	5	30	
Naphthalene	1.51	0.20	mg/kg wet	2.000		76	40-140	12	30	
Phenanthrene	1.88	0.40	mg/kg wet	2.000		94	40-140	4	30	
Pyrene	1.89	0.40	mg/kg wet	2.000		95	40-140	5	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>49.2</i>		mg/L	<i>50.00</i>		<i>98</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>43.5</i>		mg/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.62</i>		mg/kg wet	<i>2.008</i>		<i>81</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- S+ Surrogate recovery(ies) above upper control limit (S+).
- R- Standard Reference Material is biased low (R-).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0015

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0015

Date Received: 8/1/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/8/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? No
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

COC = sample 1 collected 1201 ; cap = 0910 ; label = 1201

COC = sample 4 collected 900, sample 5 collected 0920 ; labels show opposite

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? Brian Murdock Date: 8/5/19 Time: _____ By: jjs

He emailed the revised COC.

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372275	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	372274	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	372273	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	372272	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372271	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372605	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	372270	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372269	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	372268	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	372267	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	372266	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	372265	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	372264	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	372263	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

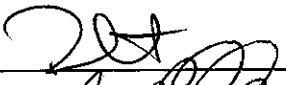
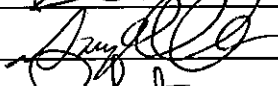

Initials W
 Yes / No
 Yes / No / NA / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0015

Date Received: 8/1/2019

Completed By:		Date & Time:	<u>8/1/19</u>	<u>2223</u>
Reviewed By:		Date & Time:	<u>08/1/19</u>	<u>2232</u>
Delivered By:		Date & Time:	<u>8/1/19</u>	<u>2241</u>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0015

Date Received: 8/1/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/8/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? No
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

COC = sample 1 collected 1201 ; cap = 0910 ; label = 1201

COC = sample 4 collected 900, sample 5 collected 0920 ; labels show opposite

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372275	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	372274	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	372273	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	372272	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372271	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372605	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	372270	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372269	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	372268	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	372267	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	372266	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	372265	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	372264	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	372263	Yes	NA	Yes	4 oz. Jar - Unpres	NP	<i>2/1/19</i>

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

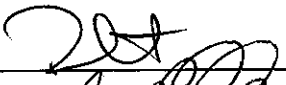
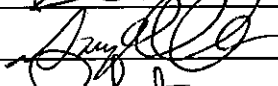

Initials W
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0015

Date Received: 8/1/2019

Completed By:		Date & Time:	<u>8/1/19</u>	<u>2223</u>
Reviewed By:		Date & Time:	<u>08/1/19</u>	<u>2232</u>
Delivered By:		Date & Time:	<u>8/1/19</u>	<u>2241</u>



Project Information

Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**

Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: **llombardo@geiconsultants.com, bfmurdoch@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com**

Send EDD to: **EastRegionData@geiconsultants.com**

Preservative: **None** **None** **None** **None**

Page 1 of 4

Sample Handling

Samples Field Filtered: YES NO **NA**

Sampled/ Shipped With Ice: YES NO **YES**

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED **YES** **NO**

If Yes, Are MCP Analytical Methods Required? **YES** **NO** **NA**

Are Drinking Water Samples Submitted? **YES** **NO** **NA**

If Yes, Have Drinking Water Sampling Requirements Been Met? **YES** **NO** **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)							
		Date	Time														
—	1802441-EB-02	7/31/2019	0910	Aqueous	1	CWS											Equipment blank
1	1802441-FD-02	7/31/2019	1201	Soil	1	BRL	x										Field duplicate
2	1802441-FD-03	7/31/2019	1202	Soil	1	BRL	x										Field duplicate
3	1802441-FD-04	7/31/2019	1203	Soil	1	BRL	x										Field duplicate
4	1802441-BBerm-06N(0-1)	7/31/2019	0900	Soil	2	CWS	x										
5	1802441-MBerm-06N(4-5)	7/31/2019	0920	Soil	2	CWS	x	x	x								
6	1802441-BBerm-08N(0-1)	7/31/2019	1330	Soil	1	CWS	x										
7	1802441-MBerm-08N(5-6)	7/31/2019	1310	Soil	1	CWS	x										
8	1802441-BBerm-10W(0-1)	7/31/2019	1135	Soil	1	CWS	x										
9	1802441-MBerm-10W(5-6)	7/31/2019	1125	Soil	1	CWS	x										
10	1802441-BBerm-11W(0-1)	7/31/2019	1220	Soil	1	CWS	x										
11	1802441-MBerm-11W(5-6)	7/31/2019	1210	Soil	1	CWS	x										
12	1802441-TBerm-01(0-1)	7/31/2019	0740	Soil	1	BRL	x										

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	7/31/2019	1615	1. GEI Refrigerator
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
2. GEI Refrigerator	8/1/19	1230	<i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
3. <i>[Signature]</i>	8/1/19	1230	3. <i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
4. <i>[Signature]</i>	8/1/19	16:58	4. <i>[Signature]</i> 8/1/19 2140

Turnaround Time (Business days):

Normal X Other

10-Day 7-Day

5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Corrected by Brian Murdock 8/5/19 jjs 8/5/19

10temp: 31



Project Information

Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**

Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: **llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com**

Send EDD to: **EastRegionData@geiconsultants.com**

Page 1 of 4

Sample Handling

Samples Field Filtered: YES NO **NA**

Sampled/ Shipped With Ice: YES NO **NA**

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)						
		Date	Time													
—	1802441-EB-02	7/31/2019	0910	Aqueous	1	CWS										Equipment blank
1	1802441-FD-02	7/31/2019	1201	Soil	1	BRL	x									Field duplicate
2	1802441-FD-03	7/31/2019	1202	Soil	1	BRL	x									Field duplicate
3	1802441-FD-04	7/31/2019	1203	Soil	1	BRL	x									Field duplicate
4	1802441-BBerm-06N(0-1)	7/31/2019	0900	Soil	2	CWS	x	x	x							
5	1802441-MBerm-06N(4-5)	7/31/2019	0920	Soil	2	CWS	x	x	x							
6	1802441-BBerm-08N(0-1)	7/31/2019	1330	Soil	1	CWS	x									
7	1802441-MBerm-08N(5-6)	7/31/2019	1310	Soil	1	CWS	x									
8	1802441-BBerm-10W(0-1)	7/31/2019	1135	Soil	1	CWS	x									
9	1802441-MBerm-10W(5-6)	7/31/2019	1125	Soil	1	CWS	x									
10	1802441-BBerm-11W(0-1)	7/31/2019	1220	Soil	1	CWS	x									
11	1802441-MBerm-11W(5-6)	7/31/2019	1210	Soil	1	CWS	x									
12	1802441-TBerm-01(0-1)	7/31/2019	0740	Soil	1	BRL	x									

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal X Other

10-Day 7-Day

5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	7/31/2019	1615	1. GEI Refrigerator
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
2. GEI Refrigerator	8/1/19	1230	<i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
3. <i>[Signature]</i>	8/1/19	1230	3. <i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
4. <i>[Signature]</i>	8/1/19	16:58	4. <i>[Signature]</i> 8/1/19 2140

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

10temp: 31



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0016

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 3:16 pm, Aug 08, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

SAMPLE RECEIPT

The following samples were received on August 01, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0016-01	1802441-TBerm-01 3-4	Soil	8082A
19H0016-02	1802441-TBerm-02 0-1	Soil	8082A
19H0016-03	1802441-TBerm-02 3-4	Soil	8082A
19H0016-04	1802441-TBerm-03 0-1	Soil	8082A
19H0016-05	1802441-TBerm-03 3-4	Soil	8082A
19H0016-06	1802441-TBerm-04 0-1	Soil	8082A
19H0016-07	1802441-TBerm-04 3-4	Soil	8082A
19H0016-08	1802441-TBerm-05 0-1	Soil	8082A
19H0016-09	1802441-TBerm-05 3-4	Soil	8082A
19H0016-10	1802441-TBerm-06 0-1	Soil	8082A
19H0016-11	1802441-TBerm-06 3-4	Soil	8082A
19H0016-12	1802441-EW-07W 0-0.5	Soil	8082A
19H0016-13	1802441-EW-07W 1-2	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0016-01 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-01 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-03 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-07 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-08 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-09 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0016-10 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0016-10 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

19H0016-11 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)

19H0016-11 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0016-01 through 19H0016-13**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- | | | |
|---|--|---|
| A | Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| C | Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| D | Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| E | VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| F | Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- | | | |
|---|---|---|
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350. | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> * |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> * |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> * |

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 08, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-01 3-4
 Date Sampled: 07/31/19 07:45
 Percent Solids: 94
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
 ESS Laboratory Sample ID: 19H0016-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1221	ND (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1232	ND (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1242	ND (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1248	ND (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1254	22.8 (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1260	27.7 (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1262	ND (2.7)		8082A		50	08/07/19 12:26		CH90504
Aroclor 1268	ND (2.7)		8082A		50	08/07/19 12:26		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-02 0-1
 Date Sampled: 07/31/19 07:55
 Percent Solids: 91
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
 ESS Laboratory Sample ID: 19H0016-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1221	ND (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1232	ND (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1242	ND (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1248	ND (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1254 [2C]	24.7 (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1260	33.1 (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1262	ND (2.9)		8082A		50	08/07/19 12:45		CH90504
Aroclor 1268	ND (2.9)		8082A		50	08/07/19 12:45		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-02 3-4
 Date Sampled: 07/31/19 08:00
 Percent Solids: 90
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
 ESS Laboratory Sample ID: 19H0016-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1221	ND (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1232	ND (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1242	ND (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1248	ND (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1254 [2C]	16.3 (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1260	22.4 (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1262	ND (2.9)		8082A		50	08/07/19 13:04		CH90504
Aroclor 1268	ND (2.9)		8082A		50	08/07/19 13:04		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-03 0-1
Date Sampled: 07/31/19 08:20
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
ESS Laboratory Sample ID: 19H0016-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1221	ND (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1232	ND (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1242	ND (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1248	ND (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1254 [2C]	19.3 (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1260	24.9 (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1262	ND (2.9)		8082A		50	08/07/19 13:24		CH90504
Aroclor 1268	ND (2.9)		8082A		50	08/07/19 13:24		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-03 3-4
 Date Sampled: 07/31/19 08:40
 Percent Solids: 90
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
 ESS Laboratory Sample ID: 19H0016-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1221	ND (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1232	ND (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1242	ND (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1248	ND (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1254 [2C]	9.3 (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1260	10.8 (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1262	ND (1.1)		8082A		20	08/07/19 13:43		CH90504
Aroclor 1268	ND (1.1)		8082A		20	08/07/19 13:43		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-04 0-1
 Date Sampled: 07/31/19 09:15
 Percent Solids: 92
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
 ESS Laboratory Sample ID: 19H0016-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1221	ND (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1232	ND (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1242	ND (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1248	ND (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1254 [2C]	25.3 (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1260	33.9 (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1262	ND (2.8)		8082A		50	08/07/19 14:02		CH90504
Aroclor 1268	ND (2.8)		8082A		50	08/07/19 14:02		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-04 3-4
Date Sampled: 07/31/19 09:55
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
ESS Laboratory Sample ID: 19H0016-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1221	ND (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1232	ND (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1242	ND (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1248	ND (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1254 [2C]	36.4 (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1260	52.7 (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1262	ND (5.6)		8082A		100	08/07/19 14:21		CH90504
Aroclor 1268	ND (5.6)		8082A		100	08/07/19 14:21		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-05 0-1
Date Sampled: 07/31/19 10:00
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
ESS Laboratory Sample ID: 19H0016-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1221	ND (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1232	ND (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1242	ND (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1248	ND (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1254 [2C]	46.9 (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1260	75.4 (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1262	ND (5.7)		8082A		100	08/07/19 14:41		CH90504
Aroclor 1268	ND (5.7)		8082A		100	08/07/19 14:41		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-05 3-4
 Date Sampled: 07/31/19 10:15
 Percent Solids: 90
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
 ESS Laboratory Sample ID: 19H0016-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1221	ND (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1232	ND (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1242	ND (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1248	ND (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1254 [2C]	50.2 (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1260	67.6 (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1262	ND (5.8)		8082A		100	08/07/19 15:00		CH90504
Aroclor 1268	ND (5.8)		8082A		100	08/07/19 15:00		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-06 0-1
Date Sampled: 07/31/19 10:40
Percent Solids: 92
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
ESS Laboratory Sample ID: 19H0016-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1221	ND (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1232	ND (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1242	ND (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1248	ND (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1254 [2C]	30.6 (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1260	40.1 (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1262	ND (2.7)		8082A		50	08/07/19 15:19		CH90504
Aroclor 1268	ND (2.7)		8082A		50	08/07/19 15:19		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-06 3-4
Date Sampled: 07/31/19 11:00
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
ESS Laboratory Sample ID: 19H0016-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1221	ND (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1232	ND (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1242	ND (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1248	ND (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1254 [2C]	26.9 (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1260	32.2 (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1262	ND (2.9)		8082A		50	08/07/19 15:38		CH90504
Aroclor 1268	ND (2.9)		8082A		50	08/07/19 15:38		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07W 0-0.5
Date Sampled: 07/31/19 14:45
Percent Solids: 98
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
ESS Laboratory Sample ID: 19H0016-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1260 [2C]	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 23:17		CH90504
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 23:17		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	68 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07W 1-2
Date Sampled: 07/31/19 14:50
Percent Solids: 97
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0016
ESS Laboratory Sample ID: 19H0016-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:43

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1260	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 23:36		CH90504
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 23:36		CH90504

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	73 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	90 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90504 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0222		mg/kg wet	0.02500		89	30-150			
Surrogate: Tetrachloro-m-xylene	0.0161		mg/kg wet	0.02500		64	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0206		mg/kg wet	0.02500		82	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			

Surrogate: Decachlorobiphenyl	0.0237		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0260		mg/kg wet	0.02500		104	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0221		mg/kg wet	0.02500		88	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		92	40-140	0.9	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140	0.8	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140	0.8	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	

Surrogate: Decachlorobiphenyl	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0253		mg/kg wet	0.02500		101	30-150			
Surrogate: Tetrachloro-m-xylene	0.0198		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0219		mg/kg wet	0.02500		88	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0016

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0016
 Date Received: 8/1/2019
 Project Due Date: 8/8/2019
 Days for Project: 5 Day

- 1. Air bill manifest present? No
 Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
 Temp: 3.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372289	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	372288	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	372287	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	372286	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372285	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	372284	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372283	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	372282	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	372281	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	372280	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	372279	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	372278	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	372277	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Were all containers scanned into storage/lab? Initials M
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist


Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0016

Date Received: 8/1/2019

Completed By:  Date & Time: 8/1/19 2226

Reviewed By:  Date & Time: 08/1/19 2233

Delivered By:  Date & Time: 8/1/19 2241



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation **Project Location:** Lawrence, MA

Project Number: 1802441 **Project Manager:** L. Lombardo

Send Report to: llombardo@geiconsultants.com,
 bfongmurdock@geiconsultants.com,
 csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Sample Handling

Filtered YES NO NA

Sampled Shipped With Ice YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8062)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (8010, 7471, HgJg)	PCBs (aqueous)							
		Date	Time														
1	1802441-TBerm-01(3-4)	7/31/2019	0745	Soil	1	BRL	x										
2	1802441-TBerm-02(0-1)	7/31/2019	0755	Soil	1	BRL	x										
3	1802441-TBerm-02(3-4)	7/31/2019	0800	Soil	1	BRL	x										
4	1802441-TBerm-03(0-1)	7/31/2019	0820	Soil	2	BRL	x										
5	1802441-TBerm-03(3-4)	7/31/2019	0840	Soil	2	BRL	x										
6	1802441-TBerm-04(0-1)	7/31/2019	0915	Soil	1	BRL	x										
7	1802441-TBerm-04(3-4)	7/31/2019	0955	Soil	1	BRL	x										
8	1802441-TBerm-05(0-1)	7/31/2019	1000	Soil	1	BRL	x										
9	1802441-TBerm-05(3-4)	7/31/2019	1015	Soil	1	BRL	x										
10	1802441-TBerm-06(0-1)	7/31/2019	1040	Soil	2	BRL	x										
11	1802441-TBerm-06(3-4)	7/31/2019	1100	Soil	2	BRL	x										
12	1802441-EW-07W(0-0.5)	7/31/2019	1445	Soil	1	BRL	x										
13	1802441-EW-07W(1-2)	7/31/2019	1450	Soil	1	BRL	x										

PCBs (8062)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (8010, 7471, HgJg)	PCBs (aqueous)														
-------------	------------------------------	--	----------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
	7/31/2019	1615	1. GEI Refrigerator
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
2. GEI Refrigerator	8/1/19	1230	2.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
3.	8/1/19	1230	3.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
4.	8/1/19	16:53	4. 8/1/19 2140

Turnaround Time (Business days):

Normal **X** Other

10-Day 7-Day

5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

100 temp, 3.1



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0017

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 3:32 pm, Aug 08, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0017

SAMPLE RECEIPT

The following samples were received on August 01, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0017-01	1802441-EW-07W 2-3	Soil	8082A
19H0017-02	1802441-EW-07 2-3	Soil	8082A
19H0017-03	1802441-EW-06 2-3	Soil	8082A
19H0017-04	1802441-EW-07E 0-0.5	Soil	8082A
19H0017-05	1802441-EW-07E 1-2	Soil	8082A
19H0017-06	1802441-EW-07E 2-3	Soil	8082A
19H0017-07	1802441-EW-07S 0-0.5	Soil	8082A
19H0017-08	1802441-EW-07S 1-2	Soil	8082A
19H0017-09	1802441-EW-07S 2-3	Soil	8082A
19H0017-10	1802441-EW-06E 0-0.5	Soil	8082A
19H0017-11	1802441-EW-06E 1-2	Soil	8082A
19H0017-12	1802441-EW-06E 2-3	Soil	8082A
19H0017-13	1802441-EW-06N 0-0.5	Soil	8082A
19H0017-14	1802441-EW-06N 1-2	Soil	8082A
19H0017-15	1802441-EW-06N 2-3	Soil	8082A
19H0017-16	1802441-WW-06N 0-0.5	Soil	8082A
19H0017-17	1802441-WW-06N 1-2	Soil	8082A
19H0017-18	1802441-WW-06N 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0017

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

19H0017-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
19H0017-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
19H0017-07 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
19H0017-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0017

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0017

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0017-01 through 19H0017-18**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
 b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
 Printed Name: Laurel Stoddard

Date: August 08, 2019
 Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07W 2-3
Date Sampled: 07/31/19 14:45
Percent Solids: 96
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1260	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 19:44		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 19:44		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	84 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07 2-3
Date Sampled: 07/31/19 14:30
Percent Solids: 70
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1221	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1232	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1242	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1248	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1254	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1260	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1262	ND (0.07)		8082A		1	08/06/19 20:03		CH90505
Aroclor 1268	ND (0.07)		8082A		1	08/06/19 20:03		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	83 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	81 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	82 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	73 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-06 2-3
Date Sampled: 07/31/19 14:17
Percent Solids: 76
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1221	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1232	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1242	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1248	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1254	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1260	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1262	ND (0.07)		8082A		1	08/06/19 20:23		CH90505
Aroclor 1268	ND (0.07)		8082A		1	08/06/19 20:23		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	93 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	94 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	83 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-EW-07E 0-0.5
 Date Sampled: 07/31/19 13:20
 Percent Solids: 97
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
 ESS Laboratory Sample ID: 19H0017-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1260	0.09 (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 20:42		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 20:42		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	88 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	91 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	83 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07E 1-2
Date Sampled: 07/31/19 13:25
Percent Solids: 96
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1221	ND (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1232	ND (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1242	ND (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1248	ND (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1254	ND (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1260	42.3 (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1262	ND (2.6)		8082A		50	08/07/19 16:04		CH90505
Aroclor 1268	ND (2.6)		8082A		50	08/07/19 16:04		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07E 2-3
Date Sampled: 07/31/19 13:30
Percent Solids: 75
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1221	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1232	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1242	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1248	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1254	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1260	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1262	ND (0.07)		8082A		1	08/06/19 21:20		CH90505
Aroclor 1268	ND (0.07)		8082A		1	08/06/19 21:20		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	77 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	73 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	90 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07S 0-0.5
Date Sampled: 07/31/19 13:00
Percent Solids: 91
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1221	ND (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1232	ND (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1242	ND (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1248	ND (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1254	ND (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1260	294 (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1262	ND (28.1)		8082A		500	08/07/19 16:24		CH90505
Aroclor 1268	ND (28.1)		8082A		500	08/07/19 16:24		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07S 1-2
Date Sampled: 07/31/19 13:05
Percent Solids: 72
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1221	ND (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1232	ND (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1242	ND (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1248	ND (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1254	ND (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1260	0.1 (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1262	ND (0.07)		8082A		1	08/06/19 21:59		CH90505
Aroclor 1268	ND (0.07)		8082A		1	08/06/19 21:59		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	49 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	45 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	65 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-EW-07S 2-3
 Date Sampled: 07/31/19 13:10
 Percent Solids: 60
 Initial Volume: 20
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
 ESS Laboratory Sample ID: 19H0017-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1221	ND (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1232	ND (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1242	ND (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1248	ND (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1254	ND (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1260	0.3 (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1262	ND (0.08)		8082A		1	08/06/19 22:18		CH90505
Aroclor 1268	ND (0.08)		8082A		1	08/06/19 22:18		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	64 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	66 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	59 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-06E 0-0.5
Date Sampled: 07/31/19 13:50
Percent Solids: 98
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1260	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 22:37		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 22:37		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	75 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-06E 1-2
Date Sampled: 07/31/19 13:55
Percent Solids: 97
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1260	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 22:56		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 22:56		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	72 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-06E 2-3
Date Sampled: 07/31/19 14:00
Percent Solids: 76
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1221	ND (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1232	ND (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1242	ND (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1248	ND (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1254	ND (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1260	0.2 (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1262	ND (0.07)		8082A		1	08/06/19 23:15		CH90505
Aroclor 1268	ND (0.07)		8082A		1	08/06/19 23:15		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	77 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	78 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-06N 0-0.5
Date Sampled: 07/31/19 12:30
Percent Solids: 97
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1260	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 23:34		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 23:34		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	82 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	78 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	80 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-06N 1-2
Date Sampled: 07/31/19 12:35
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1260	0.08 (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/06/19 23:54		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/06/19 23:54		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	83 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	83 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	87 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-06N 2-3
Date Sampled: 07/31/19 12:40
Percent Solids: 70
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1221	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1232	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1242	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1248	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1254	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1260	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1262	ND (0.07)		8082A		1	08/07/19 0:13		CH90505
Aroclor 1268	ND (0.07)		8082A		1	08/07/19 0:13		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	85 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06N 0-0.5
Date Sampled: 07/31/19 11:50
Percent Solids: 97
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1260	0.06 (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/07/19 0:32		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/07/19 0:32		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	86 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	91 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	81 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06N 1-2
Date Sampled: 07/31/19 11:55
Percent Solids: 97
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1221	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1232	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1242	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1248	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1254	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1260	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1262	ND (0.05)		8082A		1	08/07/19 0:51		CH90505
Aroclor 1268	ND (0.05)		8082A		1	08/07/19 0:51		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	81 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	83 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06N 2-3
Date Sampled: 07/31/19 12:00
Percent Solids: 75
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0017
ESS Laboratory Sample ID: 19H0017-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/5/19 15:48

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1221	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1232	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1242	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1248	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1254	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1260	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1262	ND (0.07)		8082A		1	08/07/19 3:05		CH90505
Aroclor 1268	ND (0.07)		8082A		1	08/07/19 3:05		CH90505

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	89 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	91 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	78 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0017

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90505 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0235		mg/kg wet	0.02500		94	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0238		mg/kg wet	0.02500		95	30-150			
Surrogate: Tetrachloro-m-xylene	0.0186		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0193		mg/kg wet	0.02500		77	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			

Surrogate: Decachlorobiphenyl	0.0241		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0239		mg/kg wet	0.02500		95	30-150			
Surrogate: Tetrachloro-m-xylene	0.0201		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0203		mg/kg wet	0.02500		81	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0246		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0242		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0208		mg/kg wet	0.02500		83	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0017

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0017

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0017
 Date Received: 8/1/2019
 Project Due Date: 8/8/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 3.1 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

COC = sample 1 collected 1445 ; cap & label = collected 1455

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372307	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	372306	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	372305	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	372304	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372303	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	372302	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372301	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	372300	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	372299	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	372298	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	372297	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	372296	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	372295	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	372294	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	372293	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	372292	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	372291	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	372290	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
 Were all containers scanned into storage/lab? Initials JA
 Are barcode labels on correct containers? Yes / No

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0017
Date Received: 8/1/2019

- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

Yes / No / NA
Yes / No / NA
Yes / No / NA
Yes / No / NA

Completed By: [Signature] Date & Time: 8/1/19 2230
Reviewed By: [Signature] Date & Time: 08/1/19 2236
Delivered By: [Signature] 8/1/19 2242



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfangmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Sample Handling

Sample Filtered YES NO NA
 Sampled Shipped With Ice YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target: PAHs (MAEPH)	RCRA 6 Metals plus Zinc (6010, 7471 Hg10)	PCBs (aqueous)									
		Date	Time																
1	1802441-EW-07W(2-3)	7/31/2019	1445	Soil	1	BRL	x												
2	1802441-EW-07(2-3)	7/31/2019	1430	Soil	1	BRL	x												
3	1802441-EW-06(2-3)	7/31/2019	1417	Soil	1	BRL	x												
4	1802441-EW-07E(0-0.5)	7/31/2019	1320	Soil	1	BRL	x												
5	1802441-EW-07E(1-2)	7/31/2019	1325	Soil	1	BRL	x												
6	1802441-EW-07E(2-3)	7/31/2019	1330	Soil	1	BRL	x												
7	1802441-EW-07S(0-0.5)	7/31/2019	1300	Soil	1	BRL	x												
8	1802441-EW-07S(1-2)	7/31/2019	1305	Soil	1	BRL	x												
9	1802441-EW-07S(2-3)	7/31/2019	1310	Soil	1	BRL	x												
10	1802441-EW-06E(0-0.5)	7/31/2019	1350	Soil	1	BRL	x												
11	1802441-EW-06E(1-2)	7/31/2019	1355	Soil	1	BRL	x												
12	1802441-EW-06E(2-3)	7/31/2019	1400	Soil	1	BRL	x												
13	1802441-EW-06N(0-0.5)	7/31/2019	1230	Soil	1	BRL	x												

PCBs (8082)	EPH with Target: PAHs (MAEPH)	RCRA 6 Metals plus Zinc (6010, 7471 Hg10)	PCBs (aqueous)																
x																			
x																			
x																			
x																			
x																			
x																			
x																			
x																			
x																			
x																			
x																			
x																			
x																			

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days): Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Normal 10-Day 5-Day
 Other 7-Day 3-Day

Additional Requirements/Comments/Remarks:

Relinquished by: (signature)	Date: 7/31/2019	Time: 1615	Received by: (signature)
1. GEI Refrigerator			1. GEI Refrigerator
Relinquished by: (signature)	Date: 8/1/19	Time: 1230	Received by: (signature)
2. GEI Refrigerator			2. GEI Refrigerator
Relinquished by: (signature)	Date: 8/1/19	Time: 1230	Received by: (signature)
3. GEI Refrigerator			3. GEI Refrigerator
Relinquished by: (signature)	Date: 8/1/19	Time: 16:53	Received by: (signature)
4. GEI Refrigerator			4. GEI Refrigerator 8/1/19 2140

Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

ice temp: 3.1

Chain-of-Custody Record



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Laboratory: **ESS** Laboratory Job # **19H0017**
(Lab use only)

Project Information
Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**
Project Number: **1802441** Project Manager: **L. Lombardo**

Page 4 of 4

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
Send EDD to: EastRegionData@geiconsultants.com

Preservative					
None	None	None	None		

Sample Handling
Samples Field Filtered

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
Are Drinking Water Samples Submitted? YES NO NA
If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

YES NO NA
Sampled Shipped With Ice
YES NO NA
Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, HgD)	PCBs (aqueous)					
		Date	Time												
14	1802441-EW-06N(1-2)	7/31/2019	1235	Soil	1	BRL	x								
15	1802441-EW-06N(2-3)	7/31/2019	1240	Soil	1	BRL	x								
16	1802441-WW-06N(0-0.5)	7/31/2019	1150	Soil	1	BRL	x								
17	1802441-WW-06N(1-2)	7/31/2019	1155	Soil	1	BRL	x								
18	1802441-WW-06N(2-3)	7/31/2019	1200	Soil	1	BRL	x								

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
Normal Other ___
10-Day ___ 7-Day ___
5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by sampler: (signature)	Date: 7/31/2019	Time: 1615	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 8/1/19	Time: 1230	Received by: (signature) 2.
Relinquished by: (signature) 3.	Date: 8/1/19	Time: 1230	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date: 8/1/19	Time: 16:53	Received by: (signature) 4. 8/1/19 2140

Additional Requirements/Comments/Remarks:
Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

ice temp: 3.1



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0035

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 2:48 pm, Aug 08, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0035

SAMPLE RECEIPT

The following samples were received on August 01, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0035-01	1802441-EB-02	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0035

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0035

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0035

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0035-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 08, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-02
Date Sampled: 07/31/19 09:10
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19H0035
ESS Laboratory Sample ID: 19H0035-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 8/2/19 10:35

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1221	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1232	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1242	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1248	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1254	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1260	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1262	ND (0.09)		8082A		1	08/02/19 12:04		CH90113
Aroclor 1268	ND (0.09)		8082A		1	08/02/19 12:04		CH90113

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	60 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	67 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0035

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90113 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

Surrogate: Decachlorobiphenyl	0.0307		ug/L	0.05000		61	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0273		ug/L	0.05000		55	30-150			
Surrogate: Tetrachloro-m-xylene	0.0264		ug/L	0.05000		53	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0271		ug/L	0.05000		54	30-150			

LCS

Aroclor 1016	0.87	0.10	ug/L	1.000		87	40-140			
Aroclor 1016 [2C]	0.87	0.10	ug/L	1.000		87	40-140			
Aroclor 1260	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260 [2C]	0.90	0.10	ug/L	1.000		90	40-140			

Surrogate: Decachlorobiphenyl	0.0461		ug/L	0.05000		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0418		ug/L	0.05000		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0290		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0306		ug/L	0.05000		61	30-150			

LCS Dup

Aroclor 1016	0.82	0.10	ug/L	1.000		82	40-140	6	20	
Aroclor 1016 [2C]	0.80	0.10	ug/L	1.000		80	40-140	9	20	
Aroclor 1260	0.86	0.10	ug/L	1.000		86	40-140	8	20	
Aroclor 1260 [2C]	0.83	0.10	ug/L	1.000		83	40-140	9	20	

Surrogate: Decachlorobiphenyl	0.0398		ug/L	0.05000		80	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0362		ug/L	0.05000		72	30-150			
Surrogate: Tetrachloro-m-xylene	0.0260		ug/L	0.05000		52	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0279		ug/L	0.05000		56	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0035

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0035

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0035

Date Received: 8/1/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/8/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372373	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Initials WA
- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/1/19 2148
 Reviewed By: [Signature] Date & Time: 8/1/19 2237
 Delivered By: [Signature] Date & Time: 8/1/19 2240



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information
 Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA** Page 1 of 4

Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaedas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Preservative					
None	None	None	None		

Sample Handling
 Samples Field Filtered
 YES NO **NA**

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)		
			X		

Sampled Shipped With Ice
 YES NO

Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)					
		Date	Time												
1	1802441-EB-02	7/31/2019	0910	Aqueous	1	CWS				X					Equipment blank
	1802441-FD-02	7/31/2019	1201	Soil	1	BRL	X								Field duplicate
	1802441-FD-03	7/31/2019	1202	Soil	1	BRL	X								Field duplicate
	1802441-FD-04	7/31/2019	1203	Soil	1	BRL	X								Field duplicate
	1802441-BBerm-06N(0-1)	7/31/2019	0900	Soil	2	CWS	X								
	1802441-MBerm-06N(4-5)	7/31/2019	0920	Soil	2	CWS	X	X	X						
	1802441-BBerm-08N(0-1)	7/31/2019	1330	Soil	1	CWS	X								
	1802441-MBerm-08N(5-6)	7/31/2019	1310	Soil	1	CWS	X								
	1802441-BBerm-10W(0-1)	7/31/2019	1135	Soil	1	CWS	X								
	1802441-MBerm-10W(5-6)	7/31/2019	1125	Soil	1	CWS	X								
	1802441-BBerm-11W(0-1)	7/31/2019	1220	Soil	1	CWS	X								
	1802441-MBerm-11W(5-6)	7/31/2019	1210	Soil	1	CWS	X								
	1802441-TBerm-01(0-1)	7/31/2019	0740	Soil	1	BRL	X								

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal 10-Day 7-Day 5-Day 3-Day
 Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	7/31/2019	1615	1. GEI Refrigerator
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	8/1/19	1230	2. <i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	8/1/19	1230	3. <i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	8/1/19	16:58	4. <i>[Signature]</i> 8/1/19 240

100temp: 31



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0072

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 5:01 pm, Aug 13, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

SAMPLE RECEIPT

The following samples were received on August 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
19H0072-01	1802441-FD-05	Soil	8082A
19H0072-02	1802441-FD-06	Soil	6010C, 6020A, 7471B, EPH8270, MADEP-EPH
19H0072-03	1802441-FD-07	Soil	8082A
19H0072-04	1802441-FD-08	Soil	8082A
19H0072-05	1802441-TBerm-07 0-1	Soil	8082A
19H0072-06	1802441-TBerm-07 3-4	Soil	8082A
19H0072-07	1802441-TBerm-08 0-1	Soil	8082A
19H0072-08	1802441-TBerm-08 3-4	Soil	8082A
19H0072-09	1802441-TBerm-09 0-1	Soil	8082A
19H0072-10	1802441-TBerm-09 3-4	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0072-01 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (463% @ 30-150%), Decachlorobiphenyl [2C] (511% @ 30-150%)
- 19H0072-03 [Surrogate recovery\(ies\) below lower control limit \(S-\).](#)
Decachlorobiphenyl (29% @ 30-150%)
- 19H0072-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0072-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0072-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0072-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0072-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0072-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0072-07 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0072-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0072-08 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0072-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0072-09 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19H0072-09 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19H0072-09 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (424% @ 30-150%), Decachlorobiphenyl [2C] (473% @ 30-150%)
- 19H0072-10 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0072-10 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- 19H0072-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0072-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
1-Chlorooctadecane (% @ 40-140%)
- C9H0160-CCV2 [Continuing Calibration %Diff/Drift is above control limit \(CD+\).](#)
Benzo(a)pyrene (22% @ 20%), Indeno(1,2,3-cd)Pyrene (24% @ 20%)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

C9H0220-CCV6 **Continuing Calibration %Diff/Drift is above control limit (CD+).**

Benzo(a)anthracene (24% @ 20%), Benzo(g,h,i)perylene (24% @ 20%), Indeno(1,2,3-cd)Pyrene (24% @ 20%)

Total Metals

19H0072-02

Elevated Method Reporting Limits due to sample matrix (EL).

Arsenic

CH90760-SRM2

Standard Reference Material is biased low (R-).

Silver (28% @ 70-130%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0072-01 through 19H0072-10**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 13, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-05
Date Sampled: 08/01/19 12:00
Percent Solids: 82
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
ESS Laboratory Sample ID: 19H0072-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/7/19 17:13

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1242	0.4 (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1254 [2C]	0.2 (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1260 [2C]	0.3 (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 0:07		CH90715
Aroclor 1268 [2C]	0.3 (0.06)		8082A		1	08/09/19 0:07		CH90715

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	463 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	511 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-06
Date Sampled: 08/01/19 12:01
Percent Solids: 84

ESS Laboratory Work Order: 19H0072
ESS Laboratory Sample ID: 19H0072-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	EL ND (8.05)		6010C		3	BJV	08/09/19 15:37	2.23	100	CH90760
Barium	276 (2.68)		6010C		1	KJK	08/09/19 5:24	2.23	100	CH90760
Cadmium	10.8 (0.54)		6010C		1	KJK	08/09/19 5:24	2.23	100	CH90760
Chromium	633 (1.07)		6010C		1	KJK	08/09/19 5:24	2.23	100	CH90760
Lead	902 (5.37)		6010C		1	KJK	08/09/19 5:24	2.23	100	CH90760
Mercury	2.99 (0.658)		7471B		25	MKS	08/08/19 15:18	0.9	40	CH90761
Selenium	0.98 (0.54)		6020A		1	NAR	08/12/19 12:38	2.23	100	CH90760
Silver	3.01 (0.54)		6010C		1	KJK	08/09/19 5:24	2.23	100	CH90760
Zinc	2190 (8.05)		6010C		3	BJV	08/09/19 15:37	2.23	100	CH90760



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-06
Date Sampled: 08/01/19 12:01
Percent Solids: 84
Initial Volume: 24.8
Final Volume: 10
Extraction Method: 3546

ESS Laboratory Work Order: 19H0072
ESS Laboratory Sample ID: 19H0072-02
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/5/19 18:45

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (181)		MADEP-EPH		1	CAD	08/07/19 18:01	C9H0125	CH90566
C19-C36 Aliphatics1	485 (181)		MADEP-EPH		1	CAD	08/07/19 18:01	C9H0125	CH90566
C11-C22 Unadjusted Aromatics1	285 (181)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
C11-C22 Aromatics1,2	205 (181)		EPH8270			VSC	08/11/19 6:41		[CALC]
2-Methylnaphthalene	3.30 (2.41)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Acenaphthene	6.71 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Naphthalene	9.26 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Phenanthrene	15.5 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Acenaphthylene	ND (0.84)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Anthracene	ND (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Benzo(a)anthracene	5.92 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Benzo(a)pyrene	5.66 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Benzo(b)fluoranthene	ND (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Benzo(g,h,i)perylene	ND (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Benzo(k)fluoranthene	ND (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Chrysene	6.13 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Dibenzo(a,h)Anthracene	0.99 (0.84)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Fluoranthene	14.2 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Fluorene	ND (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Indeno(1,2,3-cd)Pyrene	ND (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566
Pyrene	12.3 (4.83)		EPH8270		1	VSC	08/11/19 6:41	C9H0220	CH90566

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	%	SD	40-140
<i>Surrogate: 2-Bromonaphthalene</i>	98 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	97 %		40-140
<i>Surrogate: O-Terphenyl</i>	84 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-07
Date Sampled: 08/01/19 12:08
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
ESS Laboratory Sample ID: 19H0072-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 14:21		CH90807
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 14:21		CH90807

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	29 %	S-	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	39 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	31 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	32 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-08
Date Sampled: 08/01/19 12:04
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
ESS Laboratory Sample ID: 19H0072-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/7/19 17:13

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1221	ND (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1232	ND (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1242	ND (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1248	ND (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1254 [2C]	29.2 (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1260 [2C]	31.8 (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1262	ND (2.9)		8082A		50	08/09/19 10:58		CH90715
Aroclor 1268	ND (2.9)		8082A		50	08/09/19 10:58		CH90715

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-07 0-1
 Date Sampled: 08/01/19 08:15
 Percent Solids: 95
 Initial Volume: 19.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
 ESS Laboratory Sample ID: 19H0072-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/7/19 17:13

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1221	ND (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1232	ND (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1242	ND (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1248	ND (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1254 [2C]	7.8 (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1260	10.9 (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1262	ND (1.1)		8082A		20	08/09/19 11:15		CH90715
Aroclor 1268	ND (1.1)		8082A		20	08/09/19 11:15		CH90715

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-07 3-4
 Date Sampled: 08/01/19 08:20
 Percent Solids: 93
 Initial Volume: 20
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
 ESS Laboratory Sample ID: 19H0072-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/7/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1221	ND (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1232	ND (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1242	ND (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1248	ND (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1254 [2C]	28.0 (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1260	37.7 (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1262	ND (2.7)		8082A		50	08/09/19 11:11		CH90716
Aroclor 1268	ND (2.7)		8082A		50	08/09/19 11:11		CH90716

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-08 0-1
 Date Sampled: 08/01/19 08:00
 Percent Solids: 86
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
 ESS Laboratory Sample ID: 19H0072-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/7/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1221	ND (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1232	ND (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1242	ND (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1248	ND (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1254 [2C]	7.6 (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1260	11.6 (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1262	ND (1.2)		8082A		20	08/09/19 11:28		CH90716
Aroclor 1268	ND (1.2)		8082A		20	08/09/19 11:28		CH90716

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-08 3-4
 Date Sampled: 08/01/19 08:05
 Percent Solids: 91
 Initial Volume: 19.4
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
 ESS Laboratory Sample ID: 19H0072-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/7/19 17:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1221	ND (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1232	ND (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1242	ND (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1248	ND (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1254 [2C]	17.0 (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1260	26.5 (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1262	ND (2.8)		8082A		50	08/09/19 11:48		CH90716
Aroclor 1268	ND (2.8)		8082A		50	08/09/19 11:48		CH90716

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-09 0-1
Date Sampled: 08/01/19 09:25
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
ESS Laboratory Sample ID: 19H0072-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 12:50		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 12:50		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 12:50		CH90805
Aroclor 1242 [2C]	P, LC 3.4 (0.6)		8082A		10	08/11/19 20:12		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 12:50		CH90805
Aroclor 1254 [2C]	3.1 (0.6)		8082A		10	08/11/19 20:12		CH90805
Aroclor 1260	2.2 (0.6)		8082A		10	08/11/19 20:12		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 12:50		CH90805
Aroclor 1268 [2C]	0.6 (0.06)		8082A		1	08/09/19 12:50		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	424 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	473 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	56 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-09 3-4
 Date Sampled: 08/01/19 09:30
 Percent Solids: 93
 Initial Volume: 20.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0072
 ESS Laboratory Sample ID: 19H0072-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1221	ND (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1232	ND (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1242	20.4 (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1248	ND (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1254 [2C]	15.1 (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1260	4.0 (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1262	ND (2.7)		8082A		50	08/11/19 20:31		CH90805
Aroclor 1268	ND (2.7)		8082A		50	08/11/19 20:31		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH90760 - 3050B

Blank

Arsenic	ND	2.50	mg/kg wet
Barium	ND	2.50	mg/kg wet
Cadmium	ND	0.50	mg/kg wet
Chromium	ND	1.00	mg/kg wet
Lead	ND	5.00	mg/kg wet
Selenium	ND	0.50	mg/kg wet
Silver	ND	0.50	mg/kg wet
Zinc	ND	2.50	mg/kg wet

LCS

Arsenic	108	8.93	mg/kg wet	128.0	84	80-120
Barium	511	8.93	mg/kg wet	536.0	95	80-120
Cadmium	84.6	1.79	mg/kg wet	99.00	85	80-120
Chromium	107	3.57	mg/kg wet	116.0	92	80-120
Lead	276	17.9	mg/kg wet	277.0	99	80-120
Selenium	248	8.93	mg/kg wet	242.0	102	80-120
Silver	61.4	1.79	mg/kg wet	64.30	96	80-120
Zinc	532	8.93	mg/kg wet	561.0	95	80-120

LCS Dup

Arsenic	105	9.09	mg/kg wet	128.0	82	80-120	2	20
Barium	476	9.09	mg/kg wet	536.0	89	80-120	7	20
Cadmium	81.1	1.82	mg/kg wet	99.00	82	80-120	4	20
Chromium	103	3.64	mg/kg wet	116.0	88	80-120	4	20
Lead	262	18.2	mg/kg wet	277.0	94	80-120	5	20
Selenium	251	9.09	mg/kg wet	242.0	104	80-120	1	30
Silver	58.9	1.82	mg/kg wet	64.30	92	80-120	4	20
Zinc	509	9.09	mg/kg wet	561.0	91	80-120	5	20

Reference

Lead	ND	38.5	mg/kg wet	4490	0	83-113
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Reference

Barium	494	8.62	mg/kg wet	500.0	99	70-130	
Cadmium	423	1.72	mg/kg wet	500.0	85	70-130	
Chromium	489	3.45	mg/kg wet	500.0	98	70-130	
Lead	501	17.2	mg/kg wet	500.0	100	70-130	
Silver	142	1.72	mg/kg wet	500.0	28	70-130	R-

Batch CH90761 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS

Mercury	23.8	3.54	mg/kg wet	27.30	87	80-120
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LCS Dup

Mercury	23.5	3.81	mg/kg wet	27.30	86	80-120	2	20
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Reference



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH90761 - 7471B

Mercury	0.937	0.168	mg/kg wet	1000		0.09	0-200			
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90715 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0243		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0204		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			

Surrogate: Decachlorobiphenyl	0.0246		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0246		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0203		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0202		mg/kg wet	0.02500		81	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0233		mg/kg wet	0.02500		93	30-150			
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CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90715 - 3540C

Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0201		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0201		mg/kg wet	0.02500		81	30-150			

Batch CH90716 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0242		mg/kg wet	0.02500		97	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0248		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0181		mg/kg wet	0.02500		72	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		107	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			

Surrogate: Decachlorobiphenyl	0.0251		mg/kg wet	0.02500		100	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0261		mg/kg wet	0.02500		105	30-150			
Surrogate: Tetrachloro-m-xylene	0.0199		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0221		mg/kg wet	0.02500		88	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140	7	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	6	30	

Surrogate: Decachlorobiphenyl	0.0240		mg/kg wet	0.02500		96	30-150			
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CERTIFICATE OF ANALYSIS

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Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90716 - 3540C

Surrogate: Decachlorobiphenyl [2C]	0.0250		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0209		mg/kg wet	0.02500		84	30-150			

Batch CH90805 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0222		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		92	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0241		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140	3	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		119	40-140	13	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0240		mg/kg wet	0.02500		96	30-150			
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CERTIFICATE OF ANALYSIS

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Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Quality Control Data

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8082A Polychlorinated Biphenyls (PCB)

Batch CH90805 - 3540C

Surrogate: Decachlorobiphenyl [2C]	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0219		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0220		mg/kg wet	0.02500		88	30-150			

Batch CH90807 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0188		mg/kg wet	0.02500		75	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene	0.0171		mg/kg wet	0.02500		68	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0208		mg/kg wet	0.02500		83	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		85	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		85	40-140			

Surrogate: Decachlorobiphenyl	0.0200		mg/kg wet	0.02500		80	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0216		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0179		mg/kg wet	0.02500		72	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0203		mg/kg wet	0.02500		81	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		87	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140	3	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0207		mg/kg wet	0.02500		83	30-150			
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CERTIFICATE OF ANALYSIS

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Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90807 - 3540C

Surrogate: Decachlorobiphenyl [2C]	0.0225		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene	0.0182		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0207		mg/kg wet	0.02500		83	30-150			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90566 - 3546

Blank

C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							

Surrogate: 1-Chlorooctadecane	1.74		mg/kg wet	2.020		86	40-140			
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Blank

2-Methylnaphthalene	ND	0.05	mg/kg wet							
Acenaphthene	ND	0.40	mg/kg wet							
Acenaphthylene	ND	0.07	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.07	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.05	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.07	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							



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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90566 - 3546

<i>Surrogate: 2-Bromonaphthalene</i>	43.6		mg/L	50.00		87	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	39.1		mg/L	50.00		78	40-140			
<i>Surrogate: O-Terphenyl</i>	1.62		mg/kg wet	2.008		81	40-140			

LCS

C19-C36 Aliphatics1	13.7	15.0	mg/kg wet	16.00		86	40-140			
C9-C18 Aliphatics1	8.0	15.0	mg/kg wet	12.00		66	40-140			
Decane (C10)	0.9	0.5	mg/kg wet	2.000		45	40-140			
Docosane (C22)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Dodecane (C12)	1.0	0.5	mg/kg wet	2.000		49	40-140			
Eicosane (C20)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Hexacosane (C26)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		73	40-140			
Hexatriacontane (C36)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonadecane (C19)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonane (C9)	0.7	0.5	mg/kg wet	2.000		37	30-140			
Octacosane (C28)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Octadecane (C18)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Tetracosane (C24)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		59	40-140			
Triacontane (C30)	1.6	0.5	mg/kg wet	2.000		80	40-140			

<i>Surrogate: 1-Chlorooctadecane</i>	1.59		mg/kg wet	2.020		79	40-140			
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LCS

2-Methylnaphthalene	1.29	0.20	mg/kg wet	2.000		65	40-140			
Acenaphthene	1.51	0.40	mg/kg wet	2.000		76	40-140			
Acenaphthylene	1.58	0.20	mg/kg wet	2.000		79	40-140			
Anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140			
Benzo(a)anthracene	2.16	0.40	mg/kg wet	2.000		108	40-140			
Benzo(a)pyrene	2.13	0.40	mg/kg wet	2.000		106	40-140			
Benzo(b)fluoranthene	1.95	0.40	mg/kg wet	2.000		98	40-140			
Benzo(g,h,i)perylene	1.81	0.40	mg/kg wet	2.000		90	40-140			
Benzo(k)fluoranthene	2.00	0.40	mg/kg wet	2.000		100	40-140			
C11-C22 Unadjusted Aromatics1	33.6	15.0	mg/kg wet	34.00		99	40-140			
Chrysene	2.04	0.40	mg/kg wet	2.000		102	40-140			
Dibenzo(a,h)Anthracene	1.85	0.20	mg/kg wet	2.000		93	40-140			
Fluoranthene	1.82	0.40	mg/kg wet	2.000		91	40-140			
Fluorene	1.56	0.40	mg/kg wet	2.000		78	40-140			
Indeno(1,2,3-cd)Pyrene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Naphthalene	1.15	0.40	mg/kg wet	2.000		57	40-140			
Phenanthrene	1.84	0.40	mg/kg wet	2.000		92	40-140			
Pyrene	1.91	0.40	mg/kg wet	2.000		95	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	42.8		mg/L	50.00		86	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	37.7		mg/L	50.00		75	40-140			
<i>Surrogate: O-Terphenyl</i>	1.54		mg/kg wet	2.008		77	40-140			



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Quality Control Data

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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90566 - 3546

LCS

2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			

LCS Dup

C19-C36 Aliphatics1	15.5	15.0	mg/kg wet	16.00		97	40-140	12	25	
C9-C18 Aliphatics1	9.4	15.0	mg/kg wet	12.00		78	40-140	16	25	
Decane (C10)	1.1	0.5	mg/kg wet	2.000		56	40-140	22	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		92	40-140	12	25	
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		62	40-140	24	25	
Eicosane (C20)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Hexacosane (C26)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Hexadecane (C16)	1.7	0.5	mg/kg wet	2.000		84	40-140	14	25	
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		90	40-140	12	25	
Nonadecane (C19)	1.8	0.5	mg/kg wet	2.000		89	40-140	12	25	
Nonane (C9)	0.9	0.5	mg/kg wet	2.000		45	30-140	21	25	
Octacosane (C28)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Octadecane (C18)	1.8	0.5	mg/kg wet	2.000		89	40-140	12	25	
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		92	40-140	12	25	
Tetradecane (C14)	1.4	0.5	mg/kg wet	2.000		72	40-140	19	25	
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		90	40-140	12	25	

<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.75</i>		mg/kg wet	<i>2.020</i>		<i>86</i>	<i>40-140</i>			
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LCS Dup

2-Methylnaphthalene	1.24	0.20	mg/kg wet	2.000		62	40-140	4	30	
Acenaphthene	1.41	0.40	mg/kg wet	2.000		71	40-140	7	30	
Acenaphthylene	1.51	0.20	mg/kg wet	2.000		75	40-140	5	30	
Anthracene	1.78	0.40	mg/kg wet	2.000		89	40-140	5	30	
Benzo(a)anthracene	2.05	0.40	mg/kg wet	2.000		102	40-140	5	30	
Benzo(a)pyrene	2.04	0.40	mg/kg wet	2.000		102	40-140	4	30	
Benzo(b)fluoranthene	1.77	0.40	mg/kg wet	2.000		89	40-140	9	30	
Benzo(g,h,i)perylene	1.68	0.40	mg/kg wet	2.000		84	40-140	7	30	
Benzo(k)fluoranthene	1.83	0.40	mg/kg wet	2.000		91	40-140	9	30	
C11-C22 Unadjusted Aromatics1	31.4	15.0	mg/kg wet	34.00		92	40-140	7	25	
Chrysene	1.93	0.40	mg/kg wet	2.000		97	40-140	5	30	
Dibenzo(a,h)Anthracene	1.75	0.20	mg/kg wet	2.000		88	40-140	6	30	
Fluoranthene	1.81	0.40	mg/kg wet	2.000		91	40-140	0.3	30	
Fluorene	1.56	0.40	mg/kg wet	2.000		78	40-140	0.1	30	
Indeno(1,2,3-cd)Pyrene	1.86	0.40	mg/kg wet	2.000		93	40-140	7	30	
Naphthalene	1.17	0.40	mg/kg wet	2.000		58	40-140	1	30	
Phenanthrene	1.77	0.40	mg/kg wet	2.000		89	40-140	4	30	
Pyrene	1.82	0.40	mg/kg wet	2.000		91	40-140	5	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>39.7</i>		mg/L	<i>50.00</i>		<i>79</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>36.4</i>		mg/L	<i>50.00</i>		<i>73</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.47</i>		mg/kg wet	<i>2.008</i>		<i>73</i>	<i>40-140</i>			

LCS Dup



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90566 - 3546

2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- S- Surrogate recovery(ies) below lower control limit (S-).
- R- Standard Reference Material is biased low (R-).
- P Percent difference between primary and confirmation results exceeds 40% (P).
- LC Lower value is used due to matrix interferences (LC).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0072

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0072

Shipped/Delivered Via: ESS Courier

Date Received: 8/2/2019

Project Due Date: 8/9/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.5 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373147	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	373146	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	373145	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	373144	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	373143	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	373142	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	373141	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	373140	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373139	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	373138	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab?

Initials ik

Are barcode labels on correct containers?

Yes / No

Are all Flashpoint stickers attached/container ID # circled?

Yes / No / NA

Are all Hex Chrome stickers attached?

Yes / No / NA

Are all QC stickers attached?

Yes / No / NA

Are VOA stickers attached if bubbles noted?


Yes / No / NA

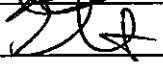
Completed By: [Signature]

Date & Time: 8/2/19 2:47


ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM ESS Project ID: 19H0072
Date Received: 8/2/2019

Reviewed By:  Date & Time: 08/2/19 2:56

Delivered By:  8/2/19 2:08

19 H0072

Chain-of-Custody Record				Laboratory: ESS				Laboratory Job # (Lab use only)								
 <p>GEI Consultants 400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073</p>				Project Name: Tombarello Site Investigation				Project Location: Lawrence, MA				Page 1 of 5				
				Project Number: 1802441				Project Manager: L. Lombardo								
				Send Report to: lombardo@geiconsultants.com bfongmurdock@geiconsultants.com cealedas@geiconsultant.com				Preservative								
Send EDD to: EastRegionData@geiconsultants.com				Analysis				Sample Handling								
MCP PRESUMPTIVE CERTAINTY REQUIRED <input checked="" type="radio"/> YES <input type="radio"/> NO												YES NO <input checked="" type="radio"/> NA				
If Yes, Are MCP Analytical Methods Required? <input checked="" type="radio"/> YES <input type="radio"/> NO <input type="radio"/> NA												Sampled				
Are Drinking Water Samples Submitted? <input type="radio"/> YES <input checked="" type="radio"/> NO <input type="radio"/> NA												Shipped				
It Yes, Have Drinking Water Sampling Requirements Been Met? <input type="radio"/> YES <input type="radio"/> NO <input checked="" type="radio"/> NA												With Ice				
												<input checked="" type="radio"/> YES <input type="radio"/> NO				
Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8062)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (8010, 7471 Hg/D)	PCBs (aqueous)					Sample Specific Remarks	
1	1802441-FD-05	8/1/2019	1200	Soil	1	CWS	x									Field Duplicate
2	1802441-FD-06	8/1/2019	1201	Soil	1	CWS		x	x							Field Duplicate
3	1802441-FD-07	8/1/2019	1208	Soil	1	CWS	x									Field Duplicate
4	1802441-FD-08	8/1/2019	1204	Soil	1	BRL	x									Field Duplicate
1	1802441-EB-03	8/1/2019	0755	Aqueous	1	CWS				x						Equipment Blank
	1802441-MS-01	8/1/2019	1203	Soil	1	CWS			x							Matrix Spike
	1802441-MSD-01	8/1/2019	1202	Soil	1	CWS			x							Matrix Spike Dup
5	1802441-TBerm-07(0-1)	8/1/2019	0815	Soil	1	BRL	x									BFM
6	1802441-TBerm-07(3-4)	8/1/2019	0820	Soil	1	BRL	x									
7	1802441-TBerm-08(0-1)	8/1/2019	0800	Soil	1	BRL	x									
8	1802441-TBerm-08(3-4)	8/1/2019	0805	Soil	1	BRL	x									
9	1802441-TBerm-09(0-1)	8/1/2019	0925	Soil	1	BRL	x									
10	1802441-TBerm-09(3-4)	8/1/2019	0930	Soil	1	BRL	x									
MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.							Turnaround Time (Business days):			Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.						
Relinquished by: (signature)		Date:	8/1/2019	Received by: (signature)			Normal <input checked="" type="checkbox"/> Other _____									
1. _____		Date:	8/1/2019 1630	1. GEI Refrigerator			10-Day _____ 7-Day _____									
Relinquished by: (signature)		Date:	8/2/19 1315	2. _____			5-Day _____ 3-Day _____									
2. GEI Refrigerator		Additional Requirements/Comments/Remarks:														
Relinquished by: (signature)		Date:	8/2/19 1315	3. _____			Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic									
3. _____		Brownfields QAPP.														
Relinquished by: (signature)		Date:		4. _____												
4. _____																

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # 19H0072

(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: lombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com
rcaldas@geiconsultant.com

Send EDD to: EastRegionData@geiconsultants.com

Project Information

Preservative

None	None	None	None														
------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Analysis

PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)														
x																	
	x	x															
x																	
x																	
				x													
						x											
								x									
x																	
x																	
x																	
x																	
x																	

Sample Handling		
YES	NO	NA
YES	NO	NA
YES	NO	NA
YES	NO	NA

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)							
		Date	Time														
1	1802441-FD-05	8/1/2019	1200	Soil	1	CWS	x										
2	1802441-FD-06	8/1/2019	1201	Soil	1	CWS		x	x								Field Duplicate
3	1802441-FD-07	8/1/2019	1208	Soil	1	CWS	x										Field Duplicate
4	1802441-FD-08	8/1/2019	1204	Soil	1	BRL	x										Field Duplicate
—	1802441-EB-03	8/1/2019	0755	Aqueous	1	CWS				x							Field Duplicate
—	1802441-MS-01	8/1/2019	1203	Soil	1	CWS			x								Equipment Blank
—	1802441-MSD-01	8/1/2019	1202	Soil	1	CWS			x								Matrix Spike
5	1802441-TBerm-07(0-1)	8/1/2019	0815	Soil	1	BRL	x										Matrix Spike Dup
6	1802441-TBerm-07(3-4)	8/1/2019	0820	Soil	1	BRL	x										
7	1802441-TBerm-08(0-1)	8/1/2019	0800	Soil	1	BRL	x										
8	1802441-TBerm-08(3-4)	8/1/2019	0805	Soil	1	BRL	x										
9	1802441-TBerm-09(0-1)	8/1/2019	0925	Soil	1	BRL	x										
10	1802441-TBerm-09(3-4)	8/1/2019	0930	Soil	1	BRL	x										

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by (signature):	Date:	8/1/2019	Time:	Received by (signature):	1. GEI Refrigerator
Relinquished by (signature):	Date:	8/2/19	Time:	Received by (signature):	2.
Relinquished by (signature):	Date:	8/2/19	Time:	Received by (signature):	3.
Relinquished by (signature):	Date:	8/2/19	Time:	Received by (signature):	4.

Turnaround Time (Business days):	
Normal	<input checked="" type="checkbox"/> X <input type="checkbox"/> Other <input type="checkbox"/>
10-Day	<input type="checkbox"/> 7-Day <input type="checkbox"/>
5-Day	<input type="checkbox"/> 3-Day <input type="checkbox"/>

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
Manual soxhlet extra ction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

100temp; 3.5



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0073

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 3:05 pm, Aug 15, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

SAMPLE RECEIPT

The following samples were received on August 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0073-01	1802441-CD-34E 3-5	Soil	8082A
19H0073-02	1802441-CD-34EE 0-0.5	Soil	8082A
19H0073-03	1802441-CD-34EE 1-2	Soil	8082A
19H0073-04	1802441-CD-34EE 2-3	Soil	8082A
19H0073-05	1802441-CD-34EE 3-5	Soil	8082A, EPH8270, MADEP-EPH
19H0073-06	1802441-CD-34EW 0-0.5	Soil	8082A
19H0073-07	1802441-CD-34EW 1-2	Soil	8082A
19H0073-08	1802441-CD-34EW 2-3	Soil	8082A
19H0073-09	1802441-CD-34EN 0-0.5	Soil	8082A
19H0073-10	1802441-CD-34EN 1-2	Soil	8082A
19H0073-11	1802441-CD-34EN 2-3	Soil	8082A, EPH8270, MADEP-EPH
19H0073-12	1802441-CD-34ES 0-0.5	Soil	8082A
19H0073-13	1802441-CD-34ES 1-2	Soil	8082A
19H0073-14	1802441-CD-34ES 2-3	Soil	8082A
19H0073-15	1802441-CD-34EW 3-5	Soil	8082A
19H0073-16	1802441-CD-34EN 3-5	Soil	8082A
19H0073-17	1802441-CD-34ES 3-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0073-01 Surrogate recovery(ies) above upper control limit (S+).
Decachlorobiphenyl [2C] (193% @ 30-150%)
- 19H0073-03 Surrogate recovery(ies) below lower control limit (S-).
Tetrachloro-m-xylene (24% @ 30-150%)
- 19H0073-06 Surrogate recovery(ies) below lower control limit (S-).
Tetrachloro-m-xylene (23% @ 30-150%)
- 19H0073-09 Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
Decachlorobiphenyl (17% @ 30-150%), Decachlorobiphenyl [2C] (22% @ 30-150%),
Tetrachloro-m-xylene (14% @ 30-150%), Tetrachloro-m-xylene [2C] (18% @ 30-150%)
- 19H0073-09RE2 Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
Decachlorobiphenyl (10% @ 30-150%), Decachlorobiphenyl [2C] (11% @ 30-150%),
Tetrachloro-m-xylene (5% @ 30-150%), Tetrachloro-m-xylene [2C] (10% @ 30-150%)
- 19H0073-10 Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
Decachlorobiphenyl (18% @ 30-150%), Decachlorobiphenyl [2C] (21% @ 30-150%),
Tetrachloro-m-xylene (10% @ 30-150%), Tetrachloro-m-xylene [2C] (15% @ 30-150%)
- 19H0073-10RE1 Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
Decachlorobiphenyl (15% @ 30-150%), Decachlorobiphenyl [2C] (17% @ 30-150%),
Tetrachloro-m-xylene (9% @ 30-150%), Tetrachloro-m-xylene [2C] (16% @ 30-150%)
- 19H0073-13 Surrogate recovery(ies) below lower control limit (S-).
Tetrachloro-m-xylene (27% @ 30-150%)
- 19H0073-14 Surrogate recovery(ies) below lower control limit (S-).
Tetrachloro-m-xylene (27% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- 19H0073-05 Elevated Method Reporting Limits due to sample matrix (EL).
- 19H0073-05 Surrogate recovery(ies) diluted below the MRL (SD).
1-Chlorooctadecane (% @ 40-140%)
- 19H0073-11 Elevated Method Reporting Limits due to sample matrix (EL).
- C9H0160-CCV2 Continuing Calibration %Diff/Drift is above control limit (CD+).
Benzo(a)pyrene (22% @ 20%), Indeno(1,2,3-cd)Pyrene (24% @ 20%)
- C9H0220-CCV6 Continuing Calibration %Diff/Drift is above control limit (CD+).
Benzo(a)anthracene (24% @ 20%), Benzo(g,h,i)perylene (24% @ 20%), Indeno(1,2,3-cd)Pyrene (24% @ 20%)

No other observations noted.

End of Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0073-01 through 19H0073-17**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- | | | |
|---|--|--|
| A | Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? | Yes <input checked="" type="checkbox"/> No () |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | Yes <input checked="" type="checkbox"/> No () |
| C | Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? | Yes <input checked="" type="checkbox"/> No () |
| D | Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? | Yes <input checked="" type="checkbox"/> No () |
| E | VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? | Yes <input checked="" type="checkbox"/> No ()
Yes () No () |
| F | Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? | Yes <input checked="" type="checkbox"/> No () |

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- | | | |
|---|---|--|
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350. | Yes () No <input checked="" type="checkbox"/> * |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | Yes () No <input checked="" type="checkbox"/> * |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | Yes <input checked="" type="checkbox"/> No ()* |

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 15, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-CD-34E 3-5
 Date Sampled: 08/01/19 14:05
 Percent Solids: 78
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
 ESS Laboratory Sample ID: 19H0073-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1221	ND (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1232	ND (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1242	ND (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1248	ND (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1254	ND (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1260	0.1 (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1262	ND (0.07)		8082A		1	08/12/19 14:04		CH91101
Aroclor 1268 [2C]	0.1 (0.07)		8082A		1	08/12/19 14:04		CH91101

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	147 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	193 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	60 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EE 0-0.5
Date Sampled: 08/01/19 14:30
Percent Solids: 94
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 15:57		CH90804
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 15:57		CH90804
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 15:57		CH90804
Aroclor 1242	ND (0.06)		8082A		1	08/09/19 15:57		CH90804
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 15:57		CH90804
Aroclor 1254	ND (0.06)		8082A		1	08/09/19 15:57		CH90804
Aroclor 1260	5.2 (0.6)		8082A		10	08/11/19 15:42		CH90804
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 15:57		CH90804
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 15:57		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	51 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	70 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	52 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EE 1-2
Date Sampled: 08/01/19 14:32
Percent Solids: 77
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1221	ND (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1232	ND (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1242	ND (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1248	ND (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1254	ND (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1260 [2C]	0.9 (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1262	ND (0.07)		8082A		1	08/09/19 16:16		CH90804
Aroclor 1268	ND (0.07)		8082A		1	08/09/19 16:16		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	30 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	31 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	24 %	S-	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	30 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EE 2-3
Date Sampled: 08/01/19 14:34
Percent Solids: 90
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1242	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1254	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1260	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 16:35		CH90804
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 16:35		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	99 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	87 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EE 3-5
Date Sampled: 08/01/19 14:36
Percent Solids: 90
Initial Volume: 10.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1221	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1232	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1242	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1248	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1254	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1260	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1262	ND (0.1)		8082A		1	08/13/19 17:53		CH91209
Aroclor 1268	ND (0.1)		8082A		1	08/13/19 17:53		CH91209

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	40 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	59 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	30 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	46 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EE 3-5
Date Sampled: 08/01/19 14:36
Percent Solids: 90
Initial Volume: 10.2
Final Volume: 10
Extraction Method: 3546

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-05
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/5/19 18:45

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (407)		MADEP-EPH		1	CAD	08/07/19 18:45	C9H0125	CH90566
C19-C36 Aliphatics1	ND (407)		MADEP-EPH		1	CAD	08/07/19 18:45	C9H0125	CH90566
C11-C22 Unadjusted Aromatics1	16500 (2040)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
C11-C22 Aromatics1,2	6930 (2040)		EPH8270			VSC	08/12/19 22:12		[CALC]
2-Methylnaphthalene	101 (54.3)		EPH8270		1	VSC	08/11/19 7:18	C9H0232	CH90566
Acenaphthene	233 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Naphthalene	296 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Phenanthrene	2380 (271)		EPH8270		25	VSC	08/12/19 22:12	C9H0232	CH90566
Acenaphthylene	ND (3.80)		EPH8270		1	VSC	08/11/19 7:18	C9H0232	CH90566
Anthracene	590 (271)		EPH8270		25	VSC	08/12/19 22:12	C9H0232	CH90566
Benzo(a)anthracene	612 (271)		EPH8270		25	VSC	08/12/19 22:12	C9H0232	CH90566
Benzo(a)pyrene	294 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Benzo(b)fluoranthene	319 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Benzo(g,h,i)perylene	102 (10.9)		EPH8270		1	VSC	08/11/19 7:18	C9H0232	CH90566
Benzo(k)fluoranthene	279 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Chrysene	533 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Dibenzo(a,h)Anthracene	45.0 (5.43)		EPH8270		1	VSC	08/11/19 7:18	C9H0232	CH90566
Fluoranthene	1870 (271)		EPH8270		25	VSC	08/12/19 22:12	C9H0232	CH90566
Fluorene	368 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Indeno(1,2,3-cd)Pyrene	135 (54.3)		EPH8270		5	VSC	08/12/19 21:35	C9H0232	CH90566
Pyrene	1430 (271)		EPH8270		25	VSC	08/12/19 22:12	C9H0232	CH90566

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	%	SD	40-140
<i>Surrogate: 2-Bromonaphthalene</i>	107 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	101 %		40-140
<i>Surrogate: O-Terphenyl</i>	40 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EW 0-0.5
Date Sampled: 08/01/19 13:26
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1242	ND (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1254	ND (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1260	0.9 (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 17:14		CH90804
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 17:14		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	59 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	23 %	S-	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	31 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EW 1-2
Date Sampled: 08/01/19 13:28
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1242 [2C]	0.3 (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1254 [2C]	1.0 (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1260	0.9 (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 19:48		CH90804
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 19:48		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	56 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	73 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EW 2-3
Date Sampled: 08/01/19 13:30
Percent Solids: 81
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1242	ND (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1254	ND (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1260	1.1 (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 20:07		CH90804
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 20:07		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	59 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	63 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EN 0-0.5
Date Sampled: 08/01/19 12:40
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 20:26		CH90804
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 20:26		CH90804
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 20:26		CH90804
Aroclor 1242	ND (0.05)		8082A		1	08/09/19 20:26		CH90804
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 20:26		CH90804
Aroclor 1254	ND (0.05)		8082A		1	08/09/19 20:26		CH90804
Aroclor 1260	3.0 (0.3)		8082A		5	08/11/19 16:01		CH90804
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 20:26		CH90804
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 20:26		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	17 %	SC	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	22 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	14 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	18 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EN 0-0.5
Date Sampled: 08/01/19 12:40
Percent Solids: 94
Initial Volume: 10.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-09RE2
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1221	ND (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1232	ND (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1242	ND (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1248	ND (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1254	ND (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1260 [2C]	1.7 (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1262	ND (0.1)		8082A		1	08/13/19 18:12		CH91209
Aroclor 1268	ND (0.1)		8082A		1	08/13/19 18:12		CH91209

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	10 %	SC	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	11 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	5 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	10 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-CD-34EN 1-2
 Date Sampled: 08/01/19 12:45
 Percent Solids: 96
 Initial Volume: 19.4
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
 ESS Laboratory Sample ID: 19H0073-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1242	ND (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1254	ND (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1260	0.7 (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 20:45		CH90804
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 20:45		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	18 %	SC	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	21 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	10 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	15 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EN 1-2
Date Sampled: 08/01/19 12:45
Percent Solids: 96
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-10RE1
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1221	ND (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1232	ND (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1242	ND (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1248	ND (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1254	ND (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1260	0.4 (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1262	ND (0.1)		8082A		1	08/13/19 18:32		CH91209
Aroclor 1268	ND (0.1)		8082A		1	08/13/19 18:32		CH91209

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	15 %	SC	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	17 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	9 %	SC	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	16 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EN 2-3
Date Sampled: 08/01/19 12:50
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1242	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1254	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 21:04		CH90804
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 21:04		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	61 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	51 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	69 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EN 2-3
Date Sampled: 08/01/19 12:50
Percent Solids: 88
Initial Volume: 10.2
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-11
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/5/19 18:45

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	74.8 (41.7)		MADEP-EPH		1	CAD	08/07/19 19:32	C9H0125	CH90566
C19-C36 Aliphatics1	306 (41.7)		MADEP-EPH		1	CAD	08/07/19 19:32	C9H0125	CH90566
C11-C22 Unadjusted Aromatics1	360 (41.7)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
C11-C22 Aromatics1,2	274 (41.7)		EPH8270			VSC	08/13/19 9:43		[CALC]
2-Methylnaphthalene	0.80 (0.56)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Acenaphthene	3.94 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Naphthalene	15.4 (5.56)		EPH8270		5	VSC	08/13/19 9:43	C9H0220	CH90566
Phenanthrene	16.3 (5.56)		EPH8270		5	VSC	08/13/19 9:43	C9H0220	CH90566
Acenaphthylene	ND (0.39)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Anthracene	4.10 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Benzo(a)anthracene	4.17 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Benzo(a)pyrene	3.26 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Benzo(b)fluoranthene	3.74 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Benzo(g,h,i)perylene	2.02 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Benzo(k)fluoranthene	2.67 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Chrysene	3.94 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Dibenzo(a,h)Anthracene	0.64 (0.56)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Fluoranthene	9.94 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Fluorene	5.29 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Indeno(1,2,3-cd)Pyrene	2.27 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566
Pyrene	8.33 (1.11)		EPH8270		1	VSC	08/11/19 7:54	C9H0220	CH90566

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	69 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	106 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	101 %		40-140
<i>Surrogate: O-Terphenyl</i>	76 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34ES 0-0.5
Date Sampled: 08/01/19 15:10
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1242	ND (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1254	ND (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1260 [2C]	0.7 (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 21:23		CH90804
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 21:23		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	57 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	90 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	63 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34ES 1-2
Date Sampled: 08/01/19 15:05
Percent Solids: 91
Initial Volume: 10.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	08/13/19 18:51		CH91209
Aroclor 1221	ND (0.1)		8082A		1	08/13/19 18:51		CH91209
Aroclor 1232	ND (0.1)		8082A		1	08/13/19 18:51		CH91209
Aroclor 1242	ND (0.1)		8082A		1	08/13/19 18:51		CH91209
Aroclor 1248	ND (0.1)		8082A		1	08/13/19 18:51		CH91209
Aroclor 1254 [2C]	2.8 (0.5)		8082A		5	08/14/19 14:42		CH91209
Aroclor 1260	0.6 (0.1)		8082A		1	08/13/19 18:51		CH91209
Aroclor 1262	ND (0.1)		8082A		1	08/13/19 18:51		CH91209
Aroclor 1268	ND (0.1)		8082A		1	08/13/19 18:51		CH91209

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	31 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	37 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	27 %	S-	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	33 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34ES 2-3
Date Sampled: 08/01/19 15:00
Percent Solids: 89
Initial Volume: 10
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1221	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1232	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1242	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1248	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1254	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1260	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1262	ND (0.1)		8082A		1	08/13/19 19:10		CH91209
Aroclor 1268	ND (0.1)		8082A		1	08/13/19 19:10		CH91209

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	34 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	42 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	27 %	S-	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	32 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EW 3-5
Date Sampled: 08/01/19 13:34
Percent Solids: 69
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1221	ND (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1232	ND (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1242	ND (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1248	ND (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1254	ND (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1260	0.3 (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1262	ND (0.07)		8082A		1	08/09/19 22:21		CH90804
Aroclor 1268	ND (0.07)		8082A		1	08/09/19 22:21		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	34 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	51 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	42 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	52 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34EN 3-5
Date Sampled: 08/01/19 12:55
Percent Solids: 62
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1221	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1232	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1242	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1248	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1254	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1260	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1262	ND (0.08)		8082A		1	08/09/19 22:40		CH90804
Aroclor 1268	ND (0.08)		8082A		1	08/09/19 22:40		CH90804

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	62 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	74 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-CD-34ES 3-5
Date Sampled: 08/01/19 15:15
Percent Solids: 93
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0073
ESS Laboratory Sample ID: 19H0073-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1221	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1232	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1242	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1248	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1254	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1260	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1262	ND (0.05)		8082A		1	08/11/19 17:56		CH91101
Aroclor 1268	ND (0.05)		8082A		1	08/11/19 17:56		CH91101

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	61 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	82 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	77 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90804 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0251		mg/kg wet	0.02500		100	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0263		mg/kg wet	0.02500		105	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0239		mg/kg wet	0.02500		96	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			

Surrogate: Decachlorobiphenyl	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0261		mg/kg wet	0.02500		105	30-150			
Surrogate: Tetrachloro-m-xylene	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0230		mg/kg wet	0.02500		92	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140	0.3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		106	40-140	0.7	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0245		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0258		mg/kg wet	0.02500		103	30-150			
Surrogate: Tetrachloro-m-xylene	0.0203		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0226		mg/kg wet	0.02500		90	30-150			

Batch CH91101 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH91101 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0261		mg/kg wet	0.02500		105	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0292		mg/kg wet	0.02500		117	30-150			
Surrogate: Tetrachloro-m-xylene	0.0216		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0229		mg/kg wet	0.02500		91	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		119	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		109	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140			

Surrogate: Decachlorobiphenyl	0.0253		mg/kg wet	0.02500		101	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0290		mg/kg wet	0.02500		116	30-150			
Surrogate: Tetrachloro-m-xylene	0.0222		mg/kg wet	0.02500		89	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0220		mg/kg wet	0.02500		88	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		106	40-140	2	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		121	40-140	2	30	
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		110	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140	1	30	

Surrogate: Decachlorobiphenyl	0.0257		mg/kg wet	0.02500		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0290		mg/kg wet	0.02500		116	30-150			
Surrogate: Tetrachloro-m-xylene	0.0222		mg/kg wet	0.02500		89	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0220		mg/kg wet	0.02500		88	30-150			

Batch CH91209 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH91209 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0230		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0189		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0226		mg/kg wet	0.02500		90	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0234		mg/kg wet	0.02500		94	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140	0.8	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140	0.5	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	0.8	30	

Surrogate: Decachlorobiphenyl	0.0234		mg/kg wet	0.02500		94	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0245		mg/kg wet	0.02500		98	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0227		mg/kg wet	0.02500		91	30-150			

MADEP-EPH Extractable Petroleum Hydrocarbons



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90566 - 3546

Blank

C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							

<i>Surrogate: 1-Chlorooctadecane</i>	1.74		mg/kg wet	2.020		86	40-140			
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Blank

2-Methylnaphthalene	ND	0.05	mg/kg wet							
Acenaphthene	ND	0.40	mg/kg wet							
Acenaphthylene	ND	0.14	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.07	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.05	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.07	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							

<i>Surrogate: 2-Bromonaphthalene</i>	43.6		mg/L	50.00		87	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	39.1		mg/L	50.00		78	40-140			
<i>Surrogate: O-Terphenyl</i>	1.62		mg/kg wet	2.008		81	40-140			

LCS

C19-C36 Aliphatics1	13.7	15.0	mg/kg wet	16.00		86	40-140			
C9-C18 Aliphatics1	8.0	15.0	mg/kg wet	12.00		66	40-140			
Decane (C10)	0.9	0.5	mg/kg wet	2.000		45	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90566 - 3546										
Docosane (C22)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Dodecane (C12)	1.0	0.5	mg/kg wet	2.000		49	40-140			
Eicosane (C20)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Hexacosane (C26)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		73	40-140			
Hexatriacontane (C36)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonadecane (C19)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonane (C9)	0.7	0.5	mg/kg wet	2.000		37	30-140			
Octacosane (C28)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Octadecane (C18)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Tetracosane (C24)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		59	40-140			
Triacontane (C30)	1.6	0.5	mg/kg wet	2.000		80	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.59</i>		mg/kg wet	<i>2.020</i>		<i>79</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene	1.29	0.20	mg/kg wet	2.000		65	40-140			
Acenaphthene	1.51	0.40	mg/kg wet	2.000		76	40-140			
Acenaphthylene	1.58	0.14	mg/kg wet	2.000		79	40-140			
Anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140			
Benzo(a)anthracene	2.16	0.40	mg/kg wet	2.000		108	40-140			
Benzo(a)pyrene	2.13	0.40	mg/kg wet	2.000		106	40-140			
Benzo(b)fluoranthene	1.95	0.40	mg/kg wet	2.000		98	40-140			
Benzo(g,h,i)perylene	1.81	0.40	mg/kg wet	2.000		90	40-140			
Benzo(k)fluoranthene	2.00	0.40	mg/kg wet	2.000		100	40-140			
C11-C22 Unadjusted Aromatics1	33.6	15.0	mg/kg wet	34.00		99	40-140			
Chrysene	2.04	0.40	mg/kg wet	2.000		102	40-140			
Dibenzo(a,h)Anthracene	1.85	0.20	mg/kg wet	2.000		93	40-140			
Fluoranthene	1.82	0.40	mg/kg wet	2.000		91	40-140			
Fluorene	1.56	0.40	mg/kg wet	2.000		78	40-140			
Indeno(1,2,3-cd)Pyrene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Naphthalene	1.15	0.40	mg/kg wet	2.000		57	40-140			
Phenanthrene	1.84	0.40	mg/kg wet	2.000		92	40-140			
Pyrene	1.91	0.40	mg/kg wet	2.000		95	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>42.8</i>		mg/L	<i>50.00</i>		<i>86</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>37.7</i>		mg/L	<i>50.00</i>		<i>75</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.54</i>		mg/kg wet	<i>2.008</i>		<i>77</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS Dup										
C19-C36 Aliphatics1	15.5	15.0	mg/kg wet	16.00		97	40-140	12	25	
C9-C18 Aliphatics1	9.4	15.0	mg/kg wet	12.00		78	40-140	16	25	
Decane (C10)	1.1	0.5	mg/kg wet	2.000		56	40-140	22	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		92	40-140	12	25	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90566 - 3546										
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		62	40-140	24	25	
Eicosane (C20)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Hexacosane (C26)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Hexadecane (C16)	1.7	0.5	mg/kg wet	2.000		84	40-140	14	25	
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		90	40-140	12	25	
Nonadecane (C19)	1.8	0.5	mg/kg wet	2.000		89	40-140	12	25	
Nonane (C9)	0.9	0.5	mg/kg wet	2.000		45	30-140	21	25	
Octacosane (C28)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Octadecane (C18)	1.8	0.5	mg/kg wet	2.000		89	40-140	12	25	
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		92	40-140	12	25	
Tetradecane (C14)	1.4	0.5	mg/kg wet	2.000		72	40-140	19	25	
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		90	40-140	12	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.75</i>		mg/kg wet	<i>2.020</i>		<i>86</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene	1.24	0.20	mg/kg wet	2.000		62	40-140	4	30	
Acenaphthene	1.41	0.40	mg/kg wet	2.000		71	40-140	7	30	
Acenaphthylene	1.51	0.14	mg/kg wet	2.000		75	40-140	5	30	
Anthracene	1.78	0.40	mg/kg wet	2.000		89	40-140	5	30	
Benzo(a)anthracene	2.05	0.40	mg/kg wet	2.000		102	40-140	5	30	
Benzo(a)pyrene	2.04	0.40	mg/kg wet	2.000		102	40-140	4	30	
Benzo(b)fluoranthene	1.77	0.40	mg/kg wet	2.000		89	40-140	9	30	
Benzo(g,h,i)perylene	1.68	0.40	mg/kg wet	2.000		84	40-140	7	30	
Benzo(k)fluoranthene	1.83	0.40	mg/kg wet	2.000		91	40-140	9	30	
C11-C22 Unadjusted Aromatics1	31.4	15.0	mg/kg wet	34.00		92	40-140	7	25	
Chrysene	1.93	0.40	mg/kg wet	2.000		97	40-140	5	30	
Dibenzo(a,h)Anthracene	1.75	0.20	mg/kg wet	2.000		88	40-140	6	30	
Fluoranthene	1.81	0.40	mg/kg wet	2.000		91	40-140	0.3	30	
Fluorene	1.56	0.40	mg/kg wet	2.000		78	40-140	0.1	30	
Indeno(1,2,3-cd)Pyrene	1.86	0.40	mg/kg wet	2.000		93	40-140	7	30	
Naphthalene	1.17	0.40	mg/kg wet	2.000		58	40-140	1	30	
Phenanthrene	1.77	0.40	mg/kg wet	2.000		89	40-140	4	30	
Pyrene	1.82	0.40	mg/kg wet	2.000		91	40-140	5	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>39.7</i>		mg/L	<i>50.00</i>		<i>79</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>36.4</i>		mg/L	<i>50.00</i>		<i>73</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.47</i>		mg/kg wet	<i>2.008</i>		<i>73</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- SC Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
- S+ Surrogate recovery(ies) above upper control limit (S+).
- S- Surrogate recovery(ies) below lower control limit (S-).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0073

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0073

Shipped/Delivered Via: ESS Courier

Date Received: 8/2/2019

Project Due Date: 8/9/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.5 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372945	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	372944	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	372943	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	372942	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372941	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	372940	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372939	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	372938	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	372937	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	372936	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	372935	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	372934	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	372950	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	372949	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	372948	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	372947	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	372946	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials: WA

Are barcode labels on correct containers? Yes / No

Are all Flashpoint stickers attached/container ID # circled? Yes / No NA

ESS Laboratory Sample and Cooler Receipt Checklist

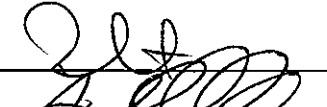
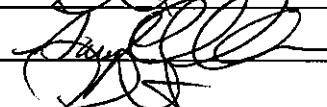
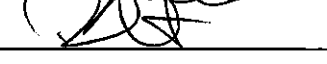
Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0073

Date Received: 8/2/2019

- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

Yes / No NA
Yes / No NA
Yes / No NA

Completed		Date & Time:	<u>8/2/19</u>	<u>2157</u>
By:				
Reviewed		Date & Time:	<u>08/2/19</u>	<u>2200</u>
By:				
Delivered		Date & Time:	<u>8/2/19</u>	<u>2212</u>
By:				

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job #

(Lab use only)

19H0073



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: lombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com,
rsaledas@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

None	None	None	None																	
------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Analysis

PCBs (6082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [mg])	PCBs (aqueous)																	
x																				
x																				
x																				
x																				

Page 5 of 5

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED **YES** NO

If Yes, Are MCP Analytical Methods Required? **YES** NO NA

Are Drinking Water Samples Submitted? YES **NO** NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (6082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [mg])	PCBs (aqueous)											
		Date	Time																		
13	1802441-CD-34ES(1-2)	8/1/2019	1505	Soil	1	CWS	x														
14	1802441-CD-34ES(2-3)	8/1/2019	1500	Soil	1	CWS	x														
15	1802441-CD-34EW(3-5)	8/2/2019	1334	Soil	1	CWS	x														
16	1802441-CD-34EN(3-5)	8/3/2019	1255	Soil	1	CWS	x														
17	1802441-CD-34ES(3-5)	8/4/2019	1515	Soil	1	CWS	x														

All 8/1/2019

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
Signature	8/1/2019		1. GEI Refrigerator
Signature	8/2/19	1315	2. Signature
Signature	8/2/19	1315	3. Signature
Signature	8/2/19	16:09	4. Signature

ice temp: 3.5

Turnaround Time (Business days):

Normal Other

10-Day 7-Day

5-Day 3-Day

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Client Corrected 8/6/19

Additional Requirements/Comments/Remarks:

Manual soxhelt extra ction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job #
(Lab use only)

19H0073



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: lombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com
rsaladas@geiconsultant.com
Send EDD to: EastRegionData@geiconsultants.com

Preservative

None

None

None

None

Analysis

PCBs (8082)

EPH with Target PAHs (MAEPH)

RCRA 8 Metals plus Zinc (6010, 7471 [Hg])

PCBs (aqueous)

Page 4 of 5

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials
		Date	Time			
1	1802441-CD-34E(3-5)	8/1/2019	1405	Soil	1	CWS
2	1802441-CD-34EE(0-0.5)	8/1/2019	1430	Soil	1	CWS
3	1802441-CD-34EE(1-2)	8/1/2019	1432	Soil	1	CWS
4	1802441-CD-34EE(2-3)	8/1/2019	1434	Soil	1	CWS
5	1802441-CD-34EE(3-5)	8/1/2019	1436	Soil	1	CWS
6	1802441-CD-34EW(0-0.5)	8/1/2019	1326	Soil	1	CWS
7	1802441-CD-34EW(1-2)	8/1/2019	1328	Soil	1	CWS
8	1802441-CD-34EW(2-3)	8/1/2019	1330	Soil	1	CWS
9	1802441-CD-34EN(0-0.5)	8/1/2019	1240	Soil	1	CWS
10	1802441-CD-34EN(1-2)	8/1/2019	1245	Soil	1	CWS
11	1802441-CD-34EN(2-3)	8/1/2019	1250	Soil	1	CWS
12	1802441-CD-34ES(0-0.5)	8/1/2019	1510	Soil	1	CWS

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal Other ___
10-Day ___ 7-Day ___
5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Client Corrected 8/6/19

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
1. [Signature]	8/1/2019	1630	1. GEI Refrigerator
2. GEI Refrigerator	8/2/19	1315	2. [Signature]
3. [Signature]	8/2/19	1315	3. [Signature]
4. [Signature]	8/2/19	16:09	4. [Signature]

ice temp: 3.5

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job #

19H0073

(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: lombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com
rsaledas@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

None	None	None	None																	
------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Analysis

PCBs (6082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [mg])	PCBs (aqueous)																	
x																				
x																				
x																				
x																				
x																				

Page 5 of 5

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (6082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [mg])	PCBs (aqueous)											
		Date	Time																		
13	1802441-CD-34ES(1-2)	8/1/2019	1505	Soil	1	CWS	x														
14	1802441-CD-34ES(2-3)	8/1/2019	1500	Soil	1	CWS	x														
15	1802441-CD-34EW(3-5)	8/2/2019	1334	Soil	1	CWS	x														
16	1802441-CD-34EN(3-5)	8/3/2019	1255	Soil	1	CWS	x														
17	1802441-CD-34ES(3-5)	8/4/2019	1515	Soil	1	CWS	x														

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	8/1/2019	Received by: (signature)
1. Signature	Date:	8/1/2019 1630	1. GEI Refrigerator
Relinquished by: (signature)	Date:	8/2/19 1315	2. Signature
2. GEI Refrigerator	Date:	8/2/19 1315	2. Signature
Relinquished by: (signature)	Date:	8/2/19 1315	3. Signature
3. Signature	Date:	8/2/19 1315	3. Signature
Relinquished by: (signature)	Date:	8/2/19 16:09	4. Signature
4. Signature	Date:	8/2/19 16:09	4. Signature

ice temp: 3.5

Turnaround Time (Business days):

Normal Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job #
(Lab use only)

19H0073



Project Information
 Project Name: Tombarello Site Investigation
 Project Location: Lawrence, MA
 Project Number: 1802441
 Project Manager: L. Lombardo

Page 4 of 5

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, rcaledas@nsiconsultant.com
 Send EDD to: EastRegionData@geiconsultants.com

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)	Analysis															
		Date	Time																							
1	1802441-CD-34E(3-5)	8/1/2019	1405	Soil	1	CWS	x																			
2	1802441-CD-34EE(0-0.5)	8/1/2019	1430	Soil	1	CWS	x																			
3	1802441-CD-34EE(1-2)	8/1/2019	1432	Soil	1	CWS	x																			
4	1802441-CD-34EE(2-3)	8/1/2019	1434	Soil	1	CWS	x																			
5	1802441-CD-34EE(3-5)	8/1/2019	1436	Soil	1	CWS	x	x																		
6	1802441-CD-34EW(0-0.5)	8/1/2019	1326	Soil	1	CWS	x																			
7	1802441-CD-34EW(1-2)	8/1/2019	1328	Soil	1	CWS	x																			
8	1802441-CD-34EW(2-3)	8/1/2019	1330	Soil	1	CWS	x																			
9	1802441-CD-34EN(0-0.5)	8/1/2019	1240	Soil	1	CWS	x																			
10	1802441-CD-34EN(1-2)	8/1/2019	1245	Soil	1	CWS	x																			
11	1802441-CD-34EN(2-3)	8/1/2019	1250	Soil	1	CWS	x	x																		
12	1802441-CD-34ES(0-0.5)	8/1/2019	1510	Soil	1	CWS	x																			

Sample Handling
 Samples Field Filtered YES NO NA
 Sampled Shipped With Ice YES NO NA
 Sample Specific Remarks

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date	Time	Received by: (signature)
1. [Signature]	8/1/2019	1630	1. GEI Refrigerator
2. GEI Refrigerator	8/2/19	1315	2. [Signature]
3. [Signature]	8/2/19	1315	3. [Signature]
4. [Signature]	8/2/19	16:09	4. [Signature]

Turnaround Time (Business days):
 Normal Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

ice temp: 3.5



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0074

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 1:45 pm, Sep 27, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

SAMPLE RECEIPT

The following samples were received on August 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Revision 1 September 19, 2019: This report has been revised to include Metals MS/MSD on sample -09.

Lab Number	Sample Name	Matrix	Analysis
19H0074-01	1802441-SP10-05 3-4	Soil	8082A
19H0074-02	1802441-SP10-06 4-5	Soil	8082A
19H0074-03	1802441-SP10-07 5-6	Soil	8082A
19H0074-04	1802441-BBerm-07N 0-1	Soil	8082A
19H0074-05	1802441-MBerm-07N 5-6	Soil	8082A
19H0074-07	1802441-MBerm-09N 5-6	Soil	8082A
19H0074-08	1802441-BBerm-12W 0-1	Soil	8082A
19H0074-09	1802441-MBerm-12W 5-6	Soil	6010C, 6020A, 7471B, 8082A, EPH8270, MADEP-EPH
19H0074-10	1802441-BBerm-13W 0-1	Soil	8082A
19H0074-11	1802441-MBerm-13W 5-6	Soil	8082A
19H0074-12	1802441-BBerm-14W 0-1	Soil	8082A
19H0074-13	1802441-MBerm-14W 5-6	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0074-01 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (365% @ 30-150%)
- 19H0074-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0074-02 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19H0074-02 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19H0074-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0074-03 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (256% @ 30-150%)
- 19H0074-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0074-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0074-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0074-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0074-07 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (352% @ 30-150%), Decachlorobiphenyl [2C] (371% @ 30-150%)
- 19H0074-09 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19H0074-09 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19H0074-12 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0074-12 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- 19H0074-09 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0074-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
1-Chlorooctadecane (% @ 40-140%)
- C9H0160-CCV2 [Continuing Calibration %Diff/Drift is above control limit \(CD+\).](#)
Benzo(a)pyrene (22% @ 20%), Indeno(1,2,3-cd)Pyrene (24% @ 20%)
- C9H0220-CCV6 [Continuing Calibration %Diff/Drift is above control limit \(CD+\).](#)
Benzo(a)anthracene (24% @ 20%), Benzo(g,h,i)perylene (24% @ 20%), Indeno(1,2,3-cd)Pyrene (24% @ 20%)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

Total Metals

19H0074-09

[Elevated Method Reporting Limits due to sample matrix \(EL\).](#)

Arsenic

CH90760-DUP2

[Relative percent difference for duplicate is outside of criteria \(D+\).](#)

Chromium (61% @ 35%), Silver (68% @ 35%)

CH90760-MS2

[Due to high target values, matrix spike analyte\(s\) is masked \(MT\).](#)

Barium (6% @ 75-125%), Chromium (1420% @ 75-125%), Lead (-303% @ 75-125%), Zinc (5830% @ 75-125%)

CH90760-MS2

[Matrix Spike recovery is below lower control limit \(M-\).](#)

Arsenic (20% @ 75-125%), Cadmium (64% @ 75-125%)

CH90760-MSD2

[Due to high target values, matrix spike analyte\(s\) is masked \(MT\).](#)

Barium (-85% @ 75-125%), Chromium (-1570% @ 75-125%), Lead (-1080% @ 75-125%), Zinc (500% @ 75-125%)

CH90760-MSD2

[Matrix Spike recovery is above upper control limit \(M+\).](#)

Arsenic (178% @ 75-125%)

CH90760-MSD2

[Matrix Spike recovery is below lower control limit \(M-\).](#)

Cadmium (17% @ 75-125%), Silver (-6% @ 75-125%)

CH90760-MSD2

[Relative percent difference for duplicate is outside of criteria \(D+\).](#)

Arsenic (145% @ 35%), Cadmium (36% @ 35%), Chromium (82% @ 35%), Silver (200% @ 35%), Zinc (55% @ 35%)

CH90760-SRM2

[Standard Reference Material is biased low \(R-\).](#)

Silver (28% @ 70-130%)

CH90761-MS2

[Due to high target values, matrix spike analyte\(s\) is masked \(MT\).](#)

Mercury (22% @ 75-125%)

CH90761-MSD2

[Due to high target values, matrix spike analyte\(s\) is masked \(MT\).](#)

Mercury (52% @ 75-125%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0074-01 through 19H0074-13**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 14, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP10-05 3-4
Date Sampled: 08/01/19 12:15
Percent Solids: 92
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 13:28		CH90805
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 13:28		CH90805
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 13:28		CH90805
Aroclor 1242	5.6 (0.5)		8082A		10	08/11/19 20:50		CH90805
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 13:28		CH90805
Aroclor 1254 [2C]	8.8 (0.5)		8082A		10	08/11/19 20:50		CH90805
Aroclor 1260 [2C]	3.4 (0.5)		8082A		10	08/11/19 20:50		CH90805
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 13:28		CH90805
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 13:28		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	52 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	365 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	49 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	48 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP10-06 4-5
 Date Sampled: 08/01/19 12:10
 Percent Solids: 91
 Initial Volume: 20.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
 ESS Laboratory Sample ID: 19H0074-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1221	ND (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1232	ND (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1242 [2C]	P, LC 3.4 (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1248	ND (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1254 [2C]	13.3 (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1260	4.5 (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1262	ND (1.1)		8082A		20	08/11/19 21:09		CH90805
Aroclor 1268	ND (1.1)		8082A		20	08/11/19 21:09		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP10-07 5-6
Date Sampled: 08/01/19 11:55
Percent Solids: 88
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 14:06		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 14:06		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 14:06		CH90805
Aroclor 1242	1.1 (0.06)		8082A		1	08/09/19 14:06		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 14:06		CH90805
Aroclor 1254 [2C]	3.5 (0.3)		8082A		5	08/11/19 21:29		CH90805
Aroclor 1260 [2C]	1.6 (0.3)		8082A		5	08/11/19 21:29		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 14:06		CH90805
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 14:06		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	49 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	256 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	45 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	50 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-07N 0-1
 Date Sampled: 08/01/19 07:50
 Percent Solids: 89
 Initial Volume: 20.8
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
 ESS Laboratory Sample ID: 19H0074-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1221	ND (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1232	ND (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1242	ND (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1248	ND (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1254 [2C]	38.1 (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1260	48.5 (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1262	ND (5.4)		8082A		100	08/11/19 21:48		CH90805
Aroclor 1268	ND (5.4)		8082A		100	08/11/19 21:48		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-07N 5-6
Date Sampled: 08/01/19 07:40
Percent Solids: 92
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1221	ND (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1232	ND (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1242 [2C]	ND (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1248	ND (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1254 [2C]	38.2 (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1260	52.7 (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1262	ND (5.4)		8082A		100	08/11/19 22:07		CH90805
Aroclor 1268	ND (5.4)		8082A		100	08/11/19 22:07		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-09N 5-6
Date Sampled: 08/01/19 09:15
Percent Solids: 83
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1242	0.8 (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1254 [2C]	0.4 (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1260 [2C]	0.4 (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 15:23		CH90805
Aroclor 1268 [2C]	0.3 (0.06)		8082A		1	08/09/19 15:23		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	352 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	371 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	49 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	54 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-12W 0-1
Date Sampled: 08/01/19 11:35
Percent Solids: 93
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 15:42		CH90805
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 15:42		CH90805
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 15:42		CH90805
Aroclor 1242	0.7 (0.05)		8082A		1	08/09/19 15:42		CH90805
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 15:42		CH90805
Aroclor 1254	2.4 (0.3)		8082A		5	08/11/19 22:26		CH90805
Aroclor 1260	1.1 (0.05)		8082A		1	08/09/19 15:42		CH90805
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 15:42		CH90805
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 15:42		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	55 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	101 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	47 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-12W 5-6
Date Sampled: 08/01/19 11:10
Percent Solids: 91

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-09
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	EL ND (13.2)		6010C		5	BJV	08/09/19 16:02	2.07	100	CH90760
Barium	290 (2.65)		6010C		1	KJK	08/09/19 5:59	2.07	100	CH90760
Cadmium	11.4 (0.53)		6010C		1	KJK	08/09/19 5:59	2.07	100	CH90760
Chromium	902 (1.06)		6010C		1	KJK	08/09/19 5:59	2.07	100	CH90760
Lead	876 (5.30)		6010C		1	KJK	08/09/19 5:59	2.07	100	CH90760
Mercury	2.66 (0.765)		7471B		25	MKS	08/08/19 15:28	0.71	40	CH90761
Selenium	1.22 (0.53)		6020A		1	NAR	08/12/19 13:25	2.07	100	CH90760
Silver	0.68 (0.53)		6010C		1	KJK	08/09/19 5:59	2.07	100	CH90760
Zinc	1610 (13.2)		6010C		5	BJV	08/09/19 16:02	2.07	100	CH90760



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-MBerm-12W 5-6
 Date Sampled: 08/01/19 11:10
 Percent Solids: 91
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
 ESS Laboratory Sample ID: 19H0074-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 16:01		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 16:01		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 16:01		CH90805
Aroclor 1242 [2C]	P, LC 3.5 (0.6)		8082A		10	08/11/19 22:45		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 16:01		CH90805
Aroclor 1254 [2C]	6.1 (0.6)		8082A		10	08/11/19 22:45		CH90805
Aroclor 1260 [2C]	4.2 (0.6)		8082A		10	08/11/19 22:45		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 16:01		CH90805
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 16:01		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	93 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	101 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	54 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-12W 5-6
Date Sampled: 08/01/19 11:10
Percent Solids: 91
Initial Volume: 24.4
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-09
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/5/19 18:45

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (84.3)		MADEP-EPH		1	CAD	08/07/19 20:19	C9H0125	CH90566
C19-C36 Aliphatics1	271 (84.3)		MADEP-EPH		1	CAD	08/07/19 20:19	C9H0125	CH90566
C11-C22 Unadjusted Aromatics1	195 (84.3)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
C11-C22 Aromatics1,2	166 (84.3)		EPH8270			VSC	08/11/19 8:31		[CALC]
2-Methylnaphthalene	ND (0.39)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Acenaphthene	ND (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Naphthalene	ND (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Phenanthrene	4.38 (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Acenaphthylene	ND (0.39)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Anthracene	ND (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Benzo(a)anthracene	2.81 (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Benzo(a)pyrene	2.61 (0.39)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Benzo(b)fluoranthene	2.53 (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Benzo(g,h,i)perylene	ND (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Benzo(k)fluoranthene	2.38 (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Chrysene	2.87 (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Dibenzo(a,h)Anthracene	0.73 (0.39)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Fluoranthene	5.78 (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Fluorene	ND (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Indeno(1,2,3-cd)Pyrene	ND (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566
Pyrene	5.20 (2.25)		EPH8270		1	VSC	08/11/19 8:31	C9H0220	CH90566

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	%	SD	40-140
<i>Surrogate: 2-Bromonaphthalene</i>	98 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	97 %		40-140
<i>Surrogate: O-Terphenyl</i>	45 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-13W 0-1
Date Sampled: 08/01/19 12:40
Percent Solids: 95
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1221	ND (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1232	ND (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1242 [2C]	0.1 (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1248	ND (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1254 [2C]	0.7 (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1260	0.9 (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1262	ND (0.05)		8082A		1	08/11/19 17:00		CH90805
Aroclor 1268	ND (0.05)		8082A		1	08/11/19 17:00		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	61 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	55 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-13W 5-6
Date Sampled: 08/01/19 12:35
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/11/19 17:19		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/11/19 17:19		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/11/19 17:19		CH90805
Aroclor 1242	0.6 (0.06)		8082A		1	08/11/19 17:19		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/11/19 17:19		CH90805
Aroclor 1254 [2C]	2.5 (0.3)		8082A		5	08/13/19 0:05		CH90805
Aroclor 1260	3.0 (0.3)		8082A		5	08/13/19 0:05		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/11/19 17:19		CH90805
Aroclor 1268	ND (0.06)		8082A		1	08/11/19 17:19		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	109 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	125 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	38 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	45 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-14W 0-1
 Date Sampled: 08/01/19 13:30
 Percent Solids: 89
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
 ESS Laboratory Sample ID: 19H0074-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1221	ND (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1232	ND (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1242	35.6 (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1248	ND (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1254	ND (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1260	ND (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1262	ND (2.3)		8082A		40	08/13/19 0:24		CH90805
Aroclor 1268	ND (2.3)		8082A		40	08/13/19 0:24		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-14W 5-6
Date Sampled: 08/01/19 13:20
Percent Solids: 93
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0074
ESS Laboratory Sample ID: 19H0074-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/11/19 17:58		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/11/19 17:58		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/11/19 17:58		CH90805
Aroclor 1242	0.6 (0.06)		8082A		1	08/11/19 17:58		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/11/19 17:58		CH90805
Aroclor 1254 [2C]	2.7 (0.3)		8082A		5	08/13/19 0:43		CH90805
Aroclor 1260	3.8 (0.3)		8082A		5	08/13/19 0:43		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/11/19 17:58		CH90805
Aroclor 1268	ND (0.06)		8082A		1	08/11/19 17:58		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	109 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	135 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	39 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	48 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CH90760 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Arsenic	108	8.93	mg/kg wet	128.0		84	80-120			
Barium	511	8.93	mg/kg wet	536.0		95	80-120			
Cadmium	84.6	1.79	mg/kg wet	99.00		85	80-120			
Chromium	107	3.57	mg/kg wet	116.0		92	80-120			
Lead	276	17.9	mg/kg wet	277.0		99	80-120			
Selenium	248	8.93	mg/kg wet	242.0		102	80-120			
Silver	61.4	1.79	mg/kg wet	64.30		96	80-120			
Zinc	532	8.93	mg/kg wet	561.0		95	80-120			
LCS Dup										
Arsenic	105	9.09	mg/kg wet	128.0		82	80-120	2	20	
Barium	476	9.09	mg/kg wet	536.0		89	80-120	7	20	
Cadmium	81.1	1.82	mg/kg wet	99.00		82	80-120	4	20	
Chromium	103	3.64	mg/kg wet	116.0		88	80-120	4	20	
Lead	262	18.2	mg/kg wet	277.0		94	80-120	5	20	
Selenium	251	9.09	mg/kg wet	242.0		104	80-120	1	30	
Silver	58.9	1.82	mg/kg wet	64.30		92	80-120	4	20	
Zinc	509	9.09	mg/kg wet	561.0		91	80-120	5	20	
Duplicate Source: 19H0074-09										
Arsenic	ND	11.1	mg/kg dry		2.21				35	
Barium	283	2.23	mg/kg dry		290			3	35	
Cadmium	11.3	0.45	mg/kg dry		11.4			0.6	35	
Chromium	479	0.89	mg/kg dry		902			61	35	D+
Lead	1100	4.46	mg/kg dry		876			23	35	
Selenium	0.901	0.45	mg/kg dry		1.22			30	35	
Silver	1.40	0.45	mg/kg dry		0.685			68	35	D+
Zinc	1440	11.1	mg/kg dry		1610			11	35	
Matrix Spike Source: 19H0074-09										
Arsenic	7.15	12.4	mg/kg dry	24.82	2.21	20	75-125			M-
Barium	292	2.48	mg/kg dry	24.82	290	6	75-125			MT
Cadmium	19.3	0.50	mg/kg dry	12.41	11.4	64	75-125			M-
Chromium	1250	0.99	mg/kg dry	24.82	902	NR	75-125			MT
Lead	800	4.96	mg/kg dry	24.82	876	NR	75-125			MT
Selenium	39.7	6.21	mg/kg dry	49.64	ND	80	75-125			
Silver	11.5	0.50	mg/kg dry	12.41	0.685	87	75-125			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CH90760 - 3050B										
Zinc	3060	12.4	mg/kg dry	24.82	1610	NR	75-125			MT
Matrix Spike Dup Source: 19H0074-09										
Arsenic	44.8	2.40	mg/kg dry	23.95	2.21	178	75-125	145	35	M+, D+
Barium	270	2.40	mg/kg dry	23.95	290	NR	75-125	8	35	MT
Cadmium	13.5	0.48	mg/kg dry	11.98	11.4	17	75-125	36	35	M-, D+
Chromium	526	0.96	mg/kg dry	23.95	902	NR	75-125	82	35	MT, D+
Lead	616	4.79	mg/kg dry	23.95	876	NR	75-125	26	35	MT
Selenium	46.0	5.99	mg/kg dry	47.91	1.22	94	75-125	15	35	
Silver	ND	0.48	mg/kg dry	11.98	0.685	NR	75-125	200	35	M-, D+
Zinc	1730	12.0	mg/kg dry	23.95	1610	500	75-125	55	35	MT+
Reference										
Lead	ND	38.5	mg/kg wet	4490		0	83-113			
Reference										
Barium	494	8.62	mg/kg wet	500.0		99	70-130			
Cadmium	423	1.72	mg/kg wet	500.0		85	70-130			
Chromium	489	3.45	mg/kg wet	500.0		98	70-130			
Lead	501	17.2	mg/kg wet	500.0		100	70-130			
Silver	142	1.72	mg/kg wet	500.0		28	70-130			R-
Batch CH90761 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	23.8	3.54	mg/kg wet	27.30		87	80-120			
LCS Dup										
Mercury	23.5	3.81	mg/kg wet	27.30		86	80-120	2	20	
Duplicate Source: 19H0074-09										
Mercury	3.79	0.799	mg/kg dry		2.66			35	35	
Matrix Spike Source: 19H0074-09										
Mercury	2.70	0.705	mg/kg dry	0.1722	2.66	22	75-125			MT
Matrix Spike Dup Source: 19H0074-09										
Mercury	2.77	0.679	mg/kg dry	0.2071	2.66	52	75-125	3	35	MT
Reference										
Mercury	0.937	0.168	mg/kg wet	1000		0.09	0-200			
8082A Polychlorinated Biphenyls (PCB)										
Batch CH90805 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90805 - 3540C

Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0222		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		92	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0241		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140	3	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		119	40-140	13	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0219		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0220		mg/kg wet	0.02500		88	30-150			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90566 - 3546

Blank

C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90566 - 3546

Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							

<i>Surrogate: 1-Chlorooctadecane</i>	1.74		mg/kg wet	2.020		86	40-140			
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Blank

2-Methylnaphthalene	ND	0.05	mg/kg wet							
Acenaphthene	ND	0.40	mg/kg wet							
Acenaphthylene	ND	0.14	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.07	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.05	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.07	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							
<i>Surrogate: 2-Bromonaphthalene</i>	43.6		mg/L	50.00		87	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	39.1		mg/L	50.00		78	40-140			
<i>Surrogate: O-Terphenyl</i>	1.62		mg/kg wet	2.008		81	40-140			

LCS

C19-C36 Aliphatics1	13.7	15.0	mg/kg wet	16.00		86	40-140			
C9-C18 Aliphatics1	8.0	15.0	mg/kg wet	12.00		66	40-140			
Decane (C10)	0.9	0.5	mg/kg wet	2.000		45	40-140			
Docosane (C22)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Dodecane (C12)	1.0	0.5	mg/kg wet	2.000		49	40-140			
Eicosane (C20)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Hexacosane (C26)	1.6	0.5	mg/kg wet	2.000		81	40-140			



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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90566 - 3546										
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		73	40-140			
Hexatriacontane (C36)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonadecane (C19)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonane (C9)	0.7	0.5	mg/kg wet	2.000		37	30-140			
Octacosane (C28)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Octadecane (C18)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Tetracosane (C24)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		59	40-140			
Triacontane (C30)	1.6	0.5	mg/kg wet	2.000		80	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.59</i>		mg/kg wet	<i>2.020</i>		<i>79</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene	1.29	0.20	mg/kg wet	2.000		65	40-140			
Acenaphthene	1.51	0.40	mg/kg wet	2.000		76	40-140			
Acenaphthylene	1.58	0.14	mg/kg wet	2.000		79	40-140			
Anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140			
Benzo(a)anthracene	2.16	0.40	mg/kg wet	2.000		108	40-140			
Benzo(a)pyrene	2.13	0.40	mg/kg wet	2.000		106	40-140			
Benzo(b)fluoranthene	1.95	0.40	mg/kg wet	2.000		98	40-140			
Benzo(g,h,i)perylene	1.81	0.40	mg/kg wet	2.000		90	40-140			
Benzo(k)fluoranthene	2.00	0.40	mg/kg wet	2.000		100	40-140			
C11-C22 Unadjusted Aromatics1	33.6	15.0	mg/kg wet	34.00		99	40-140			
Chrysene	2.04	0.40	mg/kg wet	2.000		102	40-140			
Dibenzo(a,h)Anthracene	1.85	0.20	mg/kg wet	2.000		93	40-140			
Fluoranthene	1.82	0.40	mg/kg wet	2.000		91	40-140			
Fluorene	1.56	0.40	mg/kg wet	2.000		78	40-140			
Indeno(1,2,3-cd)Pyrene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Naphthalene	1.15	0.40	mg/kg wet	2.000		57	40-140			
Phenanthrene	1.84	0.40	mg/kg wet	2.000		92	40-140			
Pyrene	1.91	0.40	mg/kg wet	2.000		95	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>42.8</i>		mg/L	<i>50.00</i>		<i>86</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>37.7</i>		mg/L	<i>50.00</i>		<i>75</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.54</i>		mg/kg wet	<i>2.008</i>		<i>77</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS Dup										
C19-C36 Aliphatics1	15.5	15.0	mg/kg wet	16.00		97	40-140	12	25	
C9-C18 Aliphatics1	9.4	15.0	mg/kg wet	12.00		78	40-140	16	25	
Decane (C10)	1.1	0.5	mg/kg wet	2.000		56	40-140	22	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		92	40-140	12	25	
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		62	40-140	24	25	
Eicosane (C20)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Hexacosane (C26)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Hexadecane (C16)	1.7	0.5	mg/kg wet	2.000		84	40-140	14	25	



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 19H0074

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90566 - 3546										
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		90	40-140	12	25	
Nonadecane (C19)	1.8	0.5	mg/kg wet	2.000		89	40-140	12	25	
Nonane (C9)	0.9	0.5	mg/kg wet	2.000		45	30-140	21	25	
Octacosane (C28)	1.8	0.5	mg/kg wet	2.000		91	40-140	12	25	
Octadecane (C18)	1.8	0.5	mg/kg wet	2.000		89	40-140	12	25	
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		92	40-140	12	25	
Tetradecane (C14)	1.4	0.5	mg/kg wet	2.000		72	40-140	19	25	
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		90	40-140	12	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.75</i>		<i>mg/kg wet</i>	<i>2.020</i>		<i>86</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene	1.24	0.20	mg/kg wet	2.000		62	40-140	4	30	
Acenaphthene	1.41	0.40	mg/kg wet	2.000		71	40-140	7	30	
Acenaphthylene	1.51	0.14	mg/kg wet	2.000		75	40-140	5	30	
Anthracene	1.78	0.40	mg/kg wet	2.000		89	40-140	5	30	
Benzo(a)anthracene	2.05	0.40	mg/kg wet	2.000		102	40-140	5	30	
Benzo(a)pyrene	2.04	0.40	mg/kg wet	2.000		102	40-140	4	30	
Benzo(b)fluoranthene	1.77	0.40	mg/kg wet	2.000		89	40-140	9	30	
Benzo(g,h,i)perylene	1.68	0.40	mg/kg wet	2.000		84	40-140	7	30	
Benzo(k)fluoranthene	1.83	0.40	mg/kg wet	2.000		91	40-140	9	30	
C11-C22 Unadjusted Aromatics1	31.4	15.0	mg/kg wet	34.00		92	40-140	7	25	
Chrysene	1.93	0.40	mg/kg wet	2.000		97	40-140	5	30	
Dibenzo(a,h)Anthracene	1.75	0.20	mg/kg wet	2.000		88	40-140	6	30	
Fluoranthene	1.81	0.40	mg/kg wet	2.000		91	40-140	0.3	30	
Fluorene	1.56	0.40	mg/kg wet	2.000		78	40-140	0.1	30	
Indeno(1,2,3-cd)Pyrene	1.86	0.40	mg/kg wet	2.000		93	40-140	7	30	
Naphthalene	1.17	0.40	mg/kg wet	2.000		58	40-140	1	30	
Phenanthrene	1.77	0.40	mg/kg wet	2.000		89	40-140	4	30	
Pyrene	1.82	0.40	mg/kg wet	2.000		91	40-140	5	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>39.7</i>		<i>mg/L</i>	<i>50.00</i>		<i>79</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>36.4</i>		<i>mg/L</i>	<i>50.00</i>		<i>73</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.47</i>		<i>mg/kg wet</i>	<i>2.008</i>		<i>73</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- R- Standard Reference Material is biased low (R-).
- P Percent difference between primary and confirmation results exceeds 40% (P).
- MT Due to high target values, matrix spike analyte(s) is masked (MT).
- M+ Matrix Spike recovery is above upper control limit (M+).
- M- Matrix Spike recovery is below lower control limit (M-).
- LC Lower value is used due to matrix interferences (LC).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0074

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0074

Date Received: 8/2/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/9/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.5 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? No
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about **short holds & rushes**? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes No

- 11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

Did not receive sample 6 "Bberm-09N (0-1)" collected 8/1/19 at 0935

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? Justin Ivas Date: 8/5/19 Time: _____ By: hdm

Sample 06 removed from work order per client

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372963	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	372962	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	372961	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	372960	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372959	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372957	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372964	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	372956	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	372955	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373148	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373149	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373150	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	372954	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	372953	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	372952	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	372951	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab?

Initials: hdm

Are barcode labels on correct containers?

Yes / No

Are all Flashpoint stickers attached/container ID # circled?

Yes / No NA

Are all Hex Chrome stickers attached?

Yes / No NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0074

Date Received: 8/2/2019

Are all QC stickers attached?

Yes / No / NA
Yes / No / NA

Are VOA stickers attached if bubbles noted?

Completed

By: [Signature]

Date & Time: 8/2/19 2204

Reviewed

By: [Signature]

Date & Time: 08/2/19 2207

Delivered

By: [Signature]

8/2/19

2213

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job # **19H0074**
(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Name: **Tombarello Site Investigation**

Project Location: **Lawrence, MA**

Project Number: **1802441**

Project Manager: **L. Lombardo**

Send Report to: **lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, realeadas@neirconsultant.com**
Send EDD to: **EastRegionData@geiconsultants.com**

Project Information

Page 3 of 5

Preservative

None	None	None	None																	
------	------	------	------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Analysis

PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (8010, 7471, Hg)D	PCBs (aqueous)	MS/MSD RCRA 8	BFM															
x																				
x																				
x																				
x																				
x																				
x																				
x																				
x	x	x																		
x																				
x																				
x																				
x																				

Sample Handling
 YES NO NA
 Samples Field Filtered
 YES NO NA
 Sampled Shipped With Ice
 YES NO NA
 Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED **YES** NO

If Yes, Are MCP Analytical Methods Required? **YES** NO NA
 Are Drinking Water Samples Submitted? **YES** NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? **YES** NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials
		Date	Time			
	1802441-SP10-05(3-4)	8/1/2019	1215	Soil	1	BRL
2	1802441-SP10-06(4-5)	8/1/2019	1210	Soil	1	BRL
3	1802441-SP10-07(5-6)	8/1/2019	1155	Soil	1	BRL
4	1802441-BBerm-07N(0-1)	8/1/2019	0750	Soil	1	CWS
5	1802441-MBerm-07N(5-6)	8/1/2019	0740	Soil	1	CWS
6	1802441-BBerm-09N(0-1)	8/1/2019	0935	Soil	1	CWS
7	1802441-MBerm-09N(5-6)	8/1/2019	0915	Soil	2	CWS
8	1802441-BBerm-12W(0-1)	8/1/2019	1135	Soil	1	CWS
9	1802441-MBerm-12W(5-6)	8/1/2019	1110	Soil	1	CWS
10	1802441-BBerm-13W(0-1)	8/1/2019	1240	Soil	1	BRL
11	1802441-MBerm-13W(5-6)	8/1/2019	1235	Soil	1	BRL
12	1802441-BBerm-14W(0-1)	8/1/2019	1330	Soil	1	BRL
13	1802441-MBerm-14W(5-6)	8/1/2019	1320	Soil	1	BRL

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal X Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature)	Date:	8/1/2019	Received by: (signature)
1.	Date:	8/1/2019	Time: 1630
Relinquished by: (signature)	Date:	8/1/19	Time: 1315
2. GEI Refrigerator	Date:	8/2/19	Time: 1315
Relinquished by: (signature)	Date:	8/2/19	Time: 1315
3.	Date:		Time:
Relinquished by: (signature)	Date:		Time:
4.	Date:		Time:

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job #

(Lab use only)

19H0074



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: lombardo@geiconsultants.com;
bfongmurdock@geiconsultants.com;
rsaledas@geiconsultants.com
Send EDD to: EastRegionData@geiconsultants.com

Page 3 of 5

Preservative				Analysis																
None	None	None	None																	

PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)																	

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials
		Date	Time			
1	1802441-SP10-05(3-4)	8/1/2019	1215	Soil	1	BRL
2	1802441-SP10-06(4-5)	8/1/2019	1210	Soil	1	BRL
3	1802441-SP10-07(5-6)	8/1/2019	1155	Soil	1	BRL
4	1802441-BBerm-07N(0-1)	8/1/2019	0750	Soil	1	CWS
5	1802441-MBerm-07N(5-6)	8/1/2019	0740	Soil	1	CWS
6	1802441-BBerm-09N(0-1)	8/1/2019	0935	Soil	1	CWS
7	1802441-MBerm-09N(5-6)	8/1/2019	0915	Soil	2	CWS
8	1802441-BBerm-12W(0-1)	8/1/2019	1135	Soil	1	CWS
9	1802441-MBerm-12W(5-6)	8/1/2019	1110	Soil	1	CWS
10	1802441-BBerm-13W(0-1)	8/1/2019	1240	Soil	1	BRL
11	1802441-MBerm-13W(5-6)	8/1/2019	1235	Soil	1	BRL
12	1802441-BBerm-14W(0-1)	8/1/2019	1330	Soil	1	BRL
13	1802441-MBerm-14W(5-6)	8/1/2019	1320	Soil	1	BRL

Sample Handling
 Samples Field Filtered
 YES NO NA
 Sampled Shipped With Ice
 YES NO
 Sample Specific Remarks

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analyses whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
	8/1/2019	1630	1. GEI Refrigerator
	8/1/19	1315	2. GEI Refrigerator
	8/2/19	1315	3.
	8/2/19	16:09	4.

Turnaround Time (Business days):
 Normal X Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual soxhelt extra ction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

100 Temp: 3.5

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # 19H0074



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Name: Tombarello Site Investigation

Project Number: 1802441

Send Report to: bfongmurdock@geiconsultants.com
ccalarac@geiconsultants.com
Send EDD to: EasiRegionData@geiconsultants.com

Project Location: Lawrence, MA

Project Manager: L. Lombardo

Preservative
Analysis

Page 3 of 5

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection Date	Time	Matrix	No. of Bottles	Sampler Initials
1	1802441-SP10-05(3-4)	8/1/2019	1215	Soil	1	BRL
2	1802441-SP10-06(4-5)	8/1/2019	1210	Soil	1	BRL
3	1802441-SP10-07(5-6)	8/1/2019	1155	Soil	1	BRL
4	1802441-BBerm-07N(0-1)	8/1/2019	0750	Soil	1	CWS
5	1802441-MBerm-07N(5-6)	8/1/2019	0740	Soil	1	CWS
6	1802441-BBerm-09N(0-1)	8/1/2019	0935	Soil	1	CWS
7	1802441-MBerm-09N(5-6)	8/1/2019	0915	Soil	2	CWS
8	1802441-BBerm-12W(0-1)	8/1/2019	1135	Soil	1	CWS
9	1802441-MBerm-12W(5-6)	8/1/2019	1110	Soil	1	CWS
10	1802441-BBerm-13W(0-1)	8/1/2019	1240	Soil	1	BRL
11	1802441-MBerm-13W(5-6)	8/1/2019	1235	Soil	1	BRL
12	1802441-BBerm-14W(0-1)	8/1/2019	1330	Soil	1	BRL
13	1802441-MBerm-14W(5-6)	8/1/2019	1320	Soil	1	BRL

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Reinquired by (signature): _____ Date: 8/1/2019 Received by (signature): _____

1. GEI Refrigerator
Date: 8/1/2019 Time: 1630
Received by (signature): _____

2. GEI Refrigerator
Date: 8/1/2019 Time: 1315
Received by (signature): _____

3. _____
Date: 8/1/2019 Time: 1315
Received by (signature): _____

4. _____
Date: _____ Time: _____
Received by (signature): _____

Turnaround Time (Business days):
Normal 10-Day 5-Day Other 7-Day 3-Day

Additional Requirements/Comments/Remarks:
Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields OAPP.

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Sample Handling: YES NO NA

Samples Field Filtered: YES NO NA

Sample Specific Remarks: BFM

Project Information
 Project Name: Tombarello Site Investigation
 Project Location: Lawrence, MA
 Project Number: 1802441
 Project Manager: L. Lombardo

Send Report to: bfgmurdock@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Lab Sample Number	GEI Sample ID	Collection Date	Time	Matrix	No. of Bottles	Sampler (s) Initials	Preservative	Analysis	Sample Handling	Sample Specific Remarks
1	1802441-SP10-05(3-4)	8/1/2019	1215	Soil	1	BRL	None	None	None	Sampled With Ice
2	1802441-SP10-06(4-5)	8/1/2019	1210	Soil	1	BRL	None	None	None	Sampled With Ice
3	1802441-SP10-07(5-6)	8/1/2019	1155	Soil	1	BRL	None	None	None	Sampled With Ice
4	1802441-BBerm-07N(0-1)	8/1/2019	0750	Soil	1	CWS	None	None	None	Sampled With Ice
5	1802441-MBerm-07N(5-6)	8/1/2019	0740	Soil	1	CWS	None	None	None	Sampled With Ice
6	1802441-BBerm-09N(0-1)	8/1/2019	0935	Soil	1	CWS	None	None	None	Sampled With Ice
7	1802441-MBerm-09N(5-6)	8/1/2019	0915	Soil	2	CWS	None	None	None	Sampled With Ice
8	1802441-BBerm-12W(0-1)	8/1/2019	1135	Soil	1	CWS	None	None	None	Sampled With Ice
9	1802441-MBerm-12W(5-6)	8/1/2019	1110	Soil	1	CWS	None	None	None	Sampled With Ice
10	1802441-BBerm-13W(0-1)	8/1/2019	1240	Soil	1	BRL	None	None	None	Sampled With Ice
11	1802441-MBerm-13W(5-6)	8/1/2019	1235	Soil	1	BRL	None	None	None	Sampled With Ice
12	1802441-BBerm-14W(0-1)	8/1/2019	1330	Soil	1	BRL	None	None	None	Sampled With Ice
13	1802441-MBerm-14W(5-6)	8/1/2019	1320	Soil	1	BRL	None	None	None	Sampled With Ice

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days): Normal 10-Day 5-Day 3-Day Other

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

Relinquished by (signature) Date: 8/1/2019 Received by (signature) Date: 8/1/2019
 Relinquished by (signature) Date: 8/1/19 1315 Received by (signature) Date: 8/1/19 1315
 Relinquished by (signature) Date: 8/1/19 1315 Received by (signature) Date: 8/1/19 16:00
 Relinquished by (signature) Date: 8/1/19 16:00 Received by (signature) Date: 8/1/19 2100
 100 Temp: 3.5



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0075

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 4:33 pm, Aug 13, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

SAMPLE RECEIPT

The following samples were received on August 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0075-01	1802441-TBerm-10 0-1	Soil	8082A
19H0075-02	1802441-TBerm-10 3-4	Soil	8082A
19H0075-03	1802441-TBerm-11 0-1	Soil	8082A
19H0075-04	1802441-TBerm-11 3-4	Soil	8082A
19H0075-05	1802441-TBerm-12 0-1	Soil	8082A
19H0075-06	1802441-TBerm-12 3-4	Soil	8082A
19H0075-07	1802441-TBerm-13 0-1	Soil	8082A
19H0075-08	1802441-TBerm-13 3-4	Soil	8082A
19H0075-09	1802441-TBerm-14 0-1	Soil	8082A
19H0075-10	1802441-TBerm-14 3-4	Soil	8082A
19H0075-11	1802441-TBerm-15 0-1	Soil	8082A
19H0075-12	1802441-TBerm-15 3-4	Soil	8082A
19H0075-13	1802441-SP10-04 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0075-11 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0075-11 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0075-12 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0075-12 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0075-13 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0075-13 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0075-01 through 19H0075-13**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 13, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-10 0-1
Date Sampled: 08/01/19 08:45
Percent Solids: 92
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/11/19 18:17		CH90805
Aroclor 1221	ND (0.05)		8082A		1	08/11/19 18:17		CH90805
Aroclor 1232	ND (0.05)		8082A		1	08/11/19 18:17		CH90805
Aroclor 1242	0.3 (0.05)		8082A		1	08/11/19 18:17		CH90805
Aroclor 1248	ND (0.05)		8082A		1	08/11/19 18:17		CH90805
Aroclor 1254 [2C]	1.7 (0.3)		8082A		5	08/13/19 1:02		CH90805
Aroclor 1260	1.8 (0.3)		8082A		5	08/13/19 1:02		CH90805
Aroclor 1262	ND (0.05)		8082A		1	08/11/19 18:17		CH90805
Aroclor 1268	ND (0.05)		8082A		1	08/11/19 18:17		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	97 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	105 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	64 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-10 3-4
Date Sampled: 08/01/19 08:50
Percent Solids: 83
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/11/19 18:36		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/11/19 18:36		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/11/19 18:36		CH90805
Aroclor 1242	0.6 (0.06)		8082A		1	08/11/19 18:36		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/11/19 18:36		CH90805
Aroclor 1254 [2C]	3.0 (0.3)		8082A		5	08/13/19 1:22		CH90805
Aroclor 1260	2.9 (0.3)		8082A		5	08/13/19 1:22		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/11/19 18:36		CH90805
Aroclor 1268	ND (0.06)		8082A		1	08/11/19 18:36		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	95 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	104 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	39 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	52 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-11 0-1
Date Sampled: 08/01/19 09:10
Percent Solids: 92
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/11/19 18:55		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/11/19 18:55		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/11/19 18:55		CH90805
Aroclor 1242	0.6 (0.06)		8082A		1	08/11/19 18:55		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/11/19 18:55		CH90805
Aroclor 1254 [2C]	3.5 (0.3)		8082A		5	08/13/19 1:41		CH90805
Aroclor 1260	4.3 (0.3)		8082A		5	08/13/19 1:41		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/11/19 18:55		CH90805
Aroclor 1268	ND (0.06)		8082A		1	08/11/19 18:55		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	99 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	107 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	44 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-11 3-4
 Date Sampled: 08/01/19 09:15
 Percent Solids: 94
 Initial Volume: 20.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
 ESS Laboratory Sample ID: 19H0075-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/11/19 19:14		CH90805
Aroclor 1221	ND (0.05)		8082A		1	08/11/19 19:14		CH90805
Aroclor 1232	ND (0.05)		8082A		1	08/11/19 19:14		CH90805
Aroclor 1242 [2C]	1.7 (0.3)		8082A		5	08/13/19 2:00		CH90805
Aroclor 1248	ND (0.05)		8082A		1	08/11/19 19:14		CH90805
Aroclor 1254 [2C]	3.1 (0.3)		8082A		5	08/13/19 2:00		CH90805
Aroclor 1260	2.5 (0.3)		8082A		5	08/13/19 2:00		CH90805
Aroclor 1262	ND (0.05)		8082A		1	08/11/19 19:14		CH90805
Aroclor 1268	ND (0.05)		8082A		1	08/11/19 19:14		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	88 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	102 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	47 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-12 0-1
 Date Sampled: 08/01/19 10:25
 Percent Solids: 89
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
 ESS Laboratory Sample ID: 19H0075-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/11/19 19:34		CH90805
Aroclor 1221	ND (0.06)		8082A		1	08/11/19 19:34		CH90805
Aroclor 1232	ND (0.06)		8082A		1	08/11/19 19:34		CH90805
Aroclor 1242	0.6 (0.06)		8082A		1	08/11/19 19:34		CH90805
Aroclor 1248	ND (0.06)		8082A		1	08/11/19 19:34		CH90805
Aroclor 1254 [2C]	3.4 (0.3)		8082A		5	08/13/19 2:19		CH90805
Aroclor 1260	2.6 (0.3)		8082A		5	08/13/19 2:19		CH90805
Aroclor 1262	ND (0.06)		8082A		1	08/11/19 19:34		CH90805
Aroclor 1268	ND (0.06)		8082A		1	08/11/19 19:34		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	95 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	111 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	42 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	53 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-12 3-4
 Date Sampled: 08/01/19 10:30
 Percent Solids: 93
 Initial Volume: 20.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
 ESS Laboratory Sample ID: 19H0075-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:08

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/11/19 19:53		CH90805
Aroclor 1221	ND (0.05)		8082A		1	08/11/19 19:53		CH90805
Aroclor 1232	ND (0.05)		8082A		1	08/11/19 19:53		CH90805
Aroclor 1242	0.6 (0.05)		8082A		1	08/11/19 19:53		CH90805
Aroclor 1248	ND (0.05)		8082A		1	08/11/19 19:53		CH90805
Aroclor 1254 [2C]	2.8 (0.3)		8082A		5	08/13/19 2:38		CH90805
Aroclor 1260	3.0 (0.3)		8082A		5	08/13/19 2:38		CH90805
Aroclor 1262	ND (0.05)		8082A		1	08/11/19 19:53		CH90805
Aroclor 1268	ND (0.05)		8082A		1	08/11/19 19:53		CH90805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	111 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	121 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	53 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-13 0-1
Date Sampled: 08/01/19 10:35
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 15:50		CH90806
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 15:50		CH90806
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 15:50		CH90806
Aroclor 1242	0.1 (0.05)		8082A		1	08/09/19 15:50		CH90806
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 15:50		CH90806
Aroclor 1254	0.7 (0.05)		8082A		1	08/09/19 15:50		CH90806
Aroclor 1260 [2C]	1.6 (0.3)		8082A		5	08/11/19 16:22		CH90806
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 15:50		CH90806
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 15:50		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	80 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	42 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-13 3-4
Date Sampled: 08/01/19 10:40
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 16:09		CH90806
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 16:09		CH90806
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 16:09		CH90806
Aroclor 1242	0.5 (0.05)		8082A		1	08/09/19 16:09		CH90806
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 16:09		CH90806
Aroclor 1254 [2C]	3.7 (0.5)		8082A		10	08/11/19 16:41		CH90806
Aroclor 1260 [2C]	4.4 (0.5)		8082A		10	08/11/19 16:41		CH90806
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 16:09		CH90806
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 16:09		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	135 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	140 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-14 0-1
 Date Sampled: 08/01/19 10:45
 Percent Solids: 94
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
 ESS Laboratory Sample ID: 19H0075-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 16:29		CH90806
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 16:29		CH90806
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 16:29		CH90806
Aroclor 1242 [2C]	0.3 (0.05)		8082A		1	08/09/19 16:29		CH90806
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 16:29		CH90806
Aroclor 1254 [2C]	2.7 (0.5)		8082A		10	08/11/19 17:00		CH90806
Aroclor 1260 [2C]	3.7 (0.5)		8082A		10	08/11/19 17:00		CH90806
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 16:29		CH90806
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 16:29		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	103 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	124 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	33 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	42 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-14 3-4
Date Sampled: 08/01/19 10:50
Percent Solids: 93
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 16:48		CH90806
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 16:48		CH90806
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 16:48		CH90806
Aroclor 1242 [2C]	0.3 (0.06)		8082A		1	08/09/19 16:48		CH90806
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 16:48		CH90806
Aroclor 1254 [2C]	3.0 (0.6)		8082A		10	08/11/19 17:20		CH90806
Aroclor 1260 [2C]	4.3 (0.6)		8082A		10	08/11/19 17:20		CH90806
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 16:48		CH90806
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 16:48		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	106 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	97 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	31 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	42 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-15 0-1
Date Sampled: 08/01/19 11:15
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1221	ND (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1232	ND (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1242 [2C]	ND (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1248	ND (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1254 [2C]	21.3 (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1260 [2C]	27.6 (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1262	ND (2.9)		8082A		50	08/11/19 17:39		CH90806
Aroclor 1268	ND (2.9)		8082A		50	08/11/19 17:39		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-15 3-4
 Date Sampled: 08/01/19 11:20
 Percent Solids: 93
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
 ESS Laboratory Sample ID: 19H0075-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1221	ND (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1232	ND (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1242 [2C]	5.8 (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1248	ND (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1254 [2C]	58.7 (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1260 [2C]	64.1 (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1262	ND (5.4)		8082A		100	08/11/19 17:59		CH90806
Aroclor 1268	ND (5.4)		8082A		100	08/11/19 17:59		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP10-04 2-3
Date Sampled: 08/01/19 12:25
Percent Solids: 91
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0075
ESS Laboratory Sample ID: 19H0075-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1221	ND (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1232	ND (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1242	7.8 (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1248	ND (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1254 [2C]	11.5 (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1260 [2C]	4.1 (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1262	ND (1.1)		8082A		20	08/11/19 18:18		CH90806
Aroclor 1268	ND (1.1)		8082A		20	08/11/19 18:18		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90805 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0222		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		92	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0241		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140	3	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		119	40-140	13	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0219		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0220		mg/kg wet	0.02500		88	30-150			

Batch CH90806 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90806 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0243		mg/kg wet	0.02500		97	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0231		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0191		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0214		mg/kg wet	0.02500		86	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		110	40-140			

Surrogate: Decachlorobiphenyl	0.0256		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0244		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0212		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		102	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140	3	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		113	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0264		mg/kg wet	0.02500		105	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0250		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0212		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0226		mg/kg wet	0.02500		90	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0075

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0075

Date Received: 8/2/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/9/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.5 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about **short holds & rushes**? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	372977	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	372976	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	372975	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	372974	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	372973	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	372972	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	372971	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	372970	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	372969	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	372968	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	372967	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	372966	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	372965	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab?

Initials: W

Are barcode labels on correct containers?

Yes / No

Are all Flashpoint stickers attached/container ID # circled?

Yes / No / NA

Are all Hex Chrome stickers attached?

Yes / No / NA

Are all QC stickers attached?

Yes / No / NA

Are VOA stickers attached if bubbles noted?


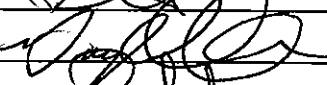

Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0075

Date Received: 8/2/2019

Completed By:		Date & Time:	<u>8/2/19</u>	<u>2152</u>
Reviewed By:		Date & Time:	<u>08/2/19</u>	<u>2157</u>
Delivered By:			<u>8/2/19</u>	<u>2212</u>

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job #
(Lab use only)

19H0075



Project Information
 Project Name: Tombarello Site Investigation
 Project Location: Lawrence, MA
 Project Number: 1802441
 Project Manager: L. Lombardo

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csalas@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 It Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative									
None	None	None	None						
Analysis									
PCBs (6082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 Hg) (a)	PCBs (aqueous)						

Sample Handling
 Samples Field Filtered YES NO NA
 Sampled Shipped With Ice YES NO
 Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials														
		Date	Time				PCBs (6082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 Hg) (a)	PCBs (aqueous)										
1	1802441-TBerm-10(0-1)	8/1/2019	0845	Soil	1	BRL	x													
2	1802441-TBerm-10(3-4)	8/1/2019	0850	Soil	1	BRL	x													
3	1802441-TBerm-11(0-1)	8/1/2019	0910	Soil	1	BRL	x													
4	1802441-TBerm-11(3-4)	8/1/2019	0915	Soil	1	BRL	x													
5	1802441-TBerm-12(0-1)	8/1/2019	1025	Soil	1	BRL	x													
6	1802441-TBerm-12(3-4)	8/1/2019	1030	Soil	1	BRL	x													
7	1802441-TBerm-13(0-1)	8/1/2019	1035	Soil	1	BRL	x													
8	1802441-TBerm-13(3-4)	8/1/2019	1040	Soil	1	BRL	x													
9	1802441-TBerm-14(0-1)	8/1/2019	1045	Soil	1	BRL	x													
10	1802441-TBerm-14(3-4)	8/1/2019	1050	Soil	1	BRL	x													
11	1802441-TBerm-15(0-1)	8/1/2019	1115	Soil	1	BRL	x													
12	1802441-TBerm-15(3-4)	8/1/2019	1120	Soil	1	BRL	x													
13	1802441-SP10-04(2-3)	8/1/2019	1225	Soil	1	BRL	x													

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal X Other ____
 10-Day ____ 7-Day ____
 5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature)	Date:	8/1/2019	Received by: (signature)
	8/1/2019	1630	1. GEI Refrigerator
Relinquished by: (signature)	Date:	8/2/19	Received by: (signature)
	8/2/19	1315	2.
Relinquished by: (signature)	Date:	8/2/19	Received by: (signature)
	8/2/19	1315	3.
Relinquished by: (signature)	Date:	8/2/19	Received by: (signature)
	8/2/19	16:09	4.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extra ction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

icc temp. 3.5



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0090

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 4:25 pm, Aug 09, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0090

SAMPLE RECEIPT

The following samples were received on August 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0090-01	1802441-EB-03	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0090

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0090

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0090

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0090-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 08, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-03
Date Sampled: 08/01/19 07:55
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19H0090
ESS Laboratory Sample ID: 19H0090-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: CAD
Prepared: 8/7/19 12:13

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1221	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1232	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1242	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1248	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1254	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1260	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1262	ND (0.09)		8082A		1	08/07/19 14:41		CH90710
Aroclor 1268	ND (0.09)		8082A		1	08/07/19 14:41		CH90710

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	82 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	62 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	70 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0090

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90710 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

Surrogate: Decachlorobiphenyl	0.0396		ug/L	0.05000		79	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0360		ug/L	0.05000		72	30-150			
Surrogate: Tetrachloro-m-xylene	0.0272		ug/L	0.05000		54	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0282		ug/L	0.05000		56	30-150			

LCS

Aroclor 1016	0.91	0.10	ug/L	1.000		91	40-140			
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140			
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0478		ug/L	0.05000		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0441		ug/L	0.05000		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0289		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0302		ug/L	0.05000		60	30-150			

LCS Dup

Aroclor 1016	0.92	0.10	ug/L	1.000		92	40-140	0.8	20	
Aroclor 1016 [2C]	0.91	0.10	ug/L	1.000		91	40-140	2	20	
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140	0.2	20	
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140	0.4	20	

Surrogate: Decachlorobiphenyl	0.0460		ug/L	0.05000		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0423		ug/L	0.05000		85	30-150			
Surrogate: Tetrachloro-m-xylene	0.0315		ug/L	0.05000		63	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0327		ug/L	0.05000		65	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0090

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0090

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0090

Shipped/Delivered Via: ESS Courier

Date Received: 8/2/2019

Project Due Date: 8/9/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.5 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
- a. Air bubbles in aqueous VOAs? Yes / No
- b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
- a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
- b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
- a. Was there a need to contact the client? Yes / No
- Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373137	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Initials u
- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/2/19 2117

Reviewed By: [Signature] Date & Time: 08/2/19 2154

Delivered By: [Signature] Date & Time: 8/2/19 2205

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job # **19H0090**
(Lab use only)



Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative									
None	None	None	None						

Analysis									
PCBs (8092)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)						
x									
	x	x							
x									
x									
			x						
		x							
x									
x									
x									
x									
x									
x									
x									
x									
x									
x									

Sample Handling

Samples Field Filtered YES NO NA

Sampled Shipped With Ice YES NO

Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials
		Date	Time			
	1802441-FD-05	8/1/2019	1200	Soil	1	CWS
	1802441-FD-06	8/1/2019	1201	Soil	1	CWS
	1802441-FD-07	8/1/2019	1208	Soil	1	CWS
	1802441-FD-08	8/1/2019	1204	Soil	1	BRL
	1802441-EB-03	8/1/2019	0755	Aqueous	1	CWS
	1802441-MS-01	8/1/2019	1203	Soil	1	CWS
	1802441-MSD-01	8/1/2019	1202	Soil	1	CWS
	1802441-TBerm-07(0-1)	8/1/2019	0815	Soil	1	BRL
	1802441-TBerm-07(3-4)	8/1/2019	0820	Soil	1	BRL
	1802441-TBerm-08(0-1)	8/1/2019	0800	Soil	1	BRL
	1802441-TBerm-08(3-4)	8/1/2019	0805	Soil	1	BRL
	1802441-TBerm-09(0-1)	8/1/2019	0925	Soil	1	BRL
	1802441-TBerm-09(3-4)	8/1/2019	0930	Soil	1	BRL

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal Other _____

10-Day _____ 7-Day _____

5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by (signature)	Date	Time	Received by (signature)
<i>[Signature]</i>	8/1/2019	1630	1. GEI Refrigerator
<i>[Signature]</i>	8/2/19	1315	2. <i>[Signature]</i>
<i>[Signature]</i>	8/2/19	1315	3. <i>[Signature]</i>
<i>[Signature]</i>	8/2/19	16:09	4. <i>[Signature]</i> 8/2/19 2100

Additional Requirements/Comments/Remarks:

Manual soxhlet extra ction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfields QAPP.

ice temp, 3.5



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0103

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 3:20 pm, Aug 14, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

SAMPLE RECEIPT

The following samples were received on August 05, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
19H0103-01	1802441-FD-09	Soil	8082A
19H0103-02	1802441-FD-10	Soil	8082A
19H0103-03	1802441-BBerm-15W 0-1	Soil	8082A
19H0103-04	1802441-MBerm-15W 5-6	Soil	6010C, 6020A, 7471B, 8082A, EPH8270, MADEP-EPH
19H0103-05	1802441-BBerm-16W 0-1	Soil	8082A
19H0103-06	1802441-MBerm-16W 5-6	Soil	8082A
19H0103-07	1802441-SP03-1 3-4	Soil	8082A
19H0103-08	1802441-SP03-2 4-5	Soil	8082A
19H0103-09	1802441-SP03-3 2-3	Soil	8082A
19H0103-10	1802441-SP04-1 3-4	Soil	8082A
19H0103-11	1802441-SP04-2 4-5	Soil	8082A
19H0103-12	1802441-SP04-3 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0103-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0103-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0103-03 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0103-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0103-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0103-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0103-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0103-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0103-08 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0103-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0103-09 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0103-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- 19H0103-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- C9H0144-CCV4 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
Benzo(g,h,i)perylene (22% @ 20%)

Total Metals

- CH90760-SRM2 [Standard Reference Material is biased low \(R-\).](#)
Silver (28% @ 70-130%)

No other observations noted.

End of Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0103-01 through 19H0103-12**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 14, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-09
Date Sampled: 08/02/19 12:07
Percent Solids: 95
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1242	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1254	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1260	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 18:05		CH90806
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 18:05		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	96 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	143 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-FD-10
 Date Sampled: 08/02/19 11:58
 Percent Solids: 95
 Initial Volume: 20.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
 ESS Laboratory Sample ID: 19H0103-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1221	ND (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1232	ND (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1242	4.0 (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1248	ND (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1254 [2C]	3.8 (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1260 [2C]	3.2 (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1262	ND (1.0)		8082A		20	08/11/19 18:37		CH90806
Aroclor 1268	ND (1.0)		8082A		20	08/11/19 18:37		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-15W 0-1
 Date Sampled: 08/02/19 08:25
 Percent Solids: 95
 Initial Volume: 20.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
 ESS Laboratory Sample ID: 19H0103-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1221	ND (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1232	ND (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1242	5.2 (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1248	ND (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1254 [2C]	10.3 (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1260	1.6 (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1262	ND (1.0)		8082A		20	08/11/19 18:57		CH90806
Aroclor 1268	ND (1.0)		8082A		20	08/11/19 18:57		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-15W 5-6
Date Sampled: 08/02/19 08:10
Percent Solids: 85

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	6.23 (2.71)		6010C		1	KJK	08/13/19 11:15	2.18	100	CH90760
Barium	559 (2.71)		6010C		1	KJK	08/09/19 7:43	2.18	100	CH90760
Cadmium	17.6 (0.54)		6010C		1	KJK	08/09/19 7:43	2.18	100	CH90760
Chromium	101 (1.08)		6010C		1	KJK	08/09/19 7:43	2.18	100	CH90760
Lead	1390 (5.42)		6010C		1	KJK	08/09/19 7:43	2.18	100	CH90760
Mercury	4.31 (1.58)		7471B		50	MKS	08/08/19 15:40	0.74	40	CH90761
Selenium	1.11 (0.54)		6020A		1	NAR	08/12/19 13:50	2.18	100	CH90760
Silver	1.98 (0.54)		6010C		1	KJK	08/09/19 7:43	2.18	100	CH90760
Zinc	3250 (13.6)		6010C		5	BJV	08/09/19 16:47	2.18	100	CH90760



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-15W 5-6
Date Sampled: 08/02/19 08:10
Percent Solids: 85
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1221	ND (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1232	ND (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1242	11.8 (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1248	ND (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1254 [2C]	52.4 (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1260 [2C]	56.6 (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1262	ND (6.1)		8082A		100	08/11/19 19:16		CH90806
Aroclor 1268	ND (6.1)		8082A		100	08/11/19 19:16		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-15W 5-6
Date Sampled: 08/02/19 08:10
Percent Solids: 85
Initial Volume: 24.3
Final Volume: 5
Extraction Method: 3546

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-04
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/6/19 18:10

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	131 (91.2)		MADEP-EPH		1	CAD	08/09/19 7:11	C9H0125	CH90659
C19-C36 Aliphatics1	1140 (91.2)		MADEP-EPH		1	CAD	08/09/19 7:11	C9H0125	CH90659
C11-C22 Unadjusted Aromatics1	618 (91.2)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
C11-C22 Aromatics1,2	567 (91.2)		EPH8270			VSC	08/13/19 11:53		[CALC]
2-Methylnaphthalene	ND (1.22)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Acenaphthene	ND (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Naphthalene	ND (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Phenanthrene	7.17 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Acenaphthylene	ND (1.22)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Anthracene	ND (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Benzo(a)anthracene	4.89 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Benzo(a)pyrene	4.10 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Benzo(b)fluoranthene	6.96 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Benzo(g,h,i)perylene	2.53 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Benzo(k)fluoranthene	ND (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Chrysene	4.57 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Dibenzo(a,h)Anthracene	ND (1.22)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Fluoranthene	9.41 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Fluorene	ND (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Indeno(1,2,3-cd)Pyrene	3.39 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659
Pyrene	8.35 (2.43)		EPH8270		1	VSC	08/13/19 11:53	C9H0235	CH90659

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	91 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	102 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	81 %		40-140
<i>Surrogate: O-Terphenyl</i>	70 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-16W 0-1
 Date Sampled: 08/02/19 10:20
 Percent Solids: 86
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
 ESS Laboratory Sample ID: 19H0103-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 19:22		CH90806
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 19:22		CH90806
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 19:22		CH90806
Aroclor 1242	0.5 (0.06)		8082A		1	08/09/19 19:22		CH90806
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 19:22		CH90806
Aroclor 1254 [2C]	3.2 (0.6)		8082A		10	08/11/19 19:36		CH90806
Aroclor 1260 [2C]	4.3 (0.6)		8082A		10	08/11/19 19:36		CH90806
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 19:22		CH90806
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 19:22		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	71 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-16W 5-6
Date Sampled: 08/02/19 10:10
Percent Solids: 89
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1221	ND (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1232	ND (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1242	ND (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1248	ND (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1254 [2C]	21.1 (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1260 [2C]	29.6 (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1262	ND (2.9)		8082A		50	08/11/19 19:55		CH90806
Aroclor 1268	ND (2.9)		8082A		50	08/11/19 19:55		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP03-1 3-4
Date Sampled: 08/02/19 12:55
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 22:17		CH90806
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 22:17		CH90806
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 22:17		CH90806
Aroclor 1242	1.1 (0.05)		8082A		1	08/09/19 22:17		CH90806
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 22:17		CH90806
Aroclor 1254	4.7 (0.5)		8082A		10	08/11/19 20:14		CH90806
Aroclor 1260	1.8 (0.5)		8082A		10	08/11/19 20:14		CH90806
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 22:17		CH90806
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 22:17		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	70 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	73 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	51 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	49 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP03-2 4-5
 Date Sampled: 08/02/19 13:10
 Percent Solids: 91
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
 ESS Laboratory Sample ID: 19H0103-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1221	ND (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1232	ND (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1242	2.2 (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1248	ND (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1254 [2C]	10.2 (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1260	3.3 (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1262	ND (1.1)		8082A		20	08/11/19 20:34		CH90806
Aroclor 1268	ND (1.1)		8082A		20	08/11/19 20:34		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP03-3 2-3
Date Sampled: 08/02/19 13:25
Percent Solids: 93
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1221	ND (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1232	ND (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1242	ND (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1248	ND (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1254 [2C]	9.7 (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1260	3.3 (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1262	ND (1.1)		8082A		20	08/11/19 20:53		CH90806
Aroclor 1268	ND (1.1)		8082A		20	08/11/19 20:53		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP04-1 3-4
Date Sampled: 08/02/19 13:40
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 23:15		CH90806
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 23:15		CH90806
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 23:15		CH90806
Aroclor 1242	0.6 (0.06)		8082A		1	08/09/19 23:15		CH90806
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 23:15		CH90806
Aroclor 1254 [2C]	5.4 (0.6)		8082A		10	08/11/19 21:13		CH90806
Aroclor 1260	2.6 (0.6)		8082A		10	08/11/19 21:13		CH90806
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 23:15		CH90806
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 23:15		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	122 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	127 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	48 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP04-2 4-5
Date Sampled: 08/02/19 13:55
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
ESS Laboratory Sample ID: 19H0103-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/09/19 23:34		CH90806
Aroclor 1221	ND (0.06)		8082A		1	08/09/19 23:34		CH90806
Aroclor 1232	ND (0.06)		8082A		1	08/09/19 23:34		CH90806
Aroclor 1242	1.1 (0.06)		8082A		1	08/09/19 23:34		CH90806
Aroclor 1248	ND (0.06)		8082A		1	08/09/19 23:34		CH90806
Aroclor 1254 [2C]	5.8 (0.6)		8082A		10	08/11/19 21:32		CH90806
Aroclor 1260 [2C]	1.7 (0.6)		8082A		10	08/11/19 21:32		CH90806
Aroclor 1262	ND (0.06)		8082A		1	08/09/19 23:34		CH90806
Aroclor 1268	ND (0.06)		8082A		1	08/09/19 23:34		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	111 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	111 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	53 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP04-3 2-3
 Date Sampled: 08/02/19 14:10
 Percent Solids: 91
 Initial Volume: 20.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0103
 ESS Laboratory Sample ID: 19H0103-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/8/19 16:24

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/09/19 23:53		CH90806
Aroclor 1221	ND (0.05)		8082A		1	08/09/19 23:53		CH90806
Aroclor 1232	ND (0.05)		8082A		1	08/09/19 23:53		CH90806
Aroclor 1242 [2C]	0.6 (0.05)		8082A		1	08/09/19 23:53		CH90806
Aroclor 1248	ND (0.05)		8082A		1	08/09/19 23:53		CH90806
Aroclor 1254 [2C]	3.9 (0.5)		8082A		10	08/11/19 21:51		CH90806
Aroclor 1260	1.8 (0.5)		8082A		10	08/11/19 21:51		CH90806
Aroclor 1262	ND (0.05)		8082A		1	08/09/19 23:53		CH90806
Aroclor 1268	ND (0.05)		8082A		1	08/09/19 23:53		CH90806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	136 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	166 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	53 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	106 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH90760 - 3050B

Blank

Arsenic	ND	2.50	mg/kg wet
Barium	ND	2.50	mg/kg wet
Cadmium	ND	0.50	mg/kg wet
Chromium	ND	1.00	mg/kg wet
Lead	ND	5.00	mg/kg wet
Selenium	ND	0.50	mg/kg wet
Silver	ND	0.50	mg/kg wet
Zinc	ND	2.50	mg/kg wet

LCS

Arsenic	108	8.93	mg/kg wet	128.0	84	80-120
Barium	511	8.93	mg/kg wet	536.0	95	80-120
Cadmium	84.6	1.79	mg/kg wet	99.00	85	80-120
Chromium	107	3.57	mg/kg wet	116.0	92	80-120
Lead	276	17.9	mg/kg wet	277.0	99	80-120
Selenium	248	8.93	mg/kg wet	242.0	102	80-120
Silver	61.4	1.79	mg/kg wet	64.30	96	80-120
Zinc	532	8.93	mg/kg wet	561.0	95	80-120

LCS Dup

Arsenic	105	9.09	mg/kg wet	128.0	82	80-120	2	20
Barium	476	9.09	mg/kg wet	536.0	89	80-120	7	20
Cadmium	81.1	1.82	mg/kg wet	99.00	82	80-120	4	20
Chromium	103	3.64	mg/kg wet	116.0	88	80-120	4	20
Lead	262	18.2	mg/kg wet	277.0	94	80-120	5	20
Selenium	251	9.09	mg/kg wet	242.0	104	80-120	1	30
Silver	58.9	1.82	mg/kg wet	64.30	92	80-120	4	20
Zinc	509	9.09	mg/kg wet	561.0	91	80-120	5	20

Reference

Lead	ND	38.5	mg/kg wet	4490	0	83-113
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Reference

Barium	494	8.62	mg/kg wet	500.0	99	70-130	
Cadmium	423	1.72	mg/kg wet	500.0	85	70-130	
Chromium	489	3.45	mg/kg wet	500.0	98	70-130	
Lead	501	17.2	mg/kg wet	500.0	100	70-130	
Silver	142	1.72	mg/kg wet	500.0	28	70-130	R-

Batch CH90761 - 7471B

Blank

Mercury	ND	0.033	mg/kg wet
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LCS

Mercury	23.8	3.54	mg/kg wet	27.30	87	80-120
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LCS Dup

Mercury	23.5	3.81	mg/kg wet	27.30	86	80-120	2	20
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Reference



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH90761 - 7471B

Mercury	0.937	0.168	mg/kg wet	1000		0.09	0-200			
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90806 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0243		mg/kg wet	0.02500		97	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0231		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0191		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0214		mg/kg wet	0.02500		86	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		110	40-140			

Surrogate: Decachlorobiphenyl	0.0256		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0244		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0212		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		102	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140	3	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		113	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0264		mg/kg wet	0.02500		105	30-150			
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CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90806 - 3540C

Surrogate: Decachlorobiphenyl [2C]	0.0250		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0212		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0226		mg/kg wet	0.02500		90	30-150			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Blank

C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							

Surrogate: 1-Chlorooctadecane	1.73		mg/kg wet	2.020		85	40-140			
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Blank

2-Methylnaphthalene	ND	0.14	mg/kg wet							
Acenaphthene	ND	0.20	mg/kg wet							
Acenaphthylene	ND	0.14	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.20	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.20	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.20	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90659 - 3546										
<i>Surrogate: 2-Bromonaphthalene</i>	48.3		mg/L	50.00		97	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	41.8		mg/L	50.00		84	40-140			
<i>Surrogate: O-Terphenyl</i>	1.56		mg/kg wet	2.008		78	40-140			
LCS										
C19-C36 Aliphatics1	16.1	15.0	mg/kg wet	16.00		101	40-140			
C9-C18 Aliphatics1	8.8	15.0	mg/kg wet	12.00		74	40-140			
Decane (C10)	0.9	0.5	mg/kg wet	2.000		46	40-140			
Docosane (C22)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Dodecane (C12)	1.0	0.5	mg/kg wet	2.000		51	40-140			
Eicosane (C20)	1.9	0.5	mg/kg wet	2.000		93	40-140			
Hexacosane (C26)	1.9	0.5	mg/kg wet	2.000		94	40-140			
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		77	40-140			
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Nonadecane (C19)	1.8	0.5	mg/kg wet	2.000		91	40-140			
Nonane (C9)	0.7	0.5	mg/kg wet	2.000		37	30-140			
Octacosane (C28)	1.9	0.5	mg/kg wet	2.000		94	40-140			
Octadecane (C18)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Tetracosane (C24)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		60	40-140			
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		92	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	1.72		mg/kg wet	2.020		85	40-140			
LCS										
2-Methylnaphthalene	1.51	0.14	mg/kg wet	2.000		75	40-140			
Acenaphthene	1.58	0.20	mg/kg wet	2.000		79	40-140			
Acenaphthylene	1.67	0.14	mg/kg wet	2.000		84	40-140			
Anthracene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(a)anthracene	2.00	0.40	mg/kg wet	2.000		100	40-140			
Benzo(a)pyrene	1.84	0.20	mg/kg wet	2.000		92	40-140			
Benzo(b)fluoranthene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(g,h,i)perylene	1.72	0.40	mg/kg wet	2.000		86	40-140			
Benzo(k)fluoranthene	1.97	0.40	mg/kg wet	2.000		99	40-140			
C11-C22 Unadjusted Aromatics1	34.9	15.0	mg/kg wet	34.00		103	40-140			
Chrysene	2.04	0.40	mg/kg wet	2.000		102	40-140			
Dibenzo(a,h)Anthracene	2.03	0.20	mg/kg wet	2.000		102	40-140			
Fluoranthene	2.02	0.40	mg/kg wet	2.000		101	40-140			
Fluorene	1.80	0.40	mg/kg wet	2.000		90	40-140			
Indeno(1,2,3-cd)Pyrene	1.91	0.40	mg/kg wet	2.000		95	40-140			
Naphthalene	1.35	0.20	mg/kg wet	2.000		67	40-140			
Phenanthrene	1.96	0.40	mg/kg wet	2.000		98	40-140			
Pyrene	1.99	0.40	mg/kg wet	2.000		100	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	50.1		mg/L	50.00		100	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	44.1		mg/L	50.00		88	40-140			
<i>Surrogate: O-Terphenyl</i>	1.70		mg/kg wet	2.008		84	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
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ESS Laboratory Work Order: 19H0103

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

LCS

2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			

LCS Dup

C19-C36 Aliphatics1	15.3	15.0	mg/kg wet	16.00		96	40-140	5	25	
C9-C18 Aliphatics1	8.9	15.0	mg/kg wet	12.00		74	40-140	0.05	25	
Decane (C10)	1.0	0.5	mg/kg wet	2.000		51	40-140	10	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		91	40-140	5	25	
Dodecane (C12)	1.1	0.5	mg/kg wet	2.000		55	40-140	7	25	
Eicosane (C20)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	
Hexacosane (C26)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		75	40-140	3	25	
Hexatriacontane (C36)	1.7	0.5	mg/kg wet	2.000		87	40-140	4	25	
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		87	40-140	5	25	
Nonane (C9)	0.8	0.5	mg/kg wet	2.000		42	30-140	12	25	
Octacosane (C28)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		85	40-140	5	25	
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		62	40-140	3	25	
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		88	40-140	5	25	

<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.64</i>		mg/kg wet	<i>2.020</i>		<i>81</i>	<i>40-140</i>			
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LCS Dup

2-Methylnaphthalene	1.64	0.14	mg/kg wet	2.000		82	40-140	8	30	
Acenaphthene	1.65	0.20	mg/kg wet	2.000		83	40-140	4	30	
Acenaphthylene	1.76	0.14	mg/kg wet	2.000		88	40-140	5	30	
Anthracene	1.91	0.40	mg/kg wet	2.000		96	40-140	4	30	
Benzo(a)anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140	6	30	
Benzo(a)pyrene	1.76	0.20	mg/kg wet	2.000		88	40-140	5	30	
Benzo(b)fluoranthene	1.83	0.40	mg/kg wet	2.000		92	40-140	8	30	
Benzo(g,h,i)perylene	1.64	0.40	mg/kg wet	2.000		82	40-140	5	30	
Benzo(k)fluoranthene	1.92	0.40	mg/kg wet	2.000		96	40-140	3	30	
C11-C22 Unadjusted Aromatics1	33.9	15.0	mg/kg wet	34.00		100	40-140	3	25	
Chrysene	1.93	0.40	mg/kg wet	2.000		96	40-140	5	30	
Dibenzo(a,h)Anthracene	1.93	0.20	mg/kg wet	2.000		96	40-140	5	30	
Fluoranthene	1.90	0.40	mg/kg wet	2.000		95	40-140	6	30	
Fluorene	1.81	0.40	mg/kg wet	2.000		90	40-140	0.2	30	
Indeno(1,2,3-cd)Pyrene	1.82	0.40	mg/kg wet	2.000		91	40-140	5	30	
Naphthalene	1.51	0.20	mg/kg wet	2.000		76	40-140	12	30	
Phenanthrene	1.88	0.40	mg/kg wet	2.000		94	40-140	4	30	
Pyrene	1.89	0.40	mg/kg wet	2.000		95	40-140	5	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>49.2</i>		mg/L	<i>50.00</i>		<i>98</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>43.5</i>		mg/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.62</i>		mg/kg wet	<i>2.008</i>		<i>81</i>	<i>40-140</i>			

LCS Dup



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

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Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- R- Standard Reference Material is biased low (R-).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0103

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0103

Date Received: 8/5/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/12/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____


Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes No
a. Was there a need to contact the client? Yes No
Who was contacted? _____ Date: _____ Time: _____ By: _____

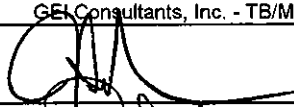

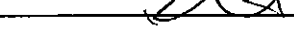
Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373276	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	373275	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	373274	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	373273	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	373277	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	373272	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	373271	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	373270	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	373269	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373268	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	373267	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	373266	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	373265	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Yes / No
- Are barcode labels on correct containers? Yes / No / NA
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Initials: 

ESS Laboratory Sample and Cooler Receipt Checklist

Client:	<u>GEI Consultants, Inc. - TB/MM</u>	ESS Project ID:	<u>19H0103</u>
		Date Received:	<u>8/5/2019</u>
Completed By:		Date & Time:	<u>8/5/19 2046</u>
Reviewed By:		Date & Time:	<u>8/5/19 2101</u>
Delivered By:		Date & Time:	<u>8/5/19 2101</u>



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information
Project Name: Tombarello Site Investigation **Project Location:** Lawrence, MA
Project Number: 1802441 **Project Manager:** L. Lombardo

Page 1 of 3

Send Report to: llombardo@geiconsultants.com,
 bfongmurdock@geiconsultants.com,
 csaledas@geiconsultants.com, blee@geiconsultants.com
Send EDD to: EastRegionData@geiconsultants.com

Preservative					
None	None	None	None		

Sample Handling

Samples Field Filtered
 YES NO **NA**

Sampled Shipped With Ice
 YES NO **YES**

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES **NO**
 If Yes, Are MCP Analytical Methods Required? YES **NO** NA
 Are Drinking Water Samples Submitted? YES **NO** NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES **NO** **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)						
		Date	Time													
	1802441-EB-04	8/2/2019	1120	Aqueous	1	CWS				x						Equipment Blank
	1802441-FD-09	8/2/2019	1207	Soil	1	BRL	x									Field Duplicate
	1802441-FD-10	8/2/2019	1158	Soil	1	CWS	x									Field Duplicate
1	1802441-BBerm-15W(0-1)	8/2/2019	0825	Soil	1	CWS	x									
2	1802441-MBerm-15W(5-6)	8/2/2019	0810	Soil	2	CWS	x	x	x							
3	1802441-BBerm-16W(0-1)	8/2/2019	1020	Soil	1	CWS	x									
4	1802441-MBerm-16W(5-6)	8/2/2019	1010	Soil	1	CWS	x									
5	1802441-SP03-1(3-4)	8/2/2019	1255	Soil	1	CWS	x									
6	1802441-SP03-2(4-5)	8/2/2019	1310	Soil	1	CWS	x									
7	1802441-SP03-3(2-3)	8/2/2019	1325	Soil	1	CWS	x									
8	1802441-SP04-1(3-4)	8/2/2019	1340	Soil	1	CWS	x									
9	1802441-SP04-2(4-5)	8/2/2019	1355	Soil	1	CWS	x									
10	1802441-SP04-3(2-3)	8/2/2019	1410	Soil	1	CWS	x									

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal X Other ____
 10-Day ____ 7-Day ____
 5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	8/2/2019	1530	1. GEI Refrigerator
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	8/5/19	1215	2. <i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	8/5/19	1205	3. <i>[Signature]</i>
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
<i>[Signature]</i>	8/5/19	18:14	4. <i>[Signature]</i> 8/5/19 2020

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Ice Temp: 3.9



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0104

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 4:33 pm, Aug 14, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0104

SAMPLE RECEIPT

The following samples were received on August 05, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0104-01	1802441-SB6-N1E 0-0.5	Soil	8082A
19H0104-02	1802441-SB6-N1E 1-2	Soil	8082A
19H0104-03	1802441-SB6-N1W 0-0.5	Soil	8082A
19H0104-04	1802441-SB6-N1W 1-2	Soil	8082A
19H0104-05	1802441-SB6-N1N 0-0.5	Soil	8082A
19H0104-06	1802441-SB6-N1N 1-2	Soil	8082A
19H0104-07	1802441-SB6-N1S 0-0.5	Soil	8082A
19H0104-08	1802441-SB6-N1S 1-2	Soil	8082A
19H0104-09	1802441-SB-3WS 0-0.5	Soil	8082A
19H0104-10	1802441-SB-3WS 1-2	Soil	8082A
19H0104-11	1802441-SB-3WS 2-3	Soil	8082A
19H0104-12	1802441-SB-3WS 3-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0104

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

19H0104-01 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)

19H0104-01 [Surrogate recover\(ies\) diluted below the MRL \(SD\).](#)

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0104

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0104

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0104-01 through 19H0104-12**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 14, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SB6-N1E 0-0.5
 Date Sampled: 08/02/19 09:45
 Percent Solids: 85
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
 ESS Laboratory Sample ID: 19H0104-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1221	ND (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1232	ND (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1242	ND (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1248	ND (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1254	ND (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1260	17.1 (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1262	ND (1.2)		8082A		20	08/13/19 13:45		CH90905
Aroclor 1268	ND (1.2)		8082A		20	08/13/19 13:45		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1E 1-2
Date Sampled: 08/02/19 09:50
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1260	0.7 (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 17:14		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 17:14		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	74 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	68 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1W 0-0.5
Date Sampled: 08/02/19 11:00
Percent Solids: 88
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 17:33		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 17:33		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	75 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1W 1-2
Date Sampled: 08/02/19 11:05
Percent Solids: 96
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1221	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1232	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1242	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1248	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1254	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1260	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1262	ND (0.05)		8082A		1	08/12/19 17:52		CH90905
Aroclor 1268	ND (0.05)		8082A		1	08/12/19 17:52		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	79 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	89 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	91 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1N 0-0.5
Date Sampled: 08/02/19 10:35
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 18:11		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 18:11		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	73 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	85 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1N 1-2
Date Sampled: 08/02/19 10:40
Percent Solids: 87
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 18:31		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 18:31		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	83 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1S 0-0.5
Date Sampled: 08/02/19 10:10
Percent Solids: 80
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1260	1.0 (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 18:50		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 18:50		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	69 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	94 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	78 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1S 1-2
Date Sampled: 08/02/19 10:15
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 19:09		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 19:09		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	90 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	98 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	73 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WS 0-0.5
Date Sampled: 08/02/19 09:00
Percent Solids: 97
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1221	ND (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1232	ND (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1242	ND (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1248	ND (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1254	ND (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1260 [2C]	0.1 (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1262	ND (0.05)		8082A		1	08/12/19 19:28		CH90905
Aroclor 1268	ND (0.05)		8082A		1	08/12/19 19:28		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	43 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	44 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	55 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WS 1-2
Date Sampled: 08/02/19 09:05
Percent Solids: 96
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1221	ND (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1232	ND (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1242	ND (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1248	ND (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1254	ND (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1260 [2C]	0.1 (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1262	ND (0.05)		8082A		1	08/12/19 19:48		CH90905
Aroclor 1268	ND (0.05)		8082A		1	08/12/19 19:48		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	69 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WS 2-3
Date Sampled: 08/02/19 09:10
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 20:07		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 20:07		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 20:07		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 20:07		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 20:07		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 20:07		CH90905
Aroclor 1260	2.8 (0.3)		8082A		5	08/13/19 14:04		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 20:07		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 20:07		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	100 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	117 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	33 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	49 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WS 3-5
Date Sampled: 08/03/19 09:15
Percent Solids: 85
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0104
ESS Laboratory Sample ID: 19H0104-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 23:00		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 23:00		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	82 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	93 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	91 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0104

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90905 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0172		mg/kg wet	0.02500		69	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0189		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene	0.0173		mg/kg wet	0.02500		69	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0201		mg/kg wet	0.02500		80	30-150			

LCS

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		96	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		92	40-140			

Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0217		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0186		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0211		mg/kg wet	0.02500		84	30-150			

LCS Dup

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		88	40-140	0.3	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140	0.03	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		98	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		91	40-140	0.02	30	

Surrogate: Decachlorobiphenyl	0.0214		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0211		mg/kg wet	0.02500		85	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0104

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0104

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0104

Shipped/Delivered Via: ESS Courier

Date Received: 8/5/2019

Project Due Date: 8/12/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
 - a. Air bubbles in aqueous VOAs? Yes / No
 - b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
 - a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 - b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
 - a. Was there a need to contact the client? Yes / No
- Who was contacted? _____ Date: _____ Time: _____ By: _____
-
-

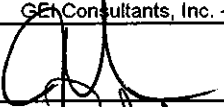
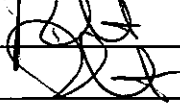
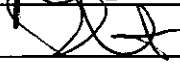
Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373289	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	373288	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	373287	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	373286	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	373285	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	373284	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	373283	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	373282	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373281	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	373280	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	373279	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	373278	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	373290	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

Initials: [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client:	<u>GE Consultants, Inc. - TB/MM</u>	ESS Project ID:	<u>19H0104</u>
		Date Received:	<u>8/5/2019</u>
Completed By:		Date & Time:	<u>8/5/19 2014</u>
Reviewed By:		Date & Time:	<u>8/5/19 2106</u>
Delivered By:			<u>8/5/19 2106</u>



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation
 Project Number: 1802441
 Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Project Location: Lawrence, MA
 Project Manager: L. Lombardo

Page 3 of 3

Preservative					
None	None	None	None		

Sample Handling

Samples Field Filtered
 YES NO NA

Sampled Shipped With Ice
 YES NO YES

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, Hg10)	PCBs (aqueous)							
		Date	Time														
1	1802441-SB6-N1E(0-0.5)	8/2/2019	0945	Soil	1	BRL	x										
2	1802441-SB6-N1E(1-2)	8/2/2019	0950	Soil	1	BRL	x										
3	1802441-SB6-N1W(0-0.5)	8/2/2019	1100	Soil	1	BRL	x										
4	1802441-SB6-N1W(1-2)	8/2/2019	1105	Soil	1	BRL	x										
5	1802441-SB6-N1N(0-0.5)	8/2/2019	1035	Soil	1	BRL	x										
6	1802441-SB6-N1N(1-2)	8/2/2019	1040	Soil	1	BRL	x										
7	1802441-SB6-N1S(0-0.5)	8/2/2019	1010	Soil	1	BRL	x										
8	1802441-SB6-N1S(1-2)	8/2/2019	1015	Soil	1	BRL	x										
9	1802441-SB-3WS(0-0.5)	8/2/2019	0900	Soil	1	BRL	x										
10	1802441-SB-3WS(1-2)	8/2/2019	0905	Soil	1	BRL	x										
11	1802441-SB-3WS(2-3)	8/2/2019	0910	Soil	1	BRL	x										
12	1802441-SB-3WS(3-5)	8/3/2019	0915	Soil	2	BRL	x										

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal X Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/2/19</u>	Time: <u>1530</u>	Received by: (signature) <u>[Signature]</u>
1. <u>GEI Refrigerator</u>			
Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/5/19</u>	Time: <u>1215</u>	Received by: (signature) <u>[Signature]</u>
2. <u>GEI Refrigerator</u>			
Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/5/19</u>	Time: <u>1215</u>	Received by: (signature) <u>[Signature]</u>
3. <u>[Signature]</u>			
Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/5/19</u>	Time: <u>18:14</u>	Received by: (signature) <u>[Signature]</u>
4. <u>[Signature]</u>			

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Ice Temp: 3.9



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0105

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 4:36 pm, Aug 14, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

SAMPLE RECEIPT

The following samples were received on August 05, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0105-01	1802441-SP05-1 2-3	Soil	8082A
19H0105-02	1802441-SP05-2 3-4	Soil	8082A
19H0105-03	1802441-SP05-3 1-2	Soil	8082A
19H0105-04	1802441-SP06-1 3-4	Soil	8082A
19H0105-05	1802441-SP06-2 4-5	Soil	8082A
19H0105-06	1802441-SP06-3 2-3	Soil	8082A
19H0105-07	1802441-WW-06 2-3	Soil	8082A
19H0105-08	1802441-WW-06W 0-0.5	Soil	8082A
19H0105-09	1802441-WW-06W 1-2	Soil	8082A
19H0105-10	1802441-WW-06W 2-3	Soil	8082A
19H0105-11	1802441-WW-06S 0-0.5	Soil	8082A
19H0105-12	1802441-WW-06S 1-2	Soil	8082A
19H0105-13	1802441-WW-06S 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)
19H0105-09 [Surrogate recovery\(ies\) below lower control limit \(S-\).](#)
Tetrachloro-m-xylene (28% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0105-01 through 19H0105-13**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.**
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 14, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP05-1 2-3
Date Sampled: 08/02/19 12:05
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 23:19		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 23:19		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 23:19		CH90905
Aroclor 1242	0.8 (0.06)		8082A		1	08/12/19 23:19		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 23:19		CH90905
Aroclor 1254 [2C]	1.4 (0.3)		8082A		5	08/14/19 3:55		CH90905
Aroclor 1260 [2C]	1.0 (0.06)		8082A		1	08/12/19 23:19		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 23:19		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 23:19		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	90 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	66 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP05-2 3-4
Date Sampled: 08/02/19 11:55
Percent Solids: 80
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 23:38		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 23:38		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 23:38		CH90905
Aroclor 1242	0.9 (0.06)		8082A		1	08/12/19 23:38		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 23:38		CH90905
Aroclor 1254 [2C]	1.9 (0.3)		8082A		5	08/14/19 4:14		CH90905
Aroclor 1260 [2C]	1.4 (0.3)		8082A		5	08/14/19 4:14		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 23:38		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 23:38		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	69 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	123 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	62 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	75 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP05-3 1-2
Date Sampled: 08/02/19 12:10
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 23:58		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 23:58		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 23:58		CH90905
Aroclor 1242	1.8 (0.3)		8082A		5	08/14/19 4:34		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 23:58		CH90905
Aroclor 1254 [2C]	2.7 (0.3)		8082A		5	08/14/19 4:34		CH90905
Aroclor 1260 [2C]	2.0 (0.3)		8082A		5	08/14/19 4:34		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 23:58		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 23:58		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	48 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	81 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	44 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	51 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP06-1 3-4
Date Sampled: 08/02/19 11:30
Percent Solids: 90
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 15:49

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1242	0.2 (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1254 [2C]	0.6 (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1260 [2C]	0.5 (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 0:17		CH90905
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 0:17		CH90905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	50 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	59 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP06-2 4-5
Date Sampled: 08/02/19 11:10
Percent Solids: 88
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1242	0.2 (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1254 [2C]	0.4 (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1260 [2C]	0.4 (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 1:34		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 1:34		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	63 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	140 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP06-3 2-3
Date Sampled: 08/02/19 12:30
Percent Solids: 90
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1242	0.1 (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1254 [2C]	0.4 (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1260 [2C]	0.4 (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 1:53		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 1:53		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	63 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	116 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	61 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	71 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06 2-3
Date Sampled: 08/02/19 13:00
Percent Solids: 95
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1242	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1254	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1260	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 2:12		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 2:12		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	79 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	73 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	85 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06W 0-0.5
Date Sampled: 08/02/19 12:25
Percent Solids: 91
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 2:32		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 2:32		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 2:32		CH90906
Aroclor 1242	1.9 (0.3)		8082A		5	08/14/19 4:53		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 2:32		CH90906
Aroclor 1254 [2C]	4.8 (0.3)		8082A		5	08/14/19 4:53		CH90906
Aroclor 1260 [2C]	2.7 (0.3)		8082A		5	08/14/19 4:53		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 2:32		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 2:32		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	53 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	57 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06W 1-2
Date Sampled: 08/02/19 12:30
Percent Solids: 90
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 2:51		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 2:51		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 2:51		CH90906
Aroclor 1242	ND (0.06)		8082A		1	08/13/19 2:51		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 2:51		CH90906
Aroclor 1254	ND (0.06)		8082A		1	08/13/19 2:51		CH90906
Aroclor 1260	8.3 (0.6)		8082A		10	08/14/19 5:12		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 2:51		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 2:51		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	45 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	52 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	28 %	S-	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	42 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06W 2-3
Date Sampled: 08/02/19 12:35
Percent Solids: 72
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1221	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1232	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1242	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1248	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1254	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1260	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1262	ND (0.07)		8082A		1	08/13/19 3:10		CH90906
Aroclor 1268	ND (0.07)		8082A		1	08/13/19 3:10		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	85 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06S 0-0.5
Date Sampled: 08/02/19 11:50
Percent Solids: 98
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1242	ND (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1254	ND (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1260	0.5 (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 3:29		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 3:29		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	86 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	95 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	88 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06S 1-2
Date Sampled: 08/02/19 11:55
Percent Solids: 98
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1242	ND (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1254	ND (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1260 [2C]	0.06 (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 3:49		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 3:49		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	77 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	70 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	83 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06S 2-3
Date Sampled: 08/02/19 12:00
Percent Solids: 95
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0105
ESS Laboratory Sample ID: 19H0105-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1242	ND (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1254	ND (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1260	0.2 (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 4:08		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 4:08		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	80 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	89 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90905 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0172		mg/kg wet	0.02500		69	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0189		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene	0.0173		mg/kg wet	0.02500		69	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0201		mg/kg wet	0.02500		80	30-150			

LCS

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		96	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		92	40-140			

Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0217		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0186		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0211		mg/kg wet	0.02500		84	30-150			

LCS Dup

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		88	40-140	0.3	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140	0.03	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		98	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		91	40-140	0.02	30	

Surrogate: Decachlorobiphenyl	0.0214		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0211		mg/kg wet	0.02500		85	30-150			

Batch CH90906 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90906 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0206		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0243		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0194		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0217		mg/kg wet	0.02500		87	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		89	40-140	3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0232		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

Notes and Definitions

- U Analyte included in the analysis, but not detected
- S- Surrogate recovery(ies) below lower control limit (S-).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0105

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, inc. - TB/MM

ESS Project ID: 19H0105

Date Received: 8/5/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/12/2019

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373447	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	373434	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	373421	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	373408	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	373395	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	373382	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	373369	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	373356	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373343	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	373330	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	373317	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	373304	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	373291	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

- 2nd Review**
- Were all containers scanned into storage/lab?
 - Are barcode labels on correct containers?
 - Are all Flashpoint stickers attached/container ID # circled?
 - Are all Hex Chrome stickers attached?
 - Are all QC stickers attached?
 - Are VOA stickers attached if bubbles noted?

Initials: [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEA Consultants, Inc. - TB/MM ESS Project ID: 19H0105
Date Received: 8/5/2019
Completed By: [Signature] Date & Time: 8/5/19 2049
Reviewed By: [Signature] Date & Time: 8/5/19 2109
Delivered By: [Signature] Date & Time: 8/5/19 2109



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information
 Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Preservative					
None	None	None	None		

Sample Handling

Samples Field Filtered

YES NO **NA**

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES **NO**
 If Yes, Are MCP Analytical Methods Required? YES **NO** NA
 Are Drinking Water Samples Submitted? YES **NO** NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, Hg)	PCBs (aqueous)							
		Date	Time														
1	1802441-SP05-1(2-3)	8/2/2019	1205	Soil	1	CWS	x										
2	1802441-SP05-2(3-4)	8/2/2019	1155	Soil	1	CWS	x										
3	1802441-SP05-3(1-2)	8/2/2019	1210	Soil	1	CWS	x										
4	1802441-SP06-1(3-4)	8/2/2019	1130	Soil	1	CWS	x										
5	1802441-SP06-2(4-5)	8/2/2019	1110	Soil	1	CWS	x										
6	1802441-SP06-3(2-3)	8/2/2019	1230	Soil	1	CWS	x										
7	1802441-WW-06(2-3)	8/2/2019	1300	Soil	1	BRL	x										
8	1802441-WW-06W(0-0.5)	8/2/2019	1225	Soil	1	BRL	x										
9	1802441-WW-06W(1-2)	8/2/2019	1230	Soil	1	BRL	x										
10	1802441-WW-06W(2-3)	8/2/2019	1235	Soil	1	BRL	x										
11	1802441-WW-06S(0-0.5)	8/2/2019	1150	Soil	1	BRL	x										
12	1802441-WW-06S(1-2)	8/2/2019	1155	Soil	1	BRL	x										
13	1802441-WW-06S(2-3)	8/2/2019	1200	Soil	1	BRL	x										

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal X Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relinquished by: (signature)	Date: 8/2/19	Time: 1530	Received by: (signature)
1. [Signature]			1. GEI Refrigerator
Relinquished by: (signature)	Date: 8/5/19	Time: 1215	Received by: (signature)
2. [Signature]			2. [Signature]
Relinquished by: (signature)	Date: 8/5/19	Time: 1215	Received by: (signature)
3. [Signature]			3. [Signature]
Relinquished by: (signature)	Date: 8/5/19	Time: 18:14	Received by: (signature)
4. [Signature]			4. [Signature] 8/5/19 2000

icc temp: 3.9



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0109

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 4:29 pm, Aug 09, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0109

SAMPLE RECEIPT

The following samples were received on August 05, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0109-01	1802441-EB-04	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0109

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0109

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0109

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0109-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 08, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-04
Date Sampled: 08/02/19 11:20
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19H0109
ESS Laboratory Sample ID: 19H0109-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: CAD
Prepared: 8/7/19 12:13

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1221	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1232	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1242	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1248	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1254	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1260	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1262	ND (0.09)		8082A		1	08/07/19 15:00		CH90710
Aroclor 1268	ND (0.09)		8082A		1	08/07/19 15:00		CH90710

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	83 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	64 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	72 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0109

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90710 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

Surrogate: Decachlorobiphenyl	0.0396		ug/L	0.05000		79	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0360		ug/L	0.05000		72	30-150			
Surrogate: Tetrachloro-m-xylene	0.0272		ug/L	0.05000		54	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0282		ug/L	0.05000		56	30-150			

LCS

Aroclor 1016	0.91	0.10	ug/L	1.000		91	40-140			
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140			
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0478		ug/L	0.05000		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0441		ug/L	0.05000		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0289		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0302		ug/L	0.05000		60	30-150			

LCS Dup

Aroclor 1016	0.92	0.10	ug/L	1.000		92	40-140	0.8	20	
Aroclor 1016 [2C]	0.91	0.10	ug/L	1.000		91	40-140	2	20	
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140	0.2	20	
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140	0.4	20	

Surrogate: Decachlorobiphenyl	0.0460		ug/L	0.05000		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0423		ug/L	0.05000		85	30-150			
Surrogate: Tetrachloro-m-xylene	0.0315		ug/L	0.05000		63	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0327		ug/L	0.05000		65	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0109

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0109

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0109

Date Received: 8/5/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/12/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373498	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Initials: [Signature]
- Are barcode labels on correct containers? Yes / No / NA
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/5/19 2001
 Reviewed By: [Signature] Date & Time: 8/5/19 2100
 Delivered By: [Signature] Date & Time: 8/5/19 2100

Project Information
 Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Preservative					
None	None	None	None		

Page 1 of 3

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)				
			X				

Sample Handling
 Samples Field Filtered YES NO NA
 Sampled Shipped With Ice YES NO
 Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)				
		Date	Time											
	1802441-EB-04	8/2/2019	1120	Aqueous	1	CWS				X				Equipment Blank
	1802441-FD-09	8/2/2019	1207	Soil	1	BRL	X							Field Duplicate
	1802441-FD-10	8/2/2019	1158	Soil	1	CWS	X							Field Duplicate
	1802441-BBerm-15W(0-1)	8/2/2019	0825	Soil	1	CWS	X							
	1802441-MBerm-15W(5-6)	8/2/2019	0810	Soil	2	CWS	X	X	X					
	1802441-BBerm-16W(0-1)	8/2/2019	1020	Soil	1	CWS	X							
	1802441-MBerm-16W(5-6)	8/2/2019	1010	Soil	1	CWS	X							
	1802441-SP03-1(3-4)	8/2/2019	1255	Soil	1	CWS	X							
	1802441-SP03-2(4-5)	8/2/2019	1310	Soil	1	CWS	X							
	1802441-SP03-3(2-3)	8/2/2019	1325	Soil	1	CWS	X							
	1802441-SP04-1(3-4)	8/2/2019	1340	Soil	1	CWS	X							
	1802441-SP04-2(4-5)	8/2/2019	1355	Soil	1	CWS	X							
	1802441-SP04-3(2-3)	8/2/2019	1410	Soil	1	CWS	X							

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal Other
 10-Day 7-Day
 5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
1. [Signature]	8/2/2019	1530	1. GEI Refrigerator
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
2. GEI Refrigerator	8/5/19	1215	2. [Signature]
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
3. [Signature]	8/5/19	1215	3. [Signature]
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
4. [Signature]	8/5/19	1514	4. [Signature] 8/5/2019

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Ice Temp: 3.9



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0126

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 4:32 pm, Aug 09, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0126

SAMPLE RECEIPT

The following samples were received on August 05, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0126-01	ED-05	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0126

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0126

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0126

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0126-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 08, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: ED-05
Date Sampled: 08/05/19 08:30
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19H0126
ESS Laboratory Sample ID: 19H0126-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: CAD
Prepared: 8/7/19 12:13

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1221	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1232	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1242	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1248	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1254	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1260	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1262	ND (0.09)		8082A		1	08/07/19 15:20		CH90710
Aroclor 1268	ND (0.09)		8082A		1	08/07/19 15:20		CH90710

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	77 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	61 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0126

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90710 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							
<hr/>										
Surrogate: Decachlorobiphenyl	0.0396		ug/L	0.05000		79	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0360		ug/L	0.05000		72	30-150			
Surrogate: Tetrachloro-m-xylene	0.0272		ug/L	0.05000		54	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0282		ug/L	0.05000		56	30-150			

LCS

Aroclor 1016	0.91	0.10	ug/L	1.000		91	40-140			
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140			
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140			
<hr/>										
Surrogate: Decachlorobiphenyl	0.0478		ug/L	0.05000		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0441		ug/L	0.05000		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0289		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0302		ug/L	0.05000		60	30-150			

LCS Dup

Aroclor 1016	0.92	0.10	ug/L	1.000		92	40-140	0.8	20	
Aroclor 1016 [2C]	0.91	0.10	ug/L	1.000		91	40-140	2	20	
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140	0.2	20	
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140	0.4	20	
<hr/>										
Surrogate: Decachlorobiphenyl	0.0460		ug/L	0.05000		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0423		ug/L	0.05000		85	30-150			
Surrogate: Tetrachloro-m-xylene	0.0315		ug/L	0.05000		63	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0327		ug/L	0.05000		65	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0126

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0126

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0126
 Date Received: 8/5/2019
 Project Due Date: 8/12/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373766	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials WJ
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/5/19 2040
 Reviewed By: [Signature] Date & Time: 8/5/19 2049
 Delivered By: [Signature] Date & Time: 8/5/19 2019



GEI Consultants
 400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project information

Project Name: Tombrello Project Location: Lawrence Mass.
 Project Number: 1801442 Project Manager: L. Lombardo
 Send Report to: Molly Greer
 Send EDD to: EastRegion@GEIConsultants.com / labdata@geiconsultants.com

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative					
<u>none</u>					
Analysis					

Sample Handling

Samples Field Filtered
 YES NO NA

Sampled Shipped With Ice
YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials					Sample Specific Remarks
		Date	Time								
	<u>Dup - 11</u>	<u>8/5</u>	<u>1200</u>	<u>SO</u>	<u>1</u>	<u>BRL</u>	<u>X</u>				<u>Duplicate</u>
	<u>Dup - 13</u>	<u>8/5</u>	<u>1202</u>	<u>SO</u>	<u>1</u>	<u>SAT</u>	<u>X</u>				<u>Duplicate</u>
<u>1</u>	ED-05 ED-05 hdm 8/6/19	<u>8/5</u>	<u>0830</u>	<u>W</u>	<u>1</u>	<u>BRL</u>	<u>X</u>				<u>Equip blank</u>

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature) <u>1. [Signature]</u>	Date: <u>8/5/19</u>	Time: <u>1530</u>	Received by: (signature) <u>1. [Signature]</u>
Relinquished by: (signature) <u>2. [Signature]</u>	Date: <u>8/5/19</u>	Time: <u>1813</u>	Received by: (signature) <u>2. [Signature]</u>
Relinquished by: (signature) <u>3.</u>	Date:	Time:	Received by: (signature) <u>3.</u>
Relinquished by: (signature) <u>4.</u>	Date:	Time:	Received by: (signature) <u>4.</u>

Turnaround Time (Business days):

Normal X Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
See page 1



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0127

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 2:25 pm, Aug 15, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

SAMPLE RECEIPT

The following samples were received on August 05, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0127-01	1802441-SP07-1 4-5	Soil	8082A
19H0127-02	1802441-SP07-2 3-4	Soil	8082A
19H0127-03	1802441-SP07-3 2-3	Soil	8082A
19H0127-04	1802441-SP08-1 2-3	Soil	8082A
19H0127-05	1802441-SP08-2 3-4	Soil	8082A
19H0127-06	1802441-SP08-3 4-5	Soil	8082A
19H0127-07	1802441-SP09-1 2-3	Soil	8082A
19H0127-08	1802441-SP09-2 3-4	Soil	8082A
19H0127-09	1802441-SP09-3 4-5	Soil	8082A
19H0127-10	1802441-SP10-1 2-3	Soil	8082A
19H0127-11	1802441-SP10-2 3-4	Soil	8082A
19H0127-12	1802441-SP10-3 4-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0127-01 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (152% @ 30-150%)
- 19H0127-02 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (204% @ 30-150%)
- 19H0127-03 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0127-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0127-04 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (243% @ 30-150%)
- 19H0127-05 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (254% @ 30-150%)
- 19H0127-06 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (873% @ 30-150%)
- 19H0127-07 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (188% @ 30-150%)
- 19H0127-08 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (157% @ 30-150%)
- 19H0127-10 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (254% @ 30-150%)
- 19H0127-11 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (253% @ 30-150%)
- 19H0127-12 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Decachlorobiphenyl [2C] (243% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0127-01 through 19H0127-12**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 15, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP07-1 4-5
Date Sampled: 08/05/19 13:55
Percent Solids: 95
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 4:27		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 4:27		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 4:27		CH90906
Aroclor 1242	0.5 (0.05)		8082A		1	08/13/19 4:27		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 4:27		CH90906
Aroclor 1254 [2C]	1.9 (0.3)		8082A		5	08/14/19 5:31		CH90906
Aroclor 1260 [2C]	1.8 (0.3)		8082A		5	08/14/19 5:31		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 4:27		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 4:27		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	56 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	152 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	56 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP07-2 3-4
Date Sampled: 08/05/19 13:40
Percent Solids: 96
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 4:46		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 4:46		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 4:46		CH90906
Aroclor 1242	0.3 (0.05)		8082A		1	08/13/19 4:46		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 4:46		CH90906
Aroclor 1254 [2C]	1.8 (0.3)		8082A		5	08/14/19 5:51		CH90906
Aroclor 1260	1.4 (0.3)		8082A		5	08/14/19 5:51		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 4:46		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 4:46		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	57 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	204 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	65 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP07-3 2-3
Date Sampled: 08/05/19 13:45
Percent Solids: 98
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1221	ND (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1232	ND (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1242 [2C]	ND (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1248	ND (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1254	ND (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1260	11.1 (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1262	ND (1.0)		8082A		20	08/14/19 6:10		CH90906
Aroclor 1268	ND (1.0)		8082A		20	08/14/19 6:10		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP08-1 2-3
Date Sampled: 08/05/19 09:40
Percent Solids: 90
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 7:59		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 7:59		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 7:59		CH90906
Aroclor 1242	2.4 (0.3)		8082A		5	08/14/19 6:29		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 7:59		CH90906
Aroclor 1254 [2C]	4.4 (0.3)		8082A		5	08/14/19 6:29		CH90906
Aroclor 1260	2.0 (0.3)		8082A		5	08/14/19 6:29		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 7:59		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 7:59		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	62 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	243 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	59 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP08-2 3-4
Date Sampled: 08/05/19 09:25
Percent Solids: 89
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 8:18		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 8:18		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 8:18		CH90906
Aroclor 1242	2.6 (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 8:18		CH90906
Aroclor 1254 [2C]	4.5 (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1260 [2C]	3.4 (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 8:18		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 8:18		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	76 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	254 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP08-2 3-4
Date Sampled: 08/05/19 09:25
Percent Solids: 89
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-05RE1
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1221	ND (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1232	ND (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1242	2.6 (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1248	ND (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1254 [2C]	4.5 (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1260 [2C]	3.4 (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1262	ND (0.3)		8082A		5	08/14/19 6:49		CH90906
Aroclor 1268	ND (0.3)		8082A		5	08/14/19 6:49		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	206 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	111 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	49 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	56 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP08-3 4-5
Date Sampled: 08/05/19 09:10
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 8:37		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 8:37		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 8:37		CH90906
Aroclor 1242	3.1 (0.3)		8082A		5	08/14/19 7:08		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 8:37		CH90906
Aroclor 1254 [2C]	5.0 (0.3)		8082A		5	08/14/19 7:08		CH90906
Aroclor 1260 [2C]	4.1 (0.3)		8082A		5	08/14/19 7:08		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 8:37		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 8:37		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	72 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	873 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	51 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	61 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP09-1 2-3
Date Sampled: 08/05/19 08:15
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 8:56		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 8:56		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 8:56		CH90906
Aroclor 1242	1.7 (0.3)		8082A		5	08/14/19 7:27		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 8:56		CH90906
Aroclor 1254 [2C]	2.5 (0.3)		8082A		5	08/14/19 7:27		CH90906
Aroclor 1260 [2C]	1.5 (0.3)		8082A		5	08/14/19 7:27		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 8:56		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 8:56		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	52 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	188 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	59 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP09-2 3-4
Date Sampled: 08/05/19 08:00
Percent Solids: 93
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 9:15		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 9:15		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 9:15		CH90906
Aroclor 1242	1.9 (0.3)		8082A		5	08/14/19 7:47		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 9:15		CH90906
Aroclor 1254 [2C]	2.8 (0.3)		8082A		5	08/14/19 7:47		CH90906
Aroclor 1260 [2C]	1.4 (0.3)		8082A		5	08/14/19 7:47		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 9:15		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 9:15		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	48 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	157 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	45 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	53 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP09-3 4-5
 Date Sampled: 08/05/19 07:45
 Percent Solids: 94
 Initial Volume: 20.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
 ESS Laboratory Sample ID: 19H0127-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 9:35		CH90906
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 9:35		CH90906
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 9:35		CH90906
Aroclor 1242	0.7 (0.05)		8082A		1	08/13/19 9:35		CH90906
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 9:35		CH90906
Aroclor 1254 [2C]	1.9 (0.3)		8082A		5	08/14/19 8:06		CH90906
Aroclor 1260 [2C]	1.3 (0.3)		8082A		5	08/14/19 8:06		CH90906
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 9:35		CH90906
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 9:35		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	56 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	144 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP10-1 2-3
Date Sampled: 08/05/19 08:50
Percent Solids: 90
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 9:54		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 9:54		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 9:54		CH90906
Aroclor 1242	1.6 (0.3)		8082A		5	08/14/19 11:00		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 9:54		CH90906
Aroclor 1254 [2C]	3.3 (0.3)		8082A		5	08/14/19 11:00		CH90906
Aroclor 1260 [2C]	2.5 (0.3)		8082A		5	08/14/19 11:00		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 9:54		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 9:54		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	50 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	254 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	34 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	43 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SP10-2 3-4
Date Sampled: 08/05/19 08:35
Percent Solids: 88
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
ESS Laboratory Sample ID: 19H0127-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 10:13		CH90906
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 10:13		CH90906
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 10:13		CH90906
Aroclor 1242	5.0 (0.6)		8082A		10	08/14/19 11:19		CH90906
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 10:13		CH90906
Aroclor 1254 [2C]	8.9 (0.6)		8082A		10	08/14/19 11:19		CH90906
Aroclor 1260 [2C]	2.4 (0.6)		8082A		10	08/14/19 11:19		CH90906
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 10:13		CH90906
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 10:13		CH90906

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	59 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	253 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	62 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP10-3 4-5
 Date Sampled: 08/05/19 08:20
 Percent Solids: 92
 Initial Volume: 20.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0127
 ESS Laboratory Sample ID: 19H0127-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/12/19 15:08		CH90907
Aroclor 1221	ND (0.05)		8082A		1	08/12/19 15:08		CH90907
Aroclor 1232	ND (0.05)		8082A		1	08/12/19 15:08		CH90907
Aroclor 1242	3.2 (0.3)		8082A		5	08/14/19 11:39		CH90907
Aroclor 1248	ND (0.05)		8082A		1	08/12/19 15:08		CH90907
Aroclor 1254 [2C]	4.8 (0.3)		8082A		5	08/14/19 11:39		CH90907
Aroclor 1260 [2C]	3.4 (0.3)		8082A		5	08/14/19 11:39		CH90907
Aroclor 1262	ND (0.05)		8082A		1	08/12/19 15:08		CH90907
Aroclor 1268	ND (0.05)		8082A		1	08/12/19 15:08		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	81 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	243 %	S+	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	44 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90906 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0206		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0243		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0194		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0217		mg/kg wet	0.02500		87	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		89	40-140	3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0232		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			

Batch CH90907 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90907 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0238		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0249		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0180		mg/kg wet	0.02500		72	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0194		mg/kg wet	0.02500		78	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			

Surrogate: Decachlorobiphenyl	0.0254		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0258		mg/kg wet	0.02500		103	30-150			
Surrogate: Tetrachloro-m-xylene	0.0203		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0203		mg/kg wet	0.02500		81	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0245		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0250		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0191		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0190		mg/kg wet	0.02500		76	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- S+ Surrogate recovery(ies) above upper control limit (S+).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0127

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0127
 Date Received: 8/5/2019
 Project Due Date: 8/12/2019
 Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 2.8 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373778	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	373777	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	373776	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	373775	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	373774	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	373773	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	373772	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	373771	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373770	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	373769	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	373768	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	373767	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

Initials WJ
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0127

Date Received: 8/5/2019

Completed By: [Signature]

Date & Time: 8/5/19 2046

Reviewed By: [Signature]

Date & Time: 8/5/19 2052

Delivered By: [Signature]

Date & Time: 8/5/19 2057

Chain-of-Custody Record hdm 8/6/19 **Laboratory:** **Laboratory Job #** 19140127
 (Lab use only)



GEI Consultants
 400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Tombarello Project Location: Lawrence MA
 Project Number: 1501442 Project Manager: Lois Lombardo

Send Report to: Molly Greer
 Send EDD to: East Region@GEIconsultants.com

Page 1 of 3

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative						Analysis					
<u>none</u>											

Sample Handling

Samples Field Filtered
 YES NO NA

Sampled Shipped With Ice
 YES NO

Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials						
		Date	Time									
1	SP07-01 (4-5)	8/5	1335	SO	1	SMT	X					
2	SP07-02 (3-4)		1340			SMT	X					
3	SP07-03 (2-3)		1015			SMT	X					
4	SP08-01 (2-3)		0940			SMT	X					
5	SP08-2 (3-4)		0925			SMT	X					
6	SP08-3 (4-5)		0910			SMT	X					
7	SP09-1 (2-3)		0815			SMT	X					
8	SP09-2 (3-4)		0800			SMT	X					
9	SP09-3 (4-5)		0745			SMT	X					
10	SP10-1 (2-3)		0850			SMT	X					
11	SP10-2 (3-4)		0835			SMT	X					
12	SP10-3 (4-5)		0820			SMT	X					

PCB

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) 1. <u>D. Minic</u>	Date: <u>8/5/19</u>	Time: <u>15:30</u>	Received by: (signature) 1. <u>[Signature]</u>
Relinquished by: (signature) 2. <u>[Signature]</u>	Date: <u>8/5/19</u>	Time: <u>18:13</u>	Received by: (signature) 2. <u>[Signature]</u> 8/5/19 2012
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCB's.
Analysis must be performed in accordance with GEI's Generic Brown fields Quapp

100 temp. 2.8



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation **Project Location:** Lawrence, MA
Project Number: 1802441 **Project Manager:** L. Lombardo

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Preservative							
None							

~~Page 1 of 3~~
 Page 2 of 2

Sample Handling

Samples Field Filtered
 YES NO NA

Sampled Shipped With Ice
 YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)											
		Date	Time															
	1802441-SP07-1(4-5)	8/5/2019	1355	Soil	1	SMT	X											
	1802441-SP07-2(3-4)	8/5/2019	1340	Soil	1	SMT	X											
	1802441-SP07-3(2-3)	8/5/2019	1345	Soil	1	SMT	X											
	1802441-SP08-1(2-3)	8/5/2019	0940	Soil	1	SMT	X											
	1802441-SP08-2(3-4)	8/5/2019	0925	Soil	2	SMT	X											
	1802441-SP08-2(4-5) ***	8/5/2019	0910	Soil	1	SMT	X											
	1802441-SP09-1(2-3)	8/5/2019	0815	Soil	1	SMT	X											
	1802441-SP09-2(3-4)	8/5/2019	0800	Soil	1	SMT	X											
	1802441-SP09-3(4-5)	8/5/2019	0745	Soil	1	SMT	X											
	1802441-SP10-1(2-3)	8/5/2019	0850	Soil	1	SMT	X											
	1802441-SP10-2(3-4)	8/5/2019	0835	Soil	1	SMT	X											
	1802441-SP10-3(4-5)	8/5/2019	0820	Soil	1	SMT	X											

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date :	Time:	Received by: (signature)
1.			1.
Relinquished by: (signature)	Date :	Time:	Received by: (signature)
2.			2.
Relinquished by: (signature)	Date :	Time:	Received by: (signature)
3.			3.
Relinquished by: (signature)	Date :	Time:	Received by: (signature)
4.			4.

Turnaround Time (Business days):
 Normal Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, **you must notify the laboratory to confirm that the TAT can be achieved.**

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.
 **REFER TO ORIGINAL COC FOR SIGNATURES
 hdm 8/6/19

*** 1802441-SP08-3(4-5) Sample ID corrected 8/6/19 PRB

Chain-of-Custody Record

Laboratory:

Laboratory Job #

(Lab use only)

19140127



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tombarello
Project Number: 1501442
Send Report to: Molly Greer
Send EDD to: East Region@GEIconsultants.com

Project Location: Lawrence MA
Project Manager: Leslie Lombardo

Page 1 of 3

Preservative

<u>none</u>					
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Analysis

--	--	--	--	--	--	--	--	--	--

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials									
		Date	Time												
1	SP07-01 (4-5)	8/5	1335	SO	1	SMT	X								
2	SP07-02 (3-4)		1340			SMT	X								
3	SP07-03 (2-3)		101545			SMT	X								
4	SP07-04 SP08-1 (2-3)		0940			SMT	X								
5	SP08-2 (3-4)		0925			SMT	X								
6	SP08-3 (4-5)		0910			SMT	X								
7	SP09-1 (2-3)		0815			SMT	X								
8	SP09-2 (3-4)		0800			SMT	X								
9	SP09-3 (4-5)		0745			SMT	X								
10	SP10-1 (2-3)		0850			SMT	X								
11	SP10-2 (3-4)		0835			SMT	X								
12	SP10-3 (4-5)		0820			SMT	X								

PCB

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal Other
10-Day 7-Day
5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) 1. <u>[Signature]</u>	Date: <u>8/5/19</u>	Time: <u>1530</u>	Received by: (signature) 1. <u>[Signature]</u>
Relinquished by: (signature) 2. <u>[Signature]</u>	Date: <u>8/5/19</u>	Time: <u>18:13</u>	Received by: (signature) 2. <u>[Signature]</u> 8/5/19 2012
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCB's.
Analysis must be performed in accordance with GEI's Generic Brown fields Quapp

100 temp. 2.8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0128

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 4:22 pm, Aug 15, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

SAMPLE RECEIPT

The following samples were received on August 05, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
19H0128-01	1802441-SB-3WW 0-0.5	Soil	8082A
19H0128-02	1802441-SB-3WW 1-2	Soil	8082A
19H0128-03	1802441-SB-3WW 2-3	Soil	8082A
19H0128-04	1802441-SB-3WN 0-0.5	Soil	8082A
19H0128-05	1802441-SB-3WN 1-2	Soil	8082A
19H0128-06	1802441-SB-3WN 2-3	Soil	8082A
19H0128-07	1802441-SB6-N1 0-0.5	Soil	8082A
19H0128-08	1802441-SB6-N1 1-2	Soil	8082A
19H0128-09	1802441-SB6-N1 2-3	Soil	8082A
19H0128-10	1802441-SB6-N1 11-13	Soil	2580, 6010C, 7196A, 7471B, 8260B Low, 9045, EPH8270, MADEP-EPH
19H0128-11	DUP-12	Soil	8260B Low
19H0128-12	DUP-14	Soil	2580, 6010C, 7196A, 9045
19H0128-13	DUP-11	Soil	8082A
19H0128-14	DUP-13	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0128-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0128-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0128-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0128-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0128-13 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0128-13 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- C9H0144-CCV4 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
Benzo(g,h,i)perylene (22% @ 20%)
- C9H0162-CCV4 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
Benzo(g,h,i)perylene (37% @ 20%), Indeno(1,2,3-cd)Pyrene (25% @ 20%)

Total Metals

- CH90940-SRM2 [Standard Reference Material is biased low \(R-\).](#)
Silver (33% @ 70-130%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0128-01 through 19H0128-14**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|---|---|---|------------------------------------|
| <input checked="" type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | <input checked="" type="checkbox"/> 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | () 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No ()*

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 15, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WW 0-0.5
Date Sampled: 08/05/19 09:35
Percent Solids: 98
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1221	ND (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1232	ND (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1242	ND (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1248	ND (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1254 [2C]	0.6 (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1260	0.3 (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1262	ND (0.05)		8082A		1	08/14/19 2:57		CH91352
Aroclor 1268	ND (0.05)		8082A		1	08/14/19 2:57		CH91352

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	76 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	80 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WW 1-2
Date Sampled: 08/05/19 09:41
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1221	ND (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1232	ND (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1242	ND (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1248	ND (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1254	ND (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1260	225 (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1262	ND (11.3)		8082A		200	08/14/19 11:58		CH90907
Aroclor 1268	ND (11.3)		8082A		200	08/14/19 11:58		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WW 2-3
Date Sampled: 08/05/19 09:45
Percent Solids: 88
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1221	ND (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1232	ND (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1242	ND (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1248	ND (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1254	ND (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1260	0.5 (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1262	ND (0.05)		8082A		1	08/12/19 16:05		CH90907
Aroclor 1268	ND (0.05)		8082A		1	08/12/19 16:05		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	119 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	124 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	72 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WN 0-0.5
Date Sampled: 08/05/19 08:51
Percent Solids: 89
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/14/19 3:16		CH91352
Aroclor 1221	ND (0.05)		8082A		1	08/14/19 3:16		CH91352
Aroclor 1232	ND (0.05)		8082A		1	08/14/19 3:16		CH91352
Aroclor 1242	0.5 (0.05)		8082A		1	08/14/19 3:16		CH91352
Aroclor 1248	ND (0.05)		8082A		1	08/14/19 3:16		CH91352
Aroclor 1254 [2C]	2.1 (0.3)		8082A		5	08/14/19 15:31		CH91352
Aroclor 1260 [2C]	3.3 (0.3)		8082A		5	08/14/19 15:31		CH91352
Aroclor 1262	ND (0.05)		8082A		1	08/14/19 3:16		CH91352
Aroclor 1268	ND (0.05)		8082A		1	08/14/19 3:16		CH91352

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	90 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	78 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	59 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	61 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WN 1-2
Date Sampled: 08/05/19 08:55
Percent Solids: 89
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1221	ND (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1232	ND (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1242	ND (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1248	ND (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1254	ND (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1260	14.7 (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1262	ND (1.2)		8082A		20	08/14/19 12:18		CH90907
Aroclor 1268	ND (1.2)		8082A		20	08/14/19 12:18		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WN 2-3
Date Sampled: 08/05/19 09:00
Percent Solids: 88
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 17:03		CH90907
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 17:03		CH90907
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 17:03		CH90907
Aroclor 1242	0.5 (0.06)		8082A		1	08/12/19 17:03		CH90907
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 17:03		CH90907
Aroclor 1254 [2C]	2.1 (0.3)		8082A		5	08/14/19 12:37		CH90907
Aroclor 1260 [2C]	2.7 (0.3)		8082A		5	08/14/19 12:37		CH90907
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 17:03		CH90907
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 17:03		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	74 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	45 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	43 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 0-0.5
Date Sampled: 08/05/19 13:41
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1221	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1232	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1242	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1248	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1254 [2C]	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1260	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1262	ND (0.06)		8082A		1	08/14/19 3:35		CH91352
Aroclor 1268	ND (0.06)		8082A		1	08/14/19 3:35		CH91352

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	80 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	71 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 1-2
Date Sampled: 08/05/19 13:46
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 17:41		CH90907
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 17:41		CH90907
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 17:41		CH90907
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 17:41		CH90907
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 17:41		CH90907
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 17:41		CH90907
Aroclor 1260	9.8 (0.6)		8082A		10	08/14/19 12:56		CH90907
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 17:41		CH90907
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 17:41		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	60 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 2-3
Date Sampled: 08/05/19 13:50
Percent Solids: 86
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 18:00		CH90907
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 18:00		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	79 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 11-13
Date Sampled: 08/05/19 14:40
Percent Solids: 78

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-10
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	ND (2.54)		6010C		1	KJK	08/10/19 11:49	2.53	100	CH90940
Barium	14.6 (2.54)		6010C		1	KJK	08/10/19 11:49	2.53	100	CH90940
Cadmium	ND (0.51)		6010C		1	BJV	08/10/19 11:49	2.53	100	CH90940
Chromium	6.93 (1.01)		6010C		1	BJV	08/10/19 11:49	2.53	100	CH90940
Lead	ND (5.07)		6010C		1	BJV	08/10/19 11:49	2.53	100	CH90940
Mercury	ND (0.026)		7471B		1	MKS	08/13/19 11:14	0.97	40	CH90941
Selenium	ND (5.07)		6010C		1	KJK	08/10/19 11:49	2.53	100	CH90940
Silver	ND (0.51)		6010C		1	KJK	08/10/19 11:49	2.53	100	CH90940
Zinc	15.7 (2.54)		6010C		1	KJK	08/10/19 11:49	2.53	100	CH90940



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 11-13
Date Sampled: 08/05/19 14:40
Percent Solids: 78
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0014)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
1,4-Dioxane	ND (0.0705)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
2-Butanone	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
2-Chlorotoluene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
2-Hexanone	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
4-Chlorotoluene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Acetone	0.0607 (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Benzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Bromobenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Bromochloromethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 11-13
Date Sampled: 08/05/19 14:40
Percent Solids: 78
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Bromoform	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Bromomethane	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Carbon Disulfide	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Chlorobenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Chloroethane	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Chloroform	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Chloromethane	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Dibromochloromethane	ND (0.0014)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Dibromomethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Diethyl Ether	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Di-isopropyl ether	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Ethylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Isopropylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Methylene Chloride	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Naphthalene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
n-Butylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
n-Propylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
sec-Butylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Styrene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
tert-Butylbenzene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Tetrachloroethene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Tetrahydrofuran	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Toluene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 11-13
Date Sampled: 08/05/19 14:40
Percent Solids: 78
Initial Volume: 9.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Trichloroethene	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Vinyl Chloride	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Xylene O	ND (0.0035)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Xylene P,M	ND (0.0071)		8260B Low		1	08/08/19 15:38	C9H0172	CH90832
Xylenes (Total)	ND (0.00705)		8260B Low		1	08/08/19 15:38		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>95 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 11-13
Date Sampled: 08/05/19 14:40
Percent Solids: 78

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-10
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	6.28 (N/A)		9045		1	CCP	08/05/19 21:00	S.U.	CH90534
Corrosivity (pH) Sample Temp	Soil pH measured in water at 22.8 °C.								
Eh (ORP)	WL 378 (N/A)		2580		1	CCP	08/05/19 21:00	mv	CH90538
Hexavalent Chromium	ND (0.6)		7196A		1	CCP	08/05/19 22:00	mg/kg dry	CH90571



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB6-N1 11-13
Date Sampled: 08/05/19 14:40
Percent Solids: 78
Initial Volume: 24.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-10
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/7/19 9:55

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (19.6)		MADEP-EPH		1	CAD	08/09/19 12:40	C9H0125	CH90659
C19-C36 Aliphatics1	ND (19.6)		MADEP-EPH		1	CAD	08/09/19 12:40	C9H0125	CH90659
C11-C22 Unadjusted Aromatics1	ND (19.6)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
C11-C22 Aromatics1,2	ND (19.6)		EPH8270			VSC	08/09/19 6:27		[CALC]
2-Methylnaphthalene	ND (0.26)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Acenaphthene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Naphthalene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Phenanthrene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Acenaphthylene	ND (0.26)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Anthracene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Benzo(a)anthracene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Benzo(a)pyrene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Benzo(b)fluoranthene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Benzo(g,h,i)perylene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Benzo(k)fluoranthene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Chrysene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Dibenzo(a,h)Anthracene	ND (0.26)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Fluoranthene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Fluorene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Indeno(1,2,3-cd)Pyrene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659
Pyrene	ND (0.52)		EPH8270		1	VSC	08/09/19 6:27	C9H0162	CH90659

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	65 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	110 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	96 %		40-140
<i>Surrogate: O-Terphenyl</i>	81 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: DUP-12
Date Sampled: 08/05/19 12:03
Percent Solids: 78
Initial Volume: 8.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0015)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
1,4-Dioxane	ND (0.0773)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
2-Butanone	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
2-Chlorotoluene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
2-Hexanone	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
4-Chlorotoluene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Acetone	0.0279 (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Benzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Bromobenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Bromochloromethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: DUP-12
Date Sampled: 08/05/19 12:03
Percent Solids: 78
Initial Volume: 8.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Bromoform	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Bromomethane	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Carbon Disulfide	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Chlorobenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Chloroethane	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Chloroform	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Chloromethane	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Dibromochloromethane	ND (0.0015)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Dibromomethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Diethyl Ether	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Di-isopropyl ether	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Ethylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Isopropylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Methylene Chloride	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Naphthalene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
n-Butylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
n-Propylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
sec-Butylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Styrene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
tert-Butylbenzene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Tetrachloroethene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Tetrahydrofuran	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Toluene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: DUP-12
Date Sampled: 08/05/19 12:03
Percent Solids: 78
Initial Volume: 8.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Trichloroethene	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Vinyl Chloride	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Xylene O	ND (0.0039)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Xylene P,M	ND (0.0077)		8260B Low		1	08/08/19 16:03	C9H0172	CH90832
Xylenes (Total)	ND (0.00773)		8260B Low		1	08/08/19 16:03		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>97 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: DUP-14
Date Sampled: 08/05/19 12:04
Percent Solids: 77

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-12
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Chromium	6.29 (0.89)		6010C		1	BJV	08/10/19 11:52	2.91	100	CH90940



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: DUP-14
Date Sampled: 08/05/19 12:04
Percent Solids: 77

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-12
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	6.22 (N/A)		9045		1	CCP	08/05/19 21:00	S.U.	CH90534
Corrosivity (pH) Sample Temp	Soil pH measured in water at 22.1 °C.								
Eh (ORP)	WL 378 (N/A)		2580		1	CCP	08/05/19 21:00	mv	CH90538
Hexavalent Chromium	ND (0.6)		7196A		1	CCP	08/05/19 22:00	mg/kg dry	CH90571



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: DUP-11
Date Sampled: 08/05/19 12:00
Percent Solids: 88
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1221	ND (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1232	ND (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1242	ND (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1248	ND (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1254	ND (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1260	157 (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1262	ND (11.0)		8082A		200	08/14/19 13:16		CH90907
Aroclor 1268	ND (11.0)		8082A		200	08/14/19 13:16		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: DUP-13
Date Sampled: 08/05/19 12:02
Percent Solids: 97
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0128
ESS Laboratory Sample ID: 19H0128-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:29

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/12/19 18:39		CH90907
Aroclor 1221	ND (0.05)		8082A		1	08/12/19 18:39		CH90907
Aroclor 1232	ND (0.05)		8082A		1	08/12/19 18:39		CH90907
Aroclor 1242	0.3 (0.05)		8082A		1	08/12/19 18:39		CH90907
Aroclor 1248	ND (0.05)		8082A		1	08/12/19 18:39		CH90907
Aroclor 1254	ND (0.05)		8082A		1	08/12/19 18:39		CH90907
Aroclor 1260 [2C]	8.3 (0.5)		8082A		10	08/14/19 13:35		CH90907
Aroclor 1262	ND (0.05)		8082A		1	08/12/19 18:39		CH90907
Aroclor 1268	ND (0.05)		8082A		1	08/12/19 18:39		CH90907

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	77 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	130 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	46 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CH90940 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Arsenic	120	7.94	mg/kg wet	128.0		94	80-120			
Barium	548	7.94	mg/kg wet	536.0		102	80-120			
Cadmium	90.2	1.59	mg/kg wet	99.00		91	80-120			
Chromium	112	3.17	mg/kg wet	116.0		96	80-120			
Lead	289	15.9	mg/kg wet	277.0		104	80-120			
Selenium	242	15.9	mg/kg wet	242.0		100	80-120			
Silver	61.9	1.59	mg/kg wet	64.30		96	80-120			
Zinc	544	7.94	mg/kg wet	561.0		97	80-120			
LCS Dup										
Arsenic	116	7.58	mg/kg wet	128.0		91	80-120	3	20	
Barium	545	7.58	mg/kg wet	536.0		102	80-120	0.5	20	
Cadmium	89.8	1.52	mg/kg wet	99.00		91	80-120	0.4	20	
Chromium	113	3.03	mg/kg wet	116.0		98	80-120	2	20	
Lead	285	15.2	mg/kg wet	277.0		103	80-120	1	20	
Selenium	238	15.2	mg/kg wet	242.0		98	80-120	2	20	
Silver	63.8	1.52	mg/kg wet	64.30		99	80-120	3	20	
Zinc	556	7.58	mg/kg wet	561.0		99	80-120	2	20	
Reference										
Lead	3700	43.5	mg/kg wet	4490		83	83-113			
Reference										
Barium	495	9.62	mg/kg wet	500.0		99	70-130			
Cadmium	423	1.92	mg/kg wet	500.0		85	70-130			
Chromium	475	3.85	mg/kg wet	500.0		95	70-130			
Lead	486	19.2	mg/kg wet	500.0		97	70-130			
Silver	165	1.92	mg/kg wet	500.0		33	70-130			R-
Batch CH90941 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	22.5	3.96	mg/kg wet	27.30		82	80-120			
LCS Dup										
Mercury	24.2	3.47	mg/kg wet	27.30		89	80-120	7	20	
Reference										



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH90941 - 7471B

Mercury	0.964	0.187	mg/kg wet	1000		0.1	0-200			
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet
1,1,2,2-Tetrachloroethane	ND	0.0020	mg/kg wet
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethane	ND	0.0050	mg/kg wet
1,1-Dichloroethene	ND	0.0050	mg/kg wet
1,1-Dichloropropene	ND	0.0050	mg/kg wet
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet
1,2-Dibromoethane	ND	0.0050	mg/kg wet
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet
1,2-Dichloroethane	ND	0.0050	mg/kg wet
1,2-Dichloropropane	ND	0.0050	mg/kg wet
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet
1,3-Dichloropropane	ND	0.0050	mg/kg wet
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet
1,4-Dioxane	ND	0.100	mg/kg wet
2,2-Dichloropropane	ND	0.0050	mg/kg wet
2-Butanone	ND	0.0100	mg/kg wet
2-Chlorotoluene	ND	0.0050	mg/kg wet
2-Hexanone	ND	0.0100	mg/kg wet
4-Chlorotoluene	ND	0.0050	mg/kg wet
4-Isopropyltoluene	ND	0.0050	mg/kg wet
4-Methyl-2-Pentanone	ND	0.0100	mg/kg wet
Acetone	ND	0.0100	mg/kg wet
Benzene	ND	0.0050	mg/kg wet
Bromobenzene	ND	0.0050	mg/kg wet
Bromochloromethane	ND	0.0050	mg/kg wet
Bromodichloromethane	ND	0.0050	mg/kg wet
Bromoform	ND	0.0050	mg/kg wet
Bromomethane	ND	0.0100	mg/kg wet
Carbon Disulfide	ND	0.0050	mg/kg wet
Carbon Tetrachloride	ND	0.0050	mg/kg wet
Chlorobenzene	ND	0.0050	mg/kg wet
Chloroethane	ND	0.0100	mg/kg wet
Chloroform	ND	0.0050	mg/kg wet



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0020	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0100	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0499		mg/kg wet	0.05000		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0468		mg/kg wet	0.05000		94	70-130			
Surrogate: Dibromofluoromethane	0.0487		mg/kg wet	0.05000		97	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
1,1,1-Trichloroethane	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
1,1,2,2-Tetrachloroethane	0.0483	0.0020	mg/kg wet	0.05000		97	70-130			
1,1,2-Trichloroethane	0.0513	0.0050	mg/kg wet	0.05000		103	70-130			
1,1-Dichloroethane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
1,1-Dichloroethene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
1,1-Dichloropropene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
1,2,3-Trichlorobenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
1,2,3-Trichloropropane	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

1,2,4-Trichlorobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
1,2,4-Trimethylbenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dibromo-3-Chloropropane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,2-Dibromoethane	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichlorobenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichloroethane	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
1,2-Dichloropropane	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
1,3,5-Trimethylbenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
1,3-Dichlorobenzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
1,3-Dichloropropane	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
1,4-Dichlorobenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
1,4-Dioxane	1.08	0.100	mg/kg wet	1.000		108	70-130			
2,2-Dichloropropane	0.0570	0.0050	mg/kg wet	0.05000		114	70-130			
2-Butanone	0.265	0.0100	mg/kg wet	0.2500		106	70-130			
2-Chlorotoluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
2-Hexanone	0.224	0.0100	mg/kg wet	0.2500		90	70-130			
4-Chlorotoluene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
4-Isopropyltoluene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
4-Methyl-2-Pentanone	0.232	0.0100	mg/kg wet	0.2500		93	70-130			
Acetone	0.242	0.0100	mg/kg wet	0.2500		97	70-130			
Benzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Bromobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Bromochloromethane	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
Bromodichloromethane	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Bromoform	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
Bromomethane	0.0465	0.0100	mg/kg wet	0.05000		93	70-130			
Carbon Disulfide	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
Carbon Tetrachloride	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Chlorobenzene	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Chloroethane	0.0483	0.0100	mg/kg wet	0.05000		97	70-130			
Chloroform	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Chloromethane	0.0522	0.0100	mg/kg wet	0.05000		104	70-130			
cis-1,2-Dichloroethene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
cis-1,3-Dichloropropene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Dibromochloromethane	0.0445	0.0020	mg/kg wet	0.05000		89	70-130			
Dibromomethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Dichlorodifluoromethane	0.0436	0.0100	mg/kg wet	0.05000		87	70-130			
Diethyl Ether	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Di-isopropyl ether	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
Ethyl tertiary-butyl ether	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Ethylbenzene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
Hexachlorobutadiene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
Isopropylbenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Methyl tert-Butyl Ether	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
Methylene Chloride	0.0466	0.0100	mg/kg wet	0.05000		93	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Naphthalene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
n-Butylbenzene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
n-Propylbenzene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
sec-Butylbenzene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Styrene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
tert-Butylbenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Tertiary-amyl methyl ether	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
Tetrachloroethene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
Tetrahydrofuran	0.0454	0.0050	mg/kg wet	0.05000		91	70-130			
Toluene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
trans-1,2-Dichloroethene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130			
trans-1,3-Dichloropropene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130			
Trichloroethene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
Trichlorofluoromethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Vinyl Chloride	0.0526	0.0100	mg/kg wet	0.05000		105	70-130			
Xylene O	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
Xylene P,M	0.104	0.0100	mg/kg wet	0.1000		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0498		mg/kg wet	0.05000		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0489		mg/kg wet	0.05000		98	70-130			
Surrogate: Dibromofluoromethane	0.0509		mg/kg wet	0.05000		102	70-130			
Surrogate: Toluene-d8	0.0487		mg/kg wet	0.05000		97	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	7	20	
1,1,1-Trichloroethane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	0.7	20	
1,1,2,2-Tetrachloroethane	0.0511	0.0020	mg/kg wet	0.05000		102	70-130	6	20	
1,1,2-Trichloroethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	3	20	
1,1-Dichloroethane	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	3	20	
1,1-Dichloroethene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	3	20	
1,1-Dichloropropene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	3	20	
1,2,3-Trichlorobenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	6	20	
1,2,3-Trichloropropane	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	6	20	
1,2,4-Trichlorobenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	6	20	
1,2,4-Trimethylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	4	20	
1,2-Dibromo-3-Chloropropane	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	7	20	
1,2-Dibromoethane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	11	20	
1,2-Dichlorobenzene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	5	20	
1,2-Dichloroethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	4	20	
1,2-Dichloropropane	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	4	20	
1,3,5-Trimethylbenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	4	20	
1,3-Dichlorobenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	3	20	
1,3-Dichloropropane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	8	20	
1,4-Dichlorobenzene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	7	20	
1,4-Dioxane	1.16	0.100	mg/kg wet	1.000		116	70-130	7	20	
2,2-Dichloropropane	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	1	20	
2-Butanone	0.284	0.0100	mg/kg wet	0.2500		113	70-130	7	20	



CERTIFICATE OF ANALYSIS

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Quality Control Data

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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

2-Chlorotoluene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	3	20	
2-Hexanone	0.248	0.0100	mg/kg wet	0.2500		99	70-130	10	20	
4-Chlorotoluene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	4	20	
4-Isopropyltoluene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	3	20	
4-Methyl-2-Pentanone	0.246	0.0100	mg/kg wet	0.2500		99	70-130	6	20	
Acetone	0.252	0.0100	mg/kg wet	0.2500		101	70-130	4	20	
Benzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	3	20	
Bromobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	5	20	
Bromochloromethane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	6	20	
Bromodichloromethane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	3	20	
Bromoform	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	8	20	
Bromomethane	0.0465	0.0100	mg/kg wet	0.05000		93	70-130	0.04	20	
Carbon Disulfide	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	2	20	
Carbon Tetrachloride	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	0.9	20	
Chlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130	7	20	
Chloroethane	0.0493	0.0100	mg/kg wet	0.05000		99	70-130	2	20	
Chloroform	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	2	20	
Chloromethane	0.0523	0.0100	mg/kg wet	0.05000		105	70-130	0.3	20	
cis-1,2-Dichloroethene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	3	20	
cis-1,3-Dichloropropene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	5	20	
Dibromochloromethane	0.0476	0.0020	mg/kg wet	0.05000		95	70-130	7	20	
Dibromomethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	2	20	
Dichlorodifluoromethane	0.0432	0.0100	mg/kg wet	0.05000		86	70-130	0.8	20	
Diethyl Ether	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	7	20	
Di-isopropyl ether	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	5	20	
Ethyl tertiary-butyl ether	0.0496	0.0050	mg/kg wet	0.05000		99	70-130	5	20	
Ethylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	7	20	
Hexachlorobutadiene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	5	20	
Isopropylbenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	4	20	
Methyl tert-Butyl Ether	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	6	20	
Methylene Chloride	0.0491	0.0100	mg/kg wet	0.05000		98	70-130	5	20	
Naphthalene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	8	20	
n-Butylbenzene	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	4	20	
n-Propylbenzene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	4	20	
sec-Butylbenzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	3	20	
Styrene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	8	20	
tert-Butylbenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	4	20	
Tertiary-amyl methyl ether	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	7	20	
Tetrachloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	5	20	
Tetrahydrofuran	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	6	20	
Toluene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	5	20	
trans-1,2-Dichloroethene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	3	20	
trans-1,3-Dichloropropene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	5	20	
Trichloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	2	20	
Trichlorofluoromethane	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	0.9	20	



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Vinyl Chloride	0.0522	0.0100	mg/kg wet	0.05000		104	70-130	0.7	20	
Xylene O	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	6	20	
Xylene P,M	0.113	0.0100	mg/kg wet	0.1000		113	70-130	8	20	
Surrogate: 1,2-Dichloroethane-d4	0.0484		mg/kg wet	0.05000		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0500		mg/kg wet	0.05000		100	70-130			
Surrogate: Dibromofluoromethane	0.0502		mg/kg wet	0.05000		100	70-130			
Surrogate: Toluene-d8	0.0498		mg/kg wet	0.05000		100	70-130			

8082A Polychlorinated Biphenyls (PCB)

Batch CH90907 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	0.0238		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0249		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0180		mg/kg wet	0.02500		72	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0194		mg/kg wet	0.02500		78	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Surrogate: Decachlorobiphenyl	0.0254		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0258		mg/kg wet	0.02500		103	30-150			
Surrogate: Tetrachloro-m-xylene	0.0203		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0203		mg/kg wet	0.02500		81	30-150			

LCS Dup



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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH90907 - 3540C										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	2	30	
<i>Surrogate: Decachlorobiphenyl</i>	<i>0.0245</i>		mg/kg wet	<i>0.02500</i>		<i>98</i>	<i>30-150</i>			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>0.0250</i>		mg/kg wet	<i>0.02500</i>		<i>100</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>0.0191</i>		mg/kg wet	<i>0.02500</i>		<i>77</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>0.0190</i>		mg/kg wet	<i>0.02500</i>		<i>76</i>	<i>30-150</i>			
Batch CH91352 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
<i>Surrogate: Decachlorobiphenyl</i>	<i>0.0242</i>		mg/kg wet	<i>0.02500</i>		<i>97</i>	<i>30-150</i>			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>0.0228</i>		mg/kg wet	<i>0.02500</i>		<i>91</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>0.0196</i>		mg/kg wet	<i>0.02500</i>		<i>79</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>0.0214</i>		mg/kg wet	<i>0.02500</i>		<i>86</i>	<i>30-150</i>			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
<i>Surrogate: Decachlorobiphenyl</i>	<i>0.0260</i>		mg/kg wet	<i>0.02500</i>		<i>104</i>	<i>30-150</i>			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>0.0246</i>		mg/kg wet	<i>0.02500</i>		<i>98</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>0.0215</i>		mg/kg wet	<i>0.02500</i>		<i>86</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>0.0224</i>		mg/kg wet	<i>0.02500</i>		<i>90</i>	<i>30-150</i>			
LCS Dup										



CERTIFICATE OF ANALYSIS

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8082A Polychlorinated Biphenyls (PCB)

Batch CH91352 - 3540C

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	4	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	2	30	
Surrogate: Decachlorobiphenyl	0.0248		mg/kg wet	0.02500		99	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0205		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0214		mg/kg wet	0.02500		85	30-150			

Classical Chemistry

Batch CH90571 - General Preparation

Blank										
Hexavalent Chromium	ND	0.7	mg/kg wet							
LCS										
Hexavalent Chromium	32.1	0.7	mg/kg wet	33.32		96	80-120			
LCS Dup										
Hexavalent Chromium	33.5	0.7	mg/kg wet	33.32		101	80-120	4	20	
Reference										
Hexavalent Chromium	76.2	2.0	mg/kg wet	71.00		107	20.3-222.5			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Blank										
C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							
Surrogate: 1-Chlorooctadecane	1.73		mg/kg wet	2.020		85	40-140			
Blank										
2-Methylnaphthalene	ND	0.14	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Acenaphthene	ND	0.20	mg/kg wet							
Acenaphthylene	ND	0.14	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.20	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.20	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.20	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							
<i>Surrogate: 2-Bromonaphthalene</i>	<i>48.3</i>		mg/L	<i>50.00</i>		<i>97</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>41.8</i>		mg/L	<i>50.00</i>		<i>84</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.56</i>		mg/kg wet	<i>2.008</i>		<i>78</i>	<i>40-140</i>			

LCS

C19-C36 Aliphatics1	16.1	15.0	mg/kg wet	16.00		101	40-140			
C9-C18 Aliphatics1	8.8	15.0	mg/kg wet	12.00		74	40-140			
Decane (C10)	0.9	0.5	mg/kg wet	2.000		46	40-140			
Docosane (C22)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Dodecane (C12)	1.0	0.5	mg/kg wet	2.000		51	40-140			
Eicosane (C20)	1.9	0.5	mg/kg wet	2.000		93	40-140			
Hexacosane (C26)	1.9	0.5	mg/kg wet	2.000		94	40-140			
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		77	40-140			
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Nonadecane (C19)	1.8	0.5	mg/kg wet	2.000		91	40-140			
Nonane (C9)	0.7	0.5	mg/kg wet	2.000		37	30-140			
Octacosane (C28)	1.9	0.5	mg/kg wet	2.000		94	40-140			
Octadecane (C18)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Tetracosane (C24)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		60	40-140			
Triacotane (C30)	1.8	0.5	mg/kg wet	2.000		92	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.72</i>		mg/kg wet	<i>2.020</i>		<i>85</i>	<i>40-140</i>			

LCS

2-Methylnaphthalene	1.51	0.14	mg/kg wet	2.000		75	40-140			
Acenaphthene	1.58	0.20	mg/kg wet	2.000		79	40-140			
Acenaphthylene	1.67	0.14	mg/kg wet	2.000		84	40-140			
Anthracene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(a)anthracene	2.00	0.40	mg/kg wet	2.000		100	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90659 - 3546										
Benzo(a)pyrene	1.84	0.20	mg/kg wet	2.000		92	40-140			
Benzo(b)fluoranthene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(g,h,i)perylene	1.72	0.40	mg/kg wet	2.000		86	40-140			
Benzo(k)fluoranthene	1.97	0.40	mg/kg wet	2.000		99	40-140			
C11-C22 Unadjusted Aromatics1	34.9	15.0	mg/kg wet	34.00		103	40-140			
Chrysene	2.04	0.40	mg/kg wet	2.000		102	40-140			
Dibenzo(a,h)Anthracene	2.03	0.20	mg/kg wet	2.000		102	40-140			
Fluoranthene	2.02	0.40	mg/kg wet	2.000		101	40-140			
Fluorene	1.80	0.40	mg/kg wet	2.000		90	40-140			
Indeno(1,2,3-cd)Pyrene	1.91	0.40	mg/kg wet	2.000		95	40-140			
Naphthalene	1.35	0.20	mg/kg wet	2.000		67	40-140			
Phenanthrene	1.96	0.40	mg/kg wet	2.000		98	40-140			
Pyrene	1.99	0.40	mg/kg wet	2.000		100	40-140			
Surrogate: 2-Bromonaphthalene	50.1		mg/L	50.00		100	40-140			
Surrogate: 2-Fluorobiphenyl	44.1		mg/L	50.00		88	40-140			
Surrogate: O-Terphenyl	1.70		mg/kg wet	2.008		84	40-140			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS Dup										
C19-C36 Aliphatics1	15.3	15.0	mg/kg wet	16.00		96	40-140	5	25	
C9-C18 Aliphatics1	8.9	15.0	mg/kg wet	12.00		74	40-140	0.05	25	
Decane (C10)	1.0	0.5	mg/kg wet	2.000		51	40-140	10	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		91	40-140	5	25	
Dodecane (C12)	1.1	0.5	mg/kg wet	2.000		55	40-140	7	25	
Eicosane (C20)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	
Hexacosane (C26)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		75	40-140	3	25	
Hexatriacontane (C36)	1.7	0.5	mg/kg wet	2.000		87	40-140	4	25	
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		87	40-140	5	25	
Nonane (C9)	0.8	0.5	mg/kg wet	2.000		42	30-140	12	25	
Octacosane (C28)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		85	40-140	5	25	
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		62	40-140	3	25	
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		88	40-140	5	25	
Surrogate: 1-Chlorooctadecane	1.64		mg/kg wet	2.020		81	40-140			
LCS Dup										
2-Methylnaphthalene	1.64	0.14	mg/kg wet	2.000		82	40-140	8	30	
Acenaphthene	1.65	0.20	mg/kg wet	2.000		83	40-140	4	30	
Acenaphthylene	1.76	0.14	mg/kg wet	2.000		88	40-140	5	30	
Anthracene	1.91	0.40	mg/kg wet	2.000		96	40-140	4	30	
Benzo(a)anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140	6	30	
Benzo(a)pyrene	1.76	0.20	mg/kg wet	2.000		88	40-140	5	30	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90659 - 3546										
Benzo(b)fluoranthene	1.83	0.40	mg/kg wet	2.000		92	40-140	8	30	
Benzo(g,h,i)perylene	1.64	0.40	mg/kg wet	2.000		82	40-140	5	30	
Benzo(k)fluoranthene	1.92	0.40	mg/kg wet	2.000		96	40-140	3	30	
C11-C22 Unadjusted Aromatics1	33.9	15.0	mg/kg wet	34.00		100	40-140	3	25	
Chrysene	1.93	0.40	mg/kg wet	2.000		96	40-140	5	30	
Dibenzo(a,h)Anthracene	1.93	0.20	mg/kg wet	2.000		96	40-140	5	30	
Fluoranthene	1.90	0.40	mg/kg wet	2.000		95	40-140	6	30	
Fluorene	1.81	0.40	mg/kg wet	2.000		90	40-140	0.2	30	
Indeno(1,2,3-cd)Pyrene	1.82	0.40	mg/kg wet	2.000		91	40-140	5	30	
Naphthalene	1.51	0.20	mg/kg wet	2.000		76	40-140	12	30	
Phenanthrene	1.88	0.40	mg/kg wet	2.000		94	40-140	4	30	
Pyrene	1.89	0.40	mg/kg wet	2.000		95	40-140	5	30	
Surrogate: 2-Bromonaphthalene	49.2		mg/L	50.00		98	40-140			
Surrogate: 2-Fluorobiphenyl	43.5		mg/L	50.00		87	40-140			
Surrogate: O-Terphenyl	1.62		mg/kg wet	2.008		81	40-140			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

Notes and Definitions

- Z-10a Soil pH measured in water at 22.8 °C.
- Z-10 Soil pH measured in water at 22.1 °C.
- WL Results obtained from a deionized water leach of the sample.
- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- R- Standard Reference Material is biased low (R-).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0128

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0128

Date Received: 8/5/2019

Project Due Date: 8/12/2019

Days for Project: 5 Day

Shipped/Delivered Via: ESS Courier

1. Air bill manifest present? No
Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
Temp: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes No NA *8/5/19*
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: 8/5/19 Time: 5:05 By: AL
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

No % solids rec'd for sample 11

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	373798	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	373797	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	373796	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	373795	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	373794	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	373793	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	373792	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	373791	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	373790	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	373780	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
10	373783	Yes	NA	Yes	VOA Vial - Other	Other	
10	373784	Yes	NA	Yes	VOA Vial - Other	Other	
10	373789	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	373799	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	373779	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
11	373781	Yes	NA	Yes	VOA Vial - Other	Other	
11	373782	Yes	NA	Yes	VOA Vial - Other	Other	
12	373787	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	373786	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	373785	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0128

Date Received: 8/5/2019

Were all containers scanned into storage/lab?

Initials MM

Are barcode labels on correct containers?

Yes / No

Are all Flashpoint stickers attached/container ID # circled?

Yes / No / NA

Are all Hex Chrome stickers attached?

Yes / No / NA

Are all QC stickers attached?

Yes / No / NA

Are VOA stickers attached if bubbles noted?

Yes / No / NA

Completed

By:

MM

Date & Time:

8/5/19 2059

Reviewed

By:

MM

Date & Time:

8/5/19 2104

Delivered

By:

MM

8/5/19 2104

Chain-of-Custody Record Laboratory: Laboratory Job # 1940128
 (Lab use only)



GEI Consultants
 400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information
 Project Name: Tombardillo Project Location: Lawrence Ma
 Project Number: 1601442 Project Manager: L. Lombardo
 Send Report to: Molly Greer
 Send EDD to: EastRegion@GEIConsultants.com

Page 2 of 3
Sample Handling
 Samples Field Filtered
 YES NO NA
 Sampled Shipped With Ice
 YES NO
 Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative
 none none none none HL MEOR
Analysis
PCDS EPH PHS ACRA 8 MET Tot. Chrom Hex Chrom VOCS

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	PCDS	EPH	PHS	ACRA 8 MET	Tot. Chrom	Hex Chrom	VOCS	Sample Specific Remarks
		Date	Time											
1	SB-3WW (0-0.5)	08/15	0935	SO	1	BRL	X							
2	SB-3WW (1-2)		0941		1	BRL	X							
3	SB-3WW (2-3)		0945		1	BRL	X							
4	SB-3WN (0-0.5)		0851		1	BRL	X							
5	SB-3WN (1-2)		0855		1	BRL	X							
6	SB-3WN (2-3)		0900		1	BRL	X							
7	SB6-W1 (0-0.5)		1341		1	BRL	X							
8	SB6-W1 (1-2)		1346		1	BRL	X							
9	SB6-W1 (2-3)		1350		1	BRL	X							
10	SB6-W1 (11-13)		1440		5	BRL		X	X	X	X			
11	DUP-12		1203		3	BRL						X		Duplicate
12	DUP-14		1204		1	BRL					X			Duplicate

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature) 1. <u>[Signature]</u>	Date: <u>8/15/19</u> 1530	Time: <u>1530</u>	Received by: (signature) 1. <u>[Signature]</u>
Relinquished by: (signature) 2. <u>[Signature]</u>	Date: <u>8/15/19</u>	Time: <u>18:13</u>	Received by: (signature) 2. <u>[Signature]</u>
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Turnaround Time (Business days):
 Normal Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
see page 1

Retemp'd. 2.8

Chain-of-Custody Record Laboratory: Laboratory Job # 19H0128
 (Lab use only)



Project Information
 Project Name: Tombarello Project Location: Lawrence Ma.
 Project Number: 1801442 Project Manager: L. Lombardo
 Send Report to: Molly Greer
 Send EDD to: labdata@geiconsultants.com

Page 3 of 3

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative						Analysis					
none											

Sample Handling
 Samples Field Filtered YES NO NA
 Sampled Shipped With Ice YES NO
 Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials							
		Date	Time										
13	Dup - 11	8/5	1200	SO	1	BAL	X						
14	Dup - 13	8/5	1202	SO	1	SMT	X						
	ED-05	8/5	0830	W	1	BRL	X						

PCBS

--	--	--	--	--	--	--	--	--	--	--	--	--	--

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.


Relinquished by sampler: (signature) 1. <u>[Signature]</u>	Date: 8/5/19	Time: 1530	Received by: (signature) 1. <u>[Signature]</u>
Relinquished by: (signature) 2. <u>[Signature]</u>	Date: 8/5/19	Time: 1813	Received by: (signature) 2. <u>[Signature]</u> 8/5/19 2012
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Turnaround Time (Business days):
 Normal Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
See page 1

ice temp: 2.8

Chain-of-Custody Record				Laboratory: ESS				Laboratory Job # 19H0128 <small>(Lab use only)</small>															
Project Information																							
Project Name: Tombarello Site Investigation						Project Location: Lawrence, MA																	
Project Number: 1802441						Project Manager: L. Lombardo																	
 400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073						Preservative						Sample Handling											
						Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com Send EDD to: EastRegionData@geiconsultants.com						<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:12.5%;">None</td> <td style="width:12.5%;">None</td> <td style="width:12.5%;">None</td> <td style="width:12.5%;">None</td> <td style="width:12.5%;"></td> <td style="width:12.5%;"></td> <td style="width:12.5%;"></td> <td style="width:12.5%;"></td> <td style="width:12.5%;"></td> <td style="width:12.5%;"></td> <td style="width:12.5%;"></td> </tr> </table>						None	None	None	None		
None	None	None	None																				
MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES <input type="radio"/> NO <input checked="" type="radio"/>																							
If Yes, Are MCP Analytical Methods Required?						YES <input checked="" type="radio"/> NO <input type="radio"/> NA																	
Are Drinking Water Samples Submitted?						YES <input type="radio"/> NO <input checked="" type="radio"/> NA																	
If Yes, Have Drinking Water Sampling Requirements Been Met?						YES <input type="radio"/> NO <input type="radio"/> NA <input checked="" type="radio"/>																	
Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, Hg10)	Cr VI	VOC (high/low)							Sample Specific Remarks					
		Date	Time															YES	NO				
	1802441-SB-3WW(0-0.5)	8/5/2019	0935	Soil	1	BRL	X																
	1802441-SB-3WW(1-2)	8/5/2019	0941	Soil	1	BRL	X																
	1802441-SB-3WW(2-3)	8/5/2019	0945	Soil	1	BRL	X																
	1802441-SB-3WN(0-0.5)	8/5/2019	0851	Soil	1	BRL	X																
	1802441-SB-3WN(1-2)	8/5/2019	0855	Soil	1	BRL	X																
	1802441-SB-3WN(2-3)	8/5/2019	0900	Soil	1	BRL	X																
	1802441-SB6-N1(0-0.5)	8/5/2019	1341	Soil	1	BRL	X																
	1802441-SB6-N1(1-2)	8/5/2019	1346	Soil	1	BRL	X																
	1802441-SB6-N1(2-3)	8/5/2019	1350	Soil	1	BRL	X													HOLD			
	1802441-SB6-N1(11-13)	8/5/2019	1440	Soil	5	BRL		X	X	X	X												
	DUP-12	8/5/2019	1203	Soil	3	BRL					X									Field Duplicate			
	DUP-14	8/5/2019	1204	Soil	1	BRL				X										Field Duplicate			
MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.							Turnaround Time (Business days):					Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.											
Relinquished by sampler: (signature)		Date :		Time:		Received by: (signature)		Normal <input checked="" type="checkbox"/> Other <input type="checkbox"/> 10-Day <input type="checkbox"/> 7-Day <input type="checkbox"/> 5-Day <input type="checkbox"/> 3-Day <input type="checkbox"/>															
1.						1.					Additional Requirements/Comments/Remarks: Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP. **REFER TO ORIGINAL COC FOR SIGNATURES hdm 8/6/19												
Relinquished by: (signature)		Date :		Time:		Received by: (signature)																	
2.						2.																	
Relinquished by: (signature)		Date :		Time:		Received by: (signature)																	
3.						3.																	
Relinquished by: (signature)		Date :		Time:		Received by: (signature)																	
4.						4.																	



Project Information

Project Name: Tombarello Site Investigation **Project Location:** Lawrence, MA

Project Number: 1802441 **Project Manager:** L. Lombardo

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

~~Page 3 of 3~~
Page 4 of 4

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative							
None							
PCBs (8082)							

Sample Handling

Samples Field Filtered YES NO NA

Sampled Shipped With Ice YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)									Sample Specific Remarks
		Date	Time													
	DUP-11	8/5/2019	1200	Soil	1	BRL	x									Field Duplicate
	DUP-13	8/5/2019	1202	Soil	1	SMT	x									Field Duplicate
	ED-05	8/5/2019	0830	Aqueous	1	BRL	x									Equipment Blank

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature)	Date :	Time:	Received by: (signature)
1.			1.
Relinquished by: (signature)	Date :	Time:	Received by: (signature)
2.			2.
Relinquished by: (signature)	Date :	Time:	Received by: (signature)
3.			3.
Relinquished by: (signature)	Date :	Time:	Received by: (signature)
4.			4.

Turnaround Time (Business days):

Normal Other
 10-Day 7-Day
 5-Day 3-Day

Before submitting rush turnaround samples, **you must notify the laboratory to confirm that the TAT can be achieved.**

Additional Requirements/Comments/Remarks:

Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

****REFER TO ORIGINAL COC FOR SIGNATURE**

hdm 8/6/19



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0165

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 3:44 pm, Sep 23, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

SAMPLE RECEIPT

The following samples were received on August 06, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Low Level VOA vials were frozen by ESS Laboratory on 8/6/19 at 19:10.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Revision 1 September 19, 2019: This report has been revised to include Metals MS/MSD.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0165-01	1802441-D-5NS 0-0.5	Soil	8082A
19H0165-02	1802441-W-07 0-3	Soil	2580, 6010C, 6020A, 7196A, 7471B, 8082A, 8260B Low, 9045, EPH8270, MADEP-EPH
19H0165-03	1802441-W-07- 5-7	Soil	2580, 6010C, 7196A, 7471B, 8082A, 8260B Low, 9045, EPH8270, MADEP-EPH
19H0165-04	1802441-Q-05 5-7	Soil	2580, 6010C, 6020A, 7196A, 7471B, 8082A, 8260B Low, 9045, EPH8270, MADEP-EPH
19H0165-05	1802441-WSB-26 5-7	Soil	2580, 6010C, 6020A, 7196A, 7471B, 8082A, 8260B Low, 9045, EPH8270, MADEP-EPH
19H0165-06	1802441-FG-34 5-7	Soil	2580, 6010C, 7196A, 7471B, 8082A, 8260B Low, 9045, EPH8270, MADEP-EPH
19H0165-07	1802441-BBerm-09N 0-1	Soil	8082A
19H0165-08	1802441-SB3WW 3-5	Soil	8082A
19H0165-09	1802441-SB3WN 3-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0165-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0165-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0165-07 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0165-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

MADEP-EPH Extractable Petroleum Hydrocarbons

- 19H0165-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0165-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
1-Chlorooctadecane (% @ 40-140%)
- 19H0165-03 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0165-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
1-Chlorooctadecane (% @ 40-140%)
- C9H0144-CCV4 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
Benzo(g,h,i)perylene (22% @ 20%)
- C9H0260-CCV4 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
Benzo(g,h,i)perylene (27% @ 20%)
- C9H0292-CCV2 [Continuing Calibration %Diff/Drift is above control limit \(CD+\).](#)
Benzo(g,h,i)perylene (31% @ 20%), Indeno(1,2,3-cd)Pyrene (30% @ 20%)
- C9H0292-CCV2 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
2-Methylnaphthalene (23% @ 20%), Naphthalene (32% @ 20%)

Total Metals

- 19H0165-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
Silver
- 19H0165-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
Silver
- CH91235-MSD3 [Relative percent difference for duplicate is outside of criteria \(D+\).](#)
Mercury (103% @ 35%)
- CH91236-DUP3 [Relative percent difference for duplicate is outside of criteria \(D+\).](#)
Cadmium (85% @ 35%)
- CH91236-MS3 [Matrix Spike recovery is above upper control limit \(M+\).](#)
Barium (151% @ 75-125%)
- CH91236-MSD3 [Matrix Spike recovery is below lower control limit \(M-\).](#)
Arsenic (73% @ 75-125%), Barium (-27% @ 75-125%), Chromium (39% @ 75-125%), Lead (67% @ 75-125%), Silver (9% @ 75-125%), Zinc (-31% @ 75-125%)
- CH91236-MSD3 [Relative percent difference for duplicate is outside of criteria \(D+\).](#)
Barium (57% @ 35%), Chromium (41% @ 35%), Silver (167% @ 35%), Zinc (50% @ 35%)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0165-01 through 19H0165-09**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|---|---|---|------------------------------------|
| <input checked="" type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | <input checked="" type="checkbox"/> 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 20, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-D-5NS 0-0.5
Date Sampled: 08/06/19 13:20
Percent Solids: 98
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1221	ND (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1232	ND (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1242	ND (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1248	ND (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1254	ND (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1260 [2C]	0.4 (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1262	ND (0.05)		8082A		1	08/12/19 23:36		CH90908
Aroclor 1268	ND (0.05)		8082A		1	08/12/19 23:36		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	56 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	57 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07 0-3
Date Sampled: 08/06/19 07:50
Percent Solids: 91

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	333 (2.19)		6010C		1	KJK	08/14/19 2:44	2.51	100	CH91236
Barium	148 (2.19)		6010C		1	KJK	08/14/19 2:44	2.51	100	CH91236
Cadmium	2.91 (0.44)		6010C		1	KJK	08/14/19 2:44	2.51	100	CH91236
Chromium	71.4 (0.88)		6010C		1	KJK	08/14/19 2:44	2.51	100	CH91236
Lead	233 (4.39)		6010C		1	KJK	08/14/19 16:46	2.51	100	CH91236
Mercury	1.04 (0.253)		7471B		10	MKS	08/13/19 14:48	0.86	40	CH91235
Selenium	2.80 (0.44)		6020A		1	NAR	08/15/19 16:31	2.51	100	CH91236
Silver	EL ND (87.7)		6010C		200	KJK	08/15/19 12:40	2.51	100	CH91236
Zinc	338 (2.19)		6010C		1	KJK	08/14/19 2:44	2.51	100	CH91236



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07 0-3
Date Sampled: 08/06/19 07:50
Percent Solids: 91
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0011)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
1,4-Dioxane	ND (0.0545)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
2-Butanone	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
2-Chlorotoluene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
2-Hexanone	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
4-Chlorotoluene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Acetone	0.0303 (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Benzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Bromobenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Bromochloromethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07 0-3
Date Sampled: 08/06/19 07:50
Percent Solids: 91
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Bromoform	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Bromomethane	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Carbon Disulfide	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Chlorobenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Chloroethane	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Chloroform	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Chloromethane	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Dibromochloromethane	ND (0.0011)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Dibromomethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Diethyl Ether	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Di-isopropyl ether	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Ethylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Isopropylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Methylene Chloride	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Naphthalene	0.0041 (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
n-Butylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
n-Propylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
sec-Butylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Styrene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
tert-Butylbenzene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Tetrachloroethene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Tetrahydrofuran	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Toluene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-W-07 0-3
 Date Sampled: 08/06/19 07:50
 Percent Solids: 91
 Initial Volume: 10.1
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
 ESS Laboratory Sample ID: 19H0165-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Trichloroethene	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Vinyl Chloride	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Xylene O	ND (0.0027)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Xylene P,M	ND (0.0054)		8260B Low		1	08/08/19 16:29	C9H0172	CH90832
Xylenes (Total)	ND (0.00545)		8260B Low		1	08/08/19 16:29		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	91 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	107 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-W-07 0-3
 Date Sampled: 08/06/19 07:50
 Percent Solids: 91
 Initial Volume: 19.8
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
 ESS Laboratory Sample ID: 19H0165-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1221	ND (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1232	ND (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1242	4580 (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1248	ND (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1254	ND (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1260 [2C]	323 (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1262	ND (278)		8082A		5000	08/16/19 10:38		CH90908
Aroclor 1268	ND (278)		8082A		5000	08/16/19 10:38		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07 0-3
Date Sampled: 08/06/19 07:50
Percent Solids: 91

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-02
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	7.06 (N/A)		9045		1	CCP	08/06/19 20:19	S.U.	CH90633
Corrosivity (pH) Sample Temp	Soil pH measured in water at 22.1 °C.								
Eh (ORP)	WL 396 (N/A)		2580		1	CCP	08/06/19 20:19	mv	CH90636
Hexavalent Chromium	ND (0.5)		7196A		1	JLK	08/12/19 17:46	mg/kg dry	CH91245



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07 0-3
Date Sampled: 08/06/19 07:50
Percent Solids: 91
Initial Volume: 25.6
Final Volume: 10
Extraction Method: 3546

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-02
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/6/19 20:30

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (161)		MADEP-EPH		1	CAD	08/09/19 15:49	C9H0125	CH90659
C19-C36 Aliphatics1	187 (161)		MADEP-EPH		1	CAD	08/09/19 15:49	C9H0125	CH90659
C11-C22 Unadjusted Aromatics1	11400 (806)		EPH8270		5	VSC	08/13/19 23:43	C9H0260	CH90659
C11-C22 Aromatics1,2	10800 (806)		EPH8270			VSC	08/13/19 23:43		[CALC]
2-Methylnaphthalene	4.67 (2.15)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Acenaphthene	15.3 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Naphthalene	8.29 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Phenanthrene	39.1 (21.5)		EPH8270		5	VSC	08/13/19 23:43	C9H0260	CH90659
Acenaphthylene	ND (2.15)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Anthracene	23.1 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Benzo(a)anthracene	57.6 (21.5)		EPH8270		5	VSC	08/13/19 23:43	C9H0260	CH90659
Benzo(a)pyrene	43.7 (21.5)		EPH8270		5	VSC	08/13/19 23:43	C9H0260	CH90659
Benzo(b)fluoranthene	72.3 (21.5)		EPH8270		5	VSC	08/13/19 23:43	C9H0260	CH90659
Benzo(g,h,i)perylene	22.3 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Benzo(k)fluoranthene	27.0 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Chrysene	61.7 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Dibenzo(a,h)Anthracene	9.03 (2.15)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Fluoranthene	85.0 (21.5)		EPH8270		5	VSC	08/13/19 23:43	C9H0260	CH90659
Fluorene	14.8 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Indeno(1,2,3-cd)Pyrene	30.8 (4.30)		EPH8270		1	VSC	08/11/19 2:41	C9H0260	CH90659
Pyrene	106 (21.5)		EPH8270		5	VSC	08/13/19 23:43	C9H0260	CH90659

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	%	SD	40-140
<i>Surrogate: 2-Bromonaphthalene</i>	130 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	116 %		40-140
<i>Surrogate: O-Terphenyl</i>	100 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07- 5-7
Date Sampled: 08/06/19 08:20
Percent Solids: 91

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	10.6 (2.45)		6010C		1	KJK	08/14/19 2:54	2.24	100	CH91236
Barium	173 (2.45)		6010C		1	KJK	08/14/19 2:54	2.24	100	CH91236
Cadmium	1.44 (0.49)		6010C		1	KJK	08/14/19 2:54	2.24	100	CH91236
Chromium	47.1 (0.98)		6010C		1	KJK	08/14/19 2:54	2.24	100	CH91236
Lead	386 (4.91)		6010C		1	KJK	08/14/19 17:06	2.24	100	CH91236
Mercury	1.57 (0.518)		7471B		20	MKS	08/13/19 14:50	0.84	40	CH91235
Selenium	ND (4.91)		6010C		1	KJK	08/14/19 2:54	2.24	100	CH91236
Silver	ND (2.45)		6010C		5	KJK	08/14/19 17:03	2.24	100	CH91236
Zinc	530 (2.45)		6010C		1	KJK	08/14/19 2:54	2.24	100	CH91236



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07- 5-7
Date Sampled: 08/06/19 08:20
Percent Solids: 91
Initial Volume: 6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0018)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
1,4-Dioxane	ND (0.0916)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
2-Butanone	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
2-Chlorotoluene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
2-Hexanone	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
4-Chlorotoluene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Acetone	0.0515 (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Benzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Bromobenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Bromochloromethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07- 5-7
Date Sampled: 08/06/19 08:20
Percent Solids: 91
Initial Volume: 6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Bromoform	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Bromomethane	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Carbon Disulfide	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Chlorobenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Chloroethane	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Chloroform	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Chloromethane	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Dibromochloromethane	ND (0.0018)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Dibromomethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Diethyl Ether	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Di-isopropyl ether	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Ethylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Isopropylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Methylene Chloride	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Naphthalene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
n-Butylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
n-Propylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
sec-Butylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Styrene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
tert-Butylbenzene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Tetrachloroethene	0.0271 (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Tetrahydrofuran	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Toluene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07- 5-7
Date Sampled: 08/06/19 08:20
Percent Solids: 91
Initial Volume: 6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Trichloroethene	0.0053 (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Vinyl Chloride	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Xylene O	ND (0.0046)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Xylene P,M	ND (0.0092)		8260B Low		1	08/08/19 16:55	C9H0172	CH90832
Xylenes (Total)	ND (0.00916)		8260B Low		1	08/08/19 16:55		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07- 5-7
Date Sampled: 08/06/19 08:20
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1221	ND (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1232	ND (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1242	0.3 (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1248	ND (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1254	0.1 (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1260 [2C]	ND (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1262	ND (0.06)		8082A		1	08/14/19 13:55		CH90908
Aroclor 1268	ND (0.06)		8082A		1	08/14/19 13:55		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	45 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	45 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	33 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	40 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07- 5-7
Date Sampled: 08/06/19 08:20
Percent Solids: 91

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-03
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	8.36 (N/A)		9045		1	CCP	08/06/19 20:19	S.U.	CH90633
Corrosivity (pH) Sample Temp	Soil pH measured in water at 22.3 °C.								
Eh (ORP)	WL 359 (N/A)		2580		1	CCP	08/06/19 20:19	mv	CH90636
Hexavalent Chromium	ND (0.5)		7196A		1	JLK	08/12/19 17:46	mg/kg dry	CH91245



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07- 5-7
Date Sampled: 08/06/19 08:20
Percent Solids: 91
Initial Volume: 25.3
Final Volume: 10
Extraction Method: 3546

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-03
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/6/19 20:30

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (163)		MADEP-EPH		1	CAD	08/09/19 16:38	C9H0125	CH90659
C19-C36 Aliphatics1	198 (163)		MADEP-EPH		1	CAD	08/09/19 16:38	C9H0125	CH90659
C11-C22 Unadjusted Aromatics1	1140 (163)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
C11-C22 Aromatics1,2	826 (163)		EPH8270			VSC	08/14/19 1:10		[CALC]
2-Methylnaphthalene	ND (2.17)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Acenaphthene	5.12 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Naphthalene	ND (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Phenanthrene	49.7 (21.7)		EPH8270		5	VSC	08/14/19 1:10	C9H0217	CH90659
Acenaphthylene	ND (2.17)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Anthracene	11.7 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Benzo(a)anthracene	26.2 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Benzo(a)pyrene	20.7 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Benzo(b)fluoranthene	27.7 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Benzo(g,h,i)perylene	9.04 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Benzo(k)fluoranthene	10.2 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Chrysene	27.7 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Dibenzo(a,h)Anthracene	3.63 (2.17)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Fluoranthene	54.4 (21.7)		EPH8270		5	VSC	08/14/19 1:10	C9H0217	CH90659
Fluorene	5.58 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Indeno(1,2,3-cd)Pyrene	12.0 (4.34)		EPH8270		1	VSC	08/11/19 3:25	C9H0217	CH90659
Pyrene	50.9 (21.7)		EPH8270		5	VSC	08/14/19 1:10	C9H0217	CH90659

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	%	SD	40-140
<i>Surrogate: 2-Bromonaphthalene</i>	102 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	89 %		40-140
<i>Surrogate: O-Terphenyl</i>	82 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Q-05 5-7
Date Sampled: 08/06/19 09:05
Percent Solids: 74

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	11.1 (2.58)		6010C		2	KJK	08/14/19 17:12	5.2	100	CH91236
Barium	43.7 (2.58)		6010C		2	KJK	08/14/19 17:12	5.2	100	CH91236
Cadmium	ND (0.52)		6010C		2	KJK	08/14/19 17:12	5.2	100	CH91236
Chromium	17.4 (1.03)		6010C		2	KJK	08/14/19 17:12	5.2	100	CH91236
Lead	7.26 (5.17)		6010C		2	KJK	08/14/19 17:12	5.2	100	CH91236
Mercury	ND (0.009)		7471B		1	MKS	08/13/19 11:57	2.96	40	CH91235
Selenium	ND (0.26)		6020A		1	NAR	08/15/19 16:36	5.2	100	CH91236
Silver	EL ND (1.29)		6010C		5	KJK	08/15/19 12:58	5.2	100	CH91236
Zinc	29.9 (2.58)		6010C		2	KJK	08/14/19 17:12	5.2	100	CH91236



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Q-05 5-7
Date Sampled: 08/06/19 09:05
Percent Solids: 74
Initial Volume: 10.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0013)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
1,4-Dioxane	ND (0.0640)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
2-Butanone	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
2-Chlorotoluene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
2-Hexanone	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
4-Chlorotoluene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Acetone	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Benzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Bromobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Bromochloromethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Q-05 5-7
Date Sampled: 08/06/19 09:05
Percent Solids: 74
Initial Volume: 10.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Bromoform	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Bromomethane	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Carbon Disulfide	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Chlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Chloroethane	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Chloroform	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Chloromethane	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Dibromochloromethane	ND (0.0013)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Dibromomethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Diethyl Ether	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Di-isopropyl ether	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Ethylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Isopropylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Methylene Chloride	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Naphthalene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
n-Butylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
n-Propylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
sec-Butylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Styrene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
tert-Butylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Tetrachloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Tetrahydrofuran	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Toluene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Q-05 5-7
Date Sampled: 08/06/19 09:05
Percent Solids: 74
Initial Volume: 10.5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Trichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Vinyl Chloride	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Xylene O	ND (0.0032)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Xylene P,M	ND (0.0064)		8260B Low		1	08/08/19 17:20	C9H0172	CH90832
Xylenes (Total)	ND (0.00640)		8260B Low		1	08/08/19 17:20		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>97 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Q-05 5-7
Date Sampled: 08/06/19 09:05
Percent Solids: 74
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1221	ND (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1232	ND (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1242	0.3 (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1248	ND (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1254	ND (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1260	ND (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1262	ND (0.07)		8082A		1	08/14/19 14:14		CH90908
Aroclor 1268	ND (0.07)		8082A		1	08/14/19 14:14		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	76 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	73 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Q-05 5-7
Date Sampled: 08/06/19 09:05
Percent Solids: 74

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-04
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	6.26 (N/A)		9045		1	CCP	08/06/19 20:19	S.U.	CH90633
Corrosivity (pH) Sample Temp	Soil pH measured in water at 22.2 °C.								
Eh (ORP)	WL 357 (N/A)		2580		1	CCP	08/06/19 20:19	mv	CH90636
Hexavalent Chromium	ND (0.6)		7196A		1	JLK	08/12/19 17:46	mg/kg dry	CH91245



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Q-05 5-7
Date Sampled: 08/06/19 09:05
Percent Solids: 74
Initial Volume: 24.8
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-04
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/13/19 9:45

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (20.3)		MADEP-EPH		1	CAD	08/13/19 16:22	C9H0241	CH91208
C19-C36 Aliphatics1	ND (20.3)		MADEP-EPH		1	CAD	08/13/19 16:22	C9H0241	CH91208
C11-C22 Unadjusted Aromatics1	ND (20.3)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
C11-C22 Aromatics1,2	ND (20.3)		EPH8270			VSC	08/14/19 7:40		[CALC]
2-Methylnaphthalene	ND (0.27)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Acenaphthene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Naphthalene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Phenanthrene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Acenaphthylene	ND (0.27)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Anthracene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Benzo(a)anthracene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Benzo(a)pyrene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Benzo(b)fluoranthene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Benzo(g,h,i)perylene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Benzo(k)fluoranthene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Chrysene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Dibenzo(a,h)Anthracene	ND (0.27)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Fluoranthene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Fluorene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Indeno(1,2,3-cd)Pyrene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208
Pyrene	ND (0.54)		EPH8270		1	VSC	08/14/19 7:40	C9H0260	CH91208

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	65 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	118 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	91 %		40-140
<i>Surrogate: O-Terphenyl</i>	59 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WSB-26 5-7
Date Sampled: 08/06/19 11:50
Percent Solids: 80

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	5.60 (2.41)		6010C		2	KJK	08/14/19 17:15	5.2	100	CH91236
Barium	32.4 (2.41)		6010C		2	KJK	08/14/19 17:15	5.2	100	CH91236
Cadmium	ND (0.48)		6010C		2	KJK	08/14/19 17:15	5.2	100	CH91236
Chromium	17.2 (0.96)		6010C		2	KJK	08/14/19 17:15	5.2	100	CH91236
Lead	ND (4.82)		6010C		2	KJK	08/14/19 17:15	5.2	100	CH91236
Mercury	ND (0.011)		7471B		1	MKS	08/13/19 11:59	2.21	40	CH91235
Selenium	ND (0.24)		6020A		1	NAR	08/15/19 16:41	5.2	100	CH91236
Silver	ND (0.48)		6010C		2	KJK	08/14/19 17:15	5.2	100	CH91236
Zinc	16.1 (2.41)		6010C		2	KJK	08/14/19 17:15	5.2	100	CH91236



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WSB-26 5-7
Date Sampled: 08/06/19 11:50
Percent Solids: 80
Initial Volume: 9.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0013)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
1,4-Dioxane	ND (0.0646)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
2-Butanone	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
2-Chlorotoluene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
2-Hexanone	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
4-Chlorotoluene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Acetone	0.0301 (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Benzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Bromobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Bromochloromethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WSB-26 5-7
Date Sampled: 08/06/19 11:50
Percent Solids: 80
Initial Volume: 9.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Bromoform	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Bromomethane	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Carbon Disulfide	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Chlorobenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Chloroethane	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Chloroform	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Chloromethane	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Dibromochloromethane	ND (0.0013)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Dibromomethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Diethyl Ether	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Di-isopropyl ether	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Ethylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Isopropylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Methylene Chloride	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Naphthalene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
n-Butylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
n-Propylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
sec-Butylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Styrene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
tert-Butylbenzene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Tetrachloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Tetrahydrofuran	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Toluene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WSB-26 5-7
Date Sampled: 08/06/19 11:50
Percent Solids: 80
Initial Volume: 9.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Trichloroethene	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Vinyl Chloride	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Xylene O	ND (0.0032)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Xylene P,M	ND (0.0065)		8260B Low		1	08/08/19 17:46	C9H0172	CH90832
Xylenes (Total)	ND (0.00646)		8260B Low		1	08/08/19 17:46		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>96 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WSB-26 5-7
Date Sampled: 08/06/19 11:50
Percent Solids: 80
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1242	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1254	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1260	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 0:53		CH90908
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 0:53		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	86 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	85 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WSB-26 5-7
Date Sampled: 08/06/19 11:50
Percent Solids: 80

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-05
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	6.26 (N/A)		9045		1	CCP	08/06/19 20:19	S.U.	CH90633
Corrosivity (pH) Sample Temp	Soil pH measured in water at 22.4 °C.								
Eh (ORP)	WL 378 (N/A)		2580		1	CCP	08/06/19 20:19	mv	CH90636
Hexavalent Chromium	ND (0.5)		7196A		1	JLK	08/12/19 17:46	mg/kg dry	CH91245



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WSB-26 5-7
Date Sampled: 08/06/19 11:50
Percent Solids: 80
Initial Volume: 24.7
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-05
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/6/19 20:30

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (19.0)		MADEP-EPH		1	CAD	08/09/19 18:10	C9H0125	CH90659
C19-C36 Aliphatics1	ND (19.0)		MADEP-EPH		1	CAD	08/09/19 18:10	C9H0125	CH90659
C11-C22 Unadjusted Aromatics1	ND (19.0)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
C11-C22 Aromatics1,2	ND (19.0)		EPH8270			VSC	08/11/19 4:51		[CALC]
2-Methylnaphthalene	ND (0.25)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Acenaphthene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Naphthalene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Phenanthrene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Acenaphthylene	ND (0.25)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Anthracene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Benzo(a)anthracene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Benzo(a)pyrene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Benzo(b)fluoranthene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Benzo(g,h,i)perylene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Benzo(k)fluoranthene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Chrysene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Dibenzo(a,h)Anthracene	ND (0.25)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Fluoranthene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Fluorene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Indeno(1,2,3-cd)Pyrene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659
Pyrene	ND (0.51)		EPH8270		1	VSC	08/11/19 4:51	C9H0217	CH90659

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	52 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	110 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	94 %		40-140
<i>Surrogate: O-Terphenyl</i>	68 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FG-34 5-7
Date Sampled: 08/06/19 14:00
Percent Solids: 77

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	5.75 (2.50)		6010C		2	KJK	08/14/19 17:19	5.17	100	CH91236
Barium	31.0 (2.50)		6010C		2	KJK	08/14/19 17:19	5.17	100	CH91236
Cadmium	ND (0.50)		6010C		2	KJK	08/14/19 17:19	5.17	100	CH91236
Chromium	12.0 (1.00)		6010C		2	KJK	08/14/19 17:19	5.17	100	CH91236
Lead	5.52 (5.00)		6010C		2	KJK	08/14/19 17:19	5.17	100	CH91236
Mercury	ND (0.012)		7471B		1	MKS	08/13/19 12:01	2.16	40	CH91235
Selenium	ND (5.00)		6010C		2	KJK	08/14/19 17:19	5.17	100	CH91236
Silver	ND (1.25)		6010C		5	KJK	08/15/19 13:02	5.17	100	CH91236
Zinc	28.5 (2.50)		6010C		2	KJK	08/14/19 17:19	5.17	100	CH91236



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FG-34 5-7
Date Sampled: 08/06/19 14:00
Percent Solids: 77
Initial Volume: 8.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0015)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
1,4-Dioxane	ND (0.0769)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
2-Butanone	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
2-Chlorotoluene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
2-Hexanone	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
4-Chlorotoluene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Acetone	0.0356 (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Benzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Bromobenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Bromochloromethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FG-34 5-7
Date Sampled: 08/06/19 14:00
Percent Solids: 77
Initial Volume: 8.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Bromoform	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Bromomethane	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Carbon Disulfide	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Chlorobenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Chloroethane	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Chloroform	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Chloromethane	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Dibromochloromethane	ND (0.0015)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Dibromomethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Diethyl Ether	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Di-isopropyl ether	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Ethylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Isopropylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Methylene Chloride	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Naphthalene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
n-Butylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
n-Propylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
sec-Butylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Styrene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
tert-Butylbenzene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Tetrachloroethene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Tetrahydrofuran	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Toluene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FG-34 5-7
Date Sampled: 08/06/19 14:00
Percent Solids: 77
Initial Volume: 8.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Trichloroethene	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Vinyl Chloride	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Xylene O	ND (0.0038)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Xylene P,M	ND (0.0077)		8260B Low		1	08/08/19 18:12	C9H0172	CH90832
Xylenes (Total)	ND (0.00769)		8260B Low		1	08/08/19 18:12		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	105 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	95 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	103 %		70-130
<i>Surrogate: Toluene-d8</i>	96 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FG-34 5-7
Date Sampled: 08/06/19 14:00
Percent Solids: 77
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/13/19 15:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1221	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1232	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1242	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1248	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1254	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1260	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1262	ND (0.03)		8082A		1	08/14/19 19:40		CH91305
Aroclor 1268	ND (0.03)		8082A		1	08/14/19 19:40		CH91305

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	85 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FG-34 5-7
Date Sampled: 08/06/19 14:00
Percent Solids: 77

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-06
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	6.92 (N/A)		9045		1	CCP	08/06/19 20:19	S.U.	CH90633
Corrosivity (pH) Sample Temp	Soil pH measured in water at 22.2 °C.								
Eh (ORP)	WL 368 (N/A)		2580		1	CCP	08/06/19 20:19	mv	CH90636
Hexavalent Chromium	ND (0.5)		7196A		1	JLK	08/12/19 17:46	mg/kg dry	CH91245



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FG-34 5-7
Date Sampled: 08/06/19 14:00
Percent Solids: 77
Initial Volume: 25
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-06
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/6/19 20:30

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (19.4)		MADEP-EPH		1	CAD	08/09/19 18:57	C9H0125	CH90659
C19-C36 Aliphatics1	ND (19.4)		MADEP-EPH		1	CAD	08/09/19 18:57	C9H0125	CH90659
C11-C22 Unadjusted Aromatics1	ND (19.4)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
C11-C22 Aromatics1,2	ND (19.4)		EPH8270			VSC	08/11/19 5:35		[CALC]
2-Methylnaphthalene	ND (0.26)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Acenaphthene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Naphthalene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Phenanthrene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Acenaphthylene	ND (0.26)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Anthracene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Benzo(a)anthracene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Benzo(a)pyrene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Benzo(b)fluoranthene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Benzo(g,h,i)perylene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Benzo(k)fluoranthene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Chrysene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Dibenzo(a,h)Anthracene	ND (0.26)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Fluoranthene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Fluorene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Indeno(1,2,3-cd)Pyrene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659
Pyrene	ND (0.52)		EPH8270		1	VSC	08/11/19 5:35	C9H0217	CH90659

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	49 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	110 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	96 %		40-140
<i>Surrogate: O-Terphenyl</i>	67 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-09N 0-1
 Date Sampled: 08/01/19 09:35
 Percent Solids: 92
 Initial Volume: 19.4
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
 ESS Laboratory Sample ID: 19H0165-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1221	ND (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1232	ND (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1242	18.7 (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1248	ND (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1254 [2C]	17.9 (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1260	9.7 (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1262	ND (1.1)		8082A		20	08/14/19 14:33		CH90908
Aroclor 1268	ND (1.1)		8082A		20	08/14/19 14:33		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB3WW 3-5
Date Sampled: 08/05/19 09:50
Percent Solids: 83
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1242	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1254	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1260	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 1:32		CH90908
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 1:32		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	92 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	104 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB3WN 3-5
Date Sampled: 08/05/19 09:05
Percent Solids: 79
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0165
ESS Laboratory Sample ID: 19H0165-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1221	ND (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1232	ND (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1242	ND (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1248	ND (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1254	ND (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1260 [2C]	0.2 (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1262	ND (0.07)		8082A		1	08/13/19 1:51		CH90908
Aroclor 1268	ND (0.07)		8082A		1	08/13/19 1:51		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	90 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	88 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	90 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CH91235 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	23.1	3.41	mg/kg wet	27.30		85	80-120			
LCS Dup										
Mercury	24.0	3.30	mg/kg wet	27.30		88	80-120	4	20	
Duplicate Source: 19H0165-06										
Mercury	ND	0.011	mg/kg dry		ND				35	
Matrix Spike Source: 19H0165-06										
Mercury	0.0806	0.012	mg/kg dry	0.07299	ND	110	75-125			
Matrix Spike Dup Source: 19H0165-06										
Mercury	0.251	0.039	mg/kg dry	0.2403	ND	104	75-125	103	35	D+
Batch CH91236 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Selenium	ND	2.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Arsenic	127	8.93	mg/kg wet	128.0		99	80-120			
Barium	564	8.93	mg/kg wet	536.0		105	80-120			
Cadmium	94.2	1.79	mg/kg wet	99.00		95	80-120			
Chromium	121	3.57	mg/kg wet	116.0		104	80-120			
Lead	299	17.9	mg/kg wet	277.0		108	80-120			
Selenium	232	35.7	mg/kg wet	242.0		96	80-120			
Selenium	253	17.9	mg/kg wet	242.0		105	80-120			
Silver	64.5	1.79	mg/kg wet	64.30		100	80-120			
Zinc	567	8.93	mg/kg wet	561.0		101	80-120			
LCS Dup										
Arsenic	125	9.26	mg/kg wet	128.0		97	80-120	2	20	
Barium	520	9.26	mg/kg wet	536.0		97	80-120	8	20	
Cadmium	90.5	1.85	mg/kg wet	99.00		91	80-120	4	20	
Chromium	115	3.70	mg/kg wet	116.0		99	80-120	5	20	
Lead	283	18.5	mg/kg wet	277.0		102	80-120	6	20	
Selenium	207	37.0	mg/kg wet	242.0		85	80-120	12	30	
Selenium	247	18.5	mg/kg wet	242.0		102	80-120	3	20	
Silver	60.5	1.85	mg/kg wet	64.30		94	80-120	7	20	
Zinc	530	9.26	mg/kg wet	561.0		95	80-120	7	20	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH91236 - 3050B

Duplicate	Source: 19H0165-06									
Arsenic	4.54	1.25	mg/kg dry		5.75			24	35	
Barium	39.8	1.25	mg/kg dry		31.0			25	35	
Cadmium	0.552	0.25	mg/kg dry		0.222			85	35	D+
Chromium	14.6	0.50	mg/kg dry		12.0			20	35	
Lead	7.40	2.51	mg/kg dry		5.52			29	35	
Selenium	4.84	2.51	mg/kg dry		4.90			1	35	
Silver	ND	0.25	mg/kg dry		ND				35	
Zinc	31.6	1.25	mg/kg dry		28.5			10	35	

Matrix Spike	Source: 19H0165-06									
Arsenic	15.4	1.26	mg/kg dry	12.60	5.75	77	75-125			
Barium	50.0	1.26	mg/kg dry	12.60	31.0	151	75-125			M+
Cadmium	6.24	0.25	mg/kg dry	6.299	0.222	95	75-125			
Chromium	25.0	0.50	mg/kg dry	12.60	12.0	103	75-125			
Lead	18.5	2.52	mg/kg dry	12.60	5.52	103	75-125			
Selenium	27.7	2.52	mg/kg dry	25.20	4.90	91	75-125			
Silver	5.65	0.25	mg/kg dry	6.299	ND	90	75-125			
Zinc	41.7	1.26	mg/kg dry	12.60	28.5	105	75-125			

Matrix Spike Dup	Source: 19H0165-06									
Arsenic	14.1	1.15	mg/kg dry	11.54	5.75	73	75-125	9	35	M-
Barium	27.8	1.15	mg/kg dry	11.54	31.0	NR	75-125	57	35	M-, D+
Cadmium	4.82	0.23	mg/kg dry	5.770	0.222	80	75-125	26	35	
Chromium	16.5	0.46	mg/kg dry	11.54	12.0	39	75-125	41	35	M-, D+
Lead	13.2	2.31	mg/kg dry	11.54	5.52	67	75-125	34	35	M-
Selenium	31.7	2.31	mg/kg dry	23.08	4.90	116	75-125	13	35	
Silver	0.511	0.23	mg/kg dry	5.770	ND	9	75-125	167	35	M-, D+
Zinc	24.9	1.15	mg/kg dry	11.54	28.5	NR	75-125	50	35	M-, D+

5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0020	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0100	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0100	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0100	mg/kg wet							
Acetone	ND	0.0100	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0020	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0100	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0499		mg/kg wet	0.05000		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0468		mg/kg wet	0.05000		94	70-130			
Surrogate: Dibromofluoromethane	0.0487		mg/kg wet	0.05000		97	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
1,1,1-Trichloroethane	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
1,1,2,2-Tetrachloroethane	0.0483	0.0020	mg/kg wet	0.05000		97	70-130			
1,1,2-Trichloroethane	0.0513	0.0050	mg/kg wet	0.05000		103	70-130			
1,1-Dichloroethane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
1,1-Dichloroethene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
1,1-Dichloropropene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
1,2,3-Trichlorobenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
1,2,3-Trichloropropane	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
1,2,4-Trichlorobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
1,2,4-Trimethylbenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dibromo-3-Chloropropane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,2-Dibromoethane	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichlorobenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichloroethane	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
1,2-Dichloropropane	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
1,3,5-Trimethylbenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
1,3-Dichlorobenzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
1,3-Dichloropropane	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
1,4-Dichlorobenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
1,4-Dioxane	1.08	0.100	mg/kg wet	1.000		108	70-130			
2,2-Dichloropropane	0.0570	0.0050	mg/kg wet	0.05000		114	70-130			
2-Butanone	0.265	0.0100	mg/kg wet	0.2500		106	70-130			
2-Chlorotoluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
2-Hexanone	0.224	0.0100	mg/kg wet	0.2500		90	70-130			
4-Chlorotoluene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
4-Isopropyltoluene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

4-Methyl-2-Pentanone	0.232	0.0100	mg/kg wet	0.2500		93	70-130			
Acetone	0.242	0.0100	mg/kg wet	0.2500		97	70-130			
Benzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Bromobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Bromochloromethane	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
Bromodichloromethane	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Bromoform	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
Bromomethane	0.0465	0.0100	mg/kg wet	0.05000		93	70-130			
Carbon Disulfide	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
Carbon Tetrachloride	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Chlorobenzene	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Chloroethane	0.0483	0.0100	mg/kg wet	0.05000		97	70-130			
Chloroform	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Chloromethane	0.0522	0.0100	mg/kg wet	0.05000		104	70-130			
cis-1,2-Dichloroethene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
cis-1,3-Dichloropropene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Dibromochloromethane	0.0445	0.0020	mg/kg wet	0.05000		89	70-130			
Dibromomethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Dichlorodifluoromethane	0.0436	0.0100	mg/kg wet	0.05000		87	70-130			
Diethyl Ether	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Di-isopropyl ether	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
Ethyl tertiary-butyl ether	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Ethylbenzene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
Hexachlorobutadiene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
Isopropylbenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Methyl tert-Butyl Ether	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
Methylene Chloride	0.0466	0.0100	mg/kg wet	0.05000		93	70-130			
Naphthalene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
n-Butylbenzene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
n-Propylbenzene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
sec-Butylbenzene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Styrene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
tert-Butylbenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Tertiary-amyl methyl ether	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
Tetrachloroethene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
Tetrahydrofuran	0.0454	0.0050	mg/kg wet	0.05000		91	70-130			
Toluene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
trans-1,2-Dichloroethene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130			
trans-1,3-Dichloropropene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130			
Trichloroethene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
Trichlorofluoromethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Vinyl Chloride	0.0526	0.0100	mg/kg wet	0.05000		105	70-130			
Xylene O	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
Xylene P,M	0.104	0.0100	mg/kg wet	0.1000		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0498		mg/kg wet	0.05000		100	70-130			



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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Surrogate: 4-Bromofluorobenzene	0.0489		mg/kg wet	0.05000		98	70-130			
Surrogate: Dibromofluoromethane	0.0509		mg/kg wet	0.05000		102	70-130			
Surrogate: Toluene-d8	0.0487		mg/kg wet	0.05000		97	70-130			

LCS Dup										
1,1,1,2-Tetrachloroethane	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	7	20	
1,1,1-Trichloroethane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	0.7	20	
1,1,2,2-Tetrachloroethane	0.0511	0.0020	mg/kg wet	0.05000		102	70-130	6	20	
1,1,2-Trichloroethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	3	20	
1,1-Dichloroethane	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	3	20	
1,1-Dichloroethene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	3	20	
1,1-Dichloropropene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	3	20	
1,2,3-Trichlorobenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	6	20	
1,2,3-Trichloropropane	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	6	20	
1,2,4-Trichlorobenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	6	20	
1,2,4-Trimethylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	4	20	
1,2-Dibromo-3-Chloropropane	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	7	20	
1,2-Dibromoethane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	11	20	
1,2-Dichlorobenzene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	5	20	
1,2-Dichloroethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	4	20	
1,2-Dichloropropane	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	4	20	
1,3,5-Trimethylbenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	4	20	
1,3-Dichlorobenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	3	20	
1,3-Dichloropropane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	8	20	
1,4-Dichlorobenzene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	7	20	
1,4-Dioxane	1.16	0.100	mg/kg wet	1.000		116	70-130	7	20	
2,2-Dichloropropane	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	1	20	
2-Butanone	0.284	0.0100	mg/kg wet	0.2500		113	70-130	7	20	
2-Chlorotoluene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	3	20	
2-Hexanone	0.248	0.0100	mg/kg wet	0.2500		99	70-130	10	20	
4-Chlorotoluene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	4	20	
4-Isopropyltoluene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	3	20	
4-Methyl-2-Pentanone	0.246	0.0100	mg/kg wet	0.2500		99	70-130	6	20	
Acetone	0.252	0.0100	mg/kg wet	0.2500		101	70-130	4	20	
Benzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	3	20	
Bromobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	5	20	
Bromochloromethane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	6	20	
Bromodichloromethane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	3	20	
Bromoform	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	8	20	
Bromomethane	0.0465	0.0100	mg/kg wet	0.05000		93	70-130	0.04	20	
Carbon Disulfide	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	2	20	
Carbon Tetrachloride	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	0.9	20	
Chlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130	7	20	
Chloroethane	0.0493	0.0100	mg/kg wet	0.05000		99	70-130	2	20	
Chloroform	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	2	20	



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Chloromethane	0.0523	0.0100	mg/kg wet	0.05000		105	70-130	0.3	20	
cis-1,2-Dichloroethene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	3	20	
cis-1,3-Dichloropropene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	5	20	
Dibromochloromethane	0.0476	0.0020	mg/kg wet	0.05000		95	70-130	7	20	
Dibromomethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	2	20	
Dichlorodifluoromethane	0.0432	0.0100	mg/kg wet	0.05000		86	70-130	0.8	20	
Diethyl Ether	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	7	20	
Di-isopropyl ether	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	5	20	
Ethyl tertiary-butyl ether	0.0496	0.0050	mg/kg wet	0.05000		99	70-130	5	20	
Ethylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	7	20	
Hexachlorobutadiene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	5	20	
Isopropylbenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	4	20	
Methyl tert-Butyl Ether	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	6	20	
Methylene Chloride	0.0491	0.0100	mg/kg wet	0.05000		98	70-130	5	20	
Naphthalene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	8	20	
n-Butylbenzene	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	4	20	
n-Propylbenzene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	4	20	
sec-Butylbenzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	3	20	
Styrene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	8	20	
tert-Butylbenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	4	20	
Tertiary-amyl methyl ether	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	7	20	
Tetrachloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	5	20	
Tetrahydrofuran	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	6	20	
Toluene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	5	20	
trans-1,2-Dichloroethene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	3	20	
trans-1,3-Dichloropropene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	5	20	
Trichloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	2	20	
Trichlorofluoromethane	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	0.9	20	
Vinyl Chloride	0.0522	0.0100	mg/kg wet	0.05000		104	70-130	0.7	20	
Xylene O	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	6	20	
Xylene P,M	0.113	0.0100	mg/kg wet	0.1000		113	70-130	8	20	
Surrogate: 1,2-Dichloroethane-d4	0.0484		mg/kg wet	0.05000		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0500		mg/kg wet	0.05000		100	70-130			
Surrogate: Dibromofluoromethane	0.0502		mg/kg wet	0.05000		100	70-130			
Surrogate: Toluene-d8	0.0498		mg/kg wet	0.05000		100	70-130			

8082A Polychlorinated Biphenyls (PCB)

Batch CH90908 - 3540C

Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH90908 - 3540C

Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0213		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0195		mg/kg wet	0.02500		78	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			

Surrogate: Decachlorobiphenyl	0.0231		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0216		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0196		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0207		mg/kg wet	0.02500		83	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0215		mg/kg wet	0.02500		86	30-150			

Batch CH91305 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
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Quality Control Data

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8082A Polychlorinated Biphenyls (PCB)

Batch CH91305 - 3540C

Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0203		mg/kg wet	0.02500		81	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0216		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0167		mg/kg wet	0.02500		67	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0217		mg/kg wet	0.02500		87	30-150			

LCS

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		90	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		95	40-140			

Surrogate: Decachlorobiphenyl	0.0230		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0242		mg/kg wet	0.02500		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0205		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0243		mg/kg wet	0.02500		97	30-150			

LCS Dup

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		86	40-140	5	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		97	40-140	9	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		97	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		91	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0219		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0232		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0189		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			

Matrix Spike Source: 19H0165-06

Aroclor 1016	0.5	0.03	mg/kg dry	0.6431	ND	83	40-140			
Aroclor 1016 [2C]	0.6	0.03	mg/kg dry	0.6431	ND	96	40-140			
Aroclor 1260	0.6	0.03	mg/kg dry	0.6431	ND	93	40-140			
Aroclor 1260 [2C]	0.6	0.03	mg/kg dry	0.6431	ND	88	40-140			

Surrogate: Decachlorobiphenyl	0.0268		mg/kg dry	0.03215		83	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0280		mg/kg dry	0.03215		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0241		mg/kg dry	0.03215		75	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
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ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH91305 - 3540C

Surrogate: Tetrachloro-m-xylene [2C]	0.0273		mg/kg dry	0.03215		85	30-150			
Matrix Spike Dup	Source: 19H0165-06									
Aroclor 1016	0.5	0.03	mg/kg dry	0.6244	ND	87	40-140	2	30	
Aroclor 1016 [2C]	0.6	0.03	mg/kg dry	0.6244	ND	98	40-140	1	30	
Aroclor 1260	0.6	0.03	mg/kg dry	0.6244	ND	97	40-140	2	30	
Aroclor 1260 [2C]	0.6	0.03	mg/kg dry	0.6244	ND	90	40-140	0.9	30	
Surrogate: Decachlorobiphenyl	0.0267		mg/kg dry	0.03122		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0280		mg/kg dry	0.03122		90	30-150			
Surrogate: Tetrachloro-m-xylene	0.0247		mg/kg dry	0.03122		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0279		mg/kg dry	0.03122		89	30-150			

Classical Chemistry

Batch CH90633 - General Preparation

Duplicate	Source: 19H0165-06									
Corrosivity (pH)	6.93		S.U.		6.92			0.1	200	

Batch CH90636 - General Preparation

Duplicate	Source: 19H0165-06									
Eh (ORP)	369		mv		368			0.3	20	

Batch CH91245 - General Preparation

Blank										
Hexavalent Chromium	ND	0.7	mg/kg wet							
LCS										
Hexavalent Chromium	32.5	0.7	mg/kg wet	33.32		97	80-120			
LCS Dup										
Hexavalent Chromium	32.2	0.7	mg/kg wet	33.32		97	80-120	0.8	20	
Duplicate	Source: 19H0165-06									
Hexavalent Chromium	ND	0.6	mg/kg dry		ND				20	
Matrix Spike	Source: 19H0165-06									
Hexavalent Chromium	25.3	0.5	mg/kg dry	26.91	ND	94	75-125			
Matrix Spike	Source: 19H0165-06									
Hexavalent Chromium	1170	25.9	mg/kg dry	1240	ND	94	75-125			
Reference										
Hexavalent Chromium	69.7	2.0	mg/kg wet	70.02		100	20.3-222.5			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Blank										
C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							



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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							

Surrogate: 1-Chlorooctadecane	1.73		mg/kg wet	2.020		85	40-140			
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Blank

2-Methylnaphthalene	ND	0.14	mg/kg wet							
Acenaphthene	ND	0.20	mg/kg wet							
Acenaphthylene	ND	0.14	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.20	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.20	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.20	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							
Surrogate: 2-Bromonaphthalene	48.3		mg/L	50.00		97	40-140			
Surrogate: 2-Fluorobiphenyl	41.8		mg/L	50.00		84	40-140			
Surrogate: O-Terphenyl	1.56		mg/kg wet	2.008		78	40-140			

LCS

C19-C36 Aliphatics1	16.1	15.0	mg/kg wet	16.00		101	40-140			
C9-C18 Aliphatics1	8.8	15.0	mg/kg wet	12.00		74	40-140			
Decane (C10)	0.9	0.5	mg/kg wet	2.000		46	40-140			
Docosane (C22)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Dodecane (C12)	1.0	0.5	mg/kg wet	2.000		51	40-140			
Eicosane (C20)	1.9	0.5	mg/kg wet	2.000		93	40-140			
Hexacosane (C26)	1.9	0.5	mg/kg wet	2.000		94	40-140			



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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		77	40-140			
Hexatriacontane (C36)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Nonadecane (C19)	1.8	0.5	mg/kg wet	2.000		91	40-140			
Nonane (C9)	0.7	0.5	mg/kg wet	2.000		37	30-140			
Octacosane (C28)	1.9	0.5	mg/kg wet	2.000		94	40-140			
Octadecane (C18)	1.8	0.5	mg/kg wet	2.000		90	40-140			
Tetracosane (C24)	1.9	0.5	mg/kg wet	2.000		95	40-140			
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		60	40-140			
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		92	40-140			

Surrogate: 1-Chlorooctadecane

1.72 mg/kg wet 2.020 85 40-140

LCS

2-Methylnaphthalene	1.51	0.14	mg/kg wet	2.000		75	40-140			
Acenaphthene	1.58	0.20	mg/kg wet	2.000		79	40-140			
Acenaphthylene	1.67	0.14	mg/kg wet	2.000		84	40-140			
Anthracene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(a)anthracene	2.00	0.40	mg/kg wet	2.000		100	40-140			
Benzo(a)pyrene	1.84	0.20	mg/kg wet	2.000		92	40-140			
Benzo(b)fluoranthene	1.99	0.40	mg/kg wet	2.000		99	40-140			
Benzo(g,h,i)perylene	1.72	0.40	mg/kg wet	2.000		86	40-140			
Benzo(k)fluoranthene	1.97	0.40	mg/kg wet	2.000		99	40-140			
C11-C22 Unadjusted Aromatics1	34.9	15.0	mg/kg wet	34.00		103	40-140			
Chrysene	2.04	0.40	mg/kg wet	2.000		102	40-140			
Dibenzo(a,h)Anthracene	2.03	0.20	mg/kg wet	2.000		102	40-140			
Fluoranthene	2.02	0.40	mg/kg wet	2.000		101	40-140			
Fluorene	1.80	0.40	mg/kg wet	2.000		90	40-140			
Indeno(1,2,3-cd)Pyrene	1.91	0.40	mg/kg wet	2.000		95	40-140			
Naphthalene	1.35	0.20	mg/kg wet	2.000		67	40-140			
Phenanthrene	1.96	0.40	mg/kg wet	2.000		98	40-140			
Pyrene	1.99	0.40	mg/kg wet	2.000		100	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	50.1		mg/L	50.00		100	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	44.1		mg/L	50.00		88	40-140			
<i>Surrogate: O-Terphenyl</i>	1.70		mg/kg wet	2.008		84	40-140			

LCS

2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			

LCS Dup

C19-C36 Aliphatics1	15.3	15.0	mg/kg wet	16.00		96	40-140	5	25	
C9-C18 Aliphatics1	8.9	15.0	mg/kg wet	12.00		74	40-140	0.05	25	
Decane (C10)	1.0	0.5	mg/kg wet	2.000		51	40-140	10	25	
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		91	40-140	5	25	
Dodecane (C12)	1.1	0.5	mg/kg wet	2.000		55	40-140	7	25	
Eicosane (C20)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	
Hexacosane (C26)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		75	40-140	3	25	



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ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90659 - 3546										
Hexatriacontane (C36)	1.7	0.5	mg/kg wet	2.000		87	40-140	4	25	
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		87	40-140	5	25	
Nonane (C9)	0.8	0.5	mg/kg wet	2.000		42	30-140	12	25	
Octacosane (C28)	1.8	0.5	mg/kg wet	2.000		89	40-140	5	25	
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		85	40-140	5	25	
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		90	40-140	5	25	
Tetradecane (C14)	1.2	0.5	mg/kg wet	2.000		62	40-140	3	25	
Triacontane (C30)	1.8	0.5	mg/kg wet	2.000		88	40-140	5	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.64</i>		mg/kg wet	<i>2.020</i>		<i>81</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene	1.64	0.14	mg/kg wet	2.000		82	40-140	8	30	
Acenaphthene	1.65	0.20	mg/kg wet	2.000		83	40-140	4	30	
Acenaphthylene	1.76	0.14	mg/kg wet	2.000		88	40-140	5	30	
Anthracene	1.91	0.40	mg/kg wet	2.000		96	40-140	4	30	
Benzo(a)anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140	6	30	
Benzo(a)pyrene	1.76	0.20	mg/kg wet	2.000		88	40-140	5	30	
Benzo(b)fluoranthene	1.83	0.40	mg/kg wet	2.000		92	40-140	8	30	
Benzo(g,h,i)perylene	1.64	0.40	mg/kg wet	2.000		82	40-140	5	30	
Benzo(k)fluoranthene	1.92	0.40	mg/kg wet	2.000		96	40-140	3	30	
C11-C22 Unadjusted Aromatics1	33.9	15.0	mg/kg wet	34.00		100	40-140	3	25	
Chrysene	1.93	0.40	mg/kg wet	2.000		96	40-140	5	30	
Dibenzo(a,h)Anthracene	1.93	0.20	mg/kg wet	2.000		96	40-140	5	30	
Fluoranthene	1.90	0.40	mg/kg wet	2.000		95	40-140	6	30	
Fluorene	1.81	0.40	mg/kg wet	2.000		90	40-140	0.2	30	
Indeno(1,2,3-cd)Pyrene	1.82	0.40	mg/kg wet	2.000		91	40-140	5	30	
Naphthalene	1.51	0.20	mg/kg wet	2.000		76	40-140	12	30	
Phenanthrene	1.88	0.40	mg/kg wet	2.000		94	40-140	4	30	
Pyrene	1.89	0.40	mg/kg wet	2.000		95	40-140	5	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>49.2</i>		mg/L	<i>50.00</i>		<i>98</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>43.5</i>		mg/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.62</i>		mg/kg wet	<i>2.008</i>		<i>81</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	
Matrix Spike Source: 19H0165-06										
C19-C36 Aliphatics1	14.8	19.4	mg/kg dry	20.68	ND	72	40-140			
C9-C18 Aliphatics1	12.2	19.4	mg/kg dry	15.51	ND	79	40-140			
Decane (C10)	1.3	0.6	mg/kg dry	2.585	ND	49	40-140			
Docosane (C22)	1.6	0.6	mg/kg dry	2.585	ND	64	40-140			
Dodecane (C12)	1.3	0.6	mg/kg dry	2.585	ND	52	40-140			
Eicosane (C20)	1.7	0.6	mg/kg dry	2.585	ND	64	40-140			
Hexacosane (C26)	1.6	0.6	mg/kg dry	2.585	ND	62	40-140			
Hexadecane (C16)	1.6	0.6	mg/kg dry	2.585	ND	62	40-140			
Hexatriacontane (C36)	1.6	0.6	mg/kg dry	2.585	ND	60	40-140			



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Quality Control Data

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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Nonadecane (C19)	1.6	0.6	mg/kg dry	2.585	ND	62	40-140			
Nonane (C9)	1.0	0.6	mg/kg dry	2.585	ND	39	30-140			
Octacosane (C28)	1.6	0.6	mg/kg dry	2.585	ND	62	40-140			
Octadecane (C18)	1.6	0.6	mg/kg dry	2.585	ND	63	40-140			
Tetracosane (C24)	1.6	0.6	mg/kg dry	2.585	ND	63	40-140			
Tetradecane (C14)	1.5	0.6	mg/kg dry	2.585	ND	59	40-140			
Triacontane (C30)	1.6	0.6	mg/kg dry	2.585	ND	61	40-140			

Surrogate: 1-Chlorooctadecane 1.59 mg/kg dry 2.611 61 40-140

Matrix Spike Source: 19H0165-06

2-Methylnaphthalene	1.64	0.26	mg/kg dry	2.585	ND	63	40-140			
Acenaphthene	1.64	0.52	mg/kg dry	2.585	ND	63	40-140			
Acenaphthylene	1.74	0.26	mg/kg dry	2.585	ND	67	40-140			
Anthracene	1.76	0.52	mg/kg dry	2.585	ND	68	40-140			
Benzo(a)anthracene	1.67	0.52	mg/kg dry	2.585	ND	64	40-140			
Benzo(a)pyrene	1.58	0.52	mg/kg dry	2.585	ND	61	40-140			
Benzo(b)fluoranthene	1.82	0.52	mg/kg dry	2.585	ND	70	40-140			
Benzo(g,h,i)perylene	1.38	0.52	mg/kg dry	2.585	ND	54	40-140			
Benzo(k)fluoranthene	1.74	0.52	mg/kg dry	2.585	ND	67	40-140			
C11-C22 Unadjusted Aromatics1	32.6	19.4	mg/kg dry	43.95	ND	74	40-140			
Chrysene	1.79	0.52	mg/kg dry	2.585	ND	69	40-140			
Dibenzo(a,h)Anthracene	1.56	0.26	mg/kg dry	2.585	ND	60	40-140			
Fluoranthene	1.75	0.52	mg/kg dry	2.585	ND	68	40-140			
Fluorene	1.76	0.52	mg/kg dry	2.585	ND	68	40-140			
Indeno(1,2,3-cd)Pyrene	1.45	0.52	mg/kg dry	2.585	ND	56	40-140			
Naphthalene	1.53	0.52	mg/kg dry	2.585	ND	59	40-140			
Phenanthrene	1.64	0.52	mg/kg dry	2.585	ND	63	40-140			
Pyrene	1.73	0.52	mg/kg dry	2.585	ND	67	40-140			
Surrogate: 2-Bromonaphthalene	53.7		mg/L	50.00		107	40-140			
Surrogate: 2-Fluorobiphenyl	46.0		mg/L	50.00		92	40-140			
Surrogate: O-Terphenyl	1.43		mg/kg dry	2.596		55	40-140			

Matrix Spike Dup Source: 19H0165-06

C19-C36 Aliphatics1	17.3	19.6	mg/kg dry	20.93	ND	83	40-140	16	50	
C9-C18 Aliphatics1	12.8	19.6	mg/kg dry	15.70	ND	82	40-140	5	50	
Decane (C10)	1.5	0.7	mg/kg dry	2.617	ND	56	40-140	15	50	
Docosane (C22)	2.0	0.7	mg/kg dry	2.617	ND	76	40-140	19	50	
Dodecane (C12)	1.7	0.7	mg/kg dry	2.617	ND	64	40-140	21	50	
Eicosane (C20)	2.0	0.7	mg/kg dry	2.617	ND	76	40-140	18	50	
Hexacosane (C26)	2.0	0.7	mg/kg dry	2.617	ND	75	40-140	19	50	
Hexadecane (C16)	1.9	0.7	mg/kg dry	2.617	ND	74	40-140	19	50	
Hexatriacontane (C36)	1.9	0.7	mg/kg dry	2.617	ND	72	40-140	19	50	
Nonadecane (C19)	1.9	0.7	mg/kg dry	2.617	ND	75	40-140	19	50	
Nonane (C9)	1.1	0.7	mg/kg dry	2.617	ND	44	30-140	13	50	
Octacosane (C28)	2.0	0.7	mg/kg dry	2.617	ND	75	40-140	19	50	
Octadecane (C18)	2.0	0.7	mg/kg dry	2.617	ND	75	40-140	18	50	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90659 - 3546

Tetracosane (C24)	2.0	0.7	mg/kg dry	2.617	ND	75	40-140	19	50	
Tetradecane (C14)	1.9	0.7	mg/kg dry	2.617	ND	71	40-140	21	50	
Triacontane (C30)	1.9	0.7	mg/kg dry	2.617	ND	73	40-140	19	50	

Surrogate: 1-Chlorooctadecane	1.92		mg/kg dry	2.643		72	40-140			
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Matrix Spike Dup Source: 19H0165-06

2-Methylnaphthalene	1.95	0.26	mg/kg dry	2.617	ND	74	40-140	17	30	
Acenaphthene	1.91	0.52	mg/kg dry	2.617	ND	73	40-140	15	30	
Acenaphthylene	2.07	0.26	mg/kg dry	2.617	ND	79	40-140	17	30	
Anthracene	2.11	0.52	mg/kg dry	2.617	ND	81	40-140	18	30	
Benzo(a)anthracene	2.01	0.52	mg/kg dry	2.617	ND	77	40-140	19	30	
Benzo(a)pyrene	1.92	0.52	mg/kg dry	2.617	ND	73	40-140	20	30	
Benzo(b)fluoranthene	2.23	0.52	mg/kg dry	2.617	ND	85	40-140	20	30	
Benzo(g,h,i)perylene	1.69	0.52	mg/kg dry	2.617	ND	65	40-140	20	30	
Benzo(k)fluoranthene	2.08	0.52	mg/kg dry	2.617	ND	79	40-140	18	30	
C11-C22 Unadjusted Aromatics1	39.1	19.6	mg/kg dry	44.48	ND	88	40-140	18	50	
Chrysene	2.17	0.52	mg/kg dry	2.617	ND	83	40-140	19	30	
Dibenzo(a,h)Anthracene	1.91	0.26	mg/kg dry	2.617	ND	73	40-140	20	30	
Fluoranthene	2.12	0.52	mg/kg dry	2.617	ND	81	40-140	19	30	
Fluorene	2.09	0.52	mg/kg dry	2.617	ND	80	40-140	17	30	
Indeno(1,2,3-cd)Pyrene	1.74	0.52	mg/kg dry	2.617	ND	66	40-140	18	30	
Naphthalene	1.79	0.52	mg/kg dry	2.617	ND	68	40-140	15	30	
Phenanthrene	1.99	0.52	mg/kg dry	2.617	ND	76	40-140	19	30	
Pyrene	2.10	0.52	mg/kg dry	2.617	ND	80	40-140	19	30	
Surrogate: 2-Bromonaphthalene	52.2		mg/L	50.00		104	40-140			
Surrogate: 2-Fluorobiphenyl	44.4		mg/L	50.00		89	40-140			
Surrogate: O-Terphenyl	1.74		mg/kg dry	2.627		66	40-140			

Batch CH91208 - 3546

Blank										
C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH91208 - 3546

<i>Surrogate: 1-Chlorooctadecane</i>	1.72		mg/kg wet	2.020		85	40-140			
Blank										
2-Methylnaphthalene	ND	0.20	mg/kg wet							
Acenaphthene	ND	0.40	mg/kg wet							
Acenaphthylene	ND	0.20	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.40	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.20	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.40	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							
<i>Surrogate: 2-Bromonaphthalene</i>	50.6		mg/L	50.00		101	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	49.3		mg/L	50.00		99	40-140			
<i>Surrogate: O-Terphenyl</i>	1.93		mg/kg wet	2.008		96	40-140			

LCS										
C19-C36 Aliphatics1	15.3	15.0	mg/kg wet	16.00		96	40-140			
C9-C18 Aliphatics1	9.4	15.0	mg/kg wet	12.00		78	40-140			
Decane (C10)	1.1	0.5	mg/kg wet	2.000		57	40-140			
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		88	40-140			
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		61	40-140			
Eicosane (C20)	1.7	0.5	mg/kg wet	2.000		86	40-140			
Hexacosane (C26)	1.7	0.5	mg/kg wet	2.000		87	40-140			
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		77	40-140			
Hexatriacontane (C36)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		85	40-140			
Nonane (C9)	0.9	0.5	mg/kg wet	2.000		47	30-140			
Octacosane (C28)	1.7	0.5	mg/kg wet	2.000		86	40-140			
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		85	40-140			
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		88	40-140			
Tetradecane (C14)	1.3	0.5	mg/kg wet	2.000		67	40-140			
Triacontane (C30)	1.7	0.5	mg/kg wet	2.000		83	40-140			

<i>Surrogate: 1-Chlorooctadecane</i>	1.69		mg/kg wet	2.020		84	40-140			
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LCS										
2-Methylnaphthalene	1.49	0.20	mg/kg wet	2.000		74	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH91208 - 3546										
Acenaphthene	1.50	0.40	mg/kg wet	2.000		75	40-140			
Acenaphthylene	1.48	0.20	mg/kg wet	2.000		74	40-140			
Anthracene	1.66	0.40	mg/kg wet	2.000		83	40-140			
Benzo(a)anthracene	2.18	0.40	mg/kg wet	2.000		109	40-140			
Benzo(a)pyrene	1.83	0.40	mg/kg wet	2.000		92	40-140			
Benzo(b)fluoranthene	2.10	0.40	mg/kg wet	2.000		105	40-140			
Benzo(g,h,i)perylene	1.83	0.40	mg/kg wet	2.000		91	40-140			
Benzo(k)fluoranthene	2.07	0.40	mg/kg wet	2.000		104	40-140			
C11-C22 Unadjusted Aromatics1	31.3	15.0	mg/kg wet	34.00		92	40-140			
Chrysene	2.08	0.40	mg/kg wet	2.000		104	40-140			
Dibenzo(a,h)Anthracene	1.95	0.20	mg/kg wet	2.000		98	40-140			
Fluoranthene	1.83	0.40	mg/kg wet	2.000		91	40-140			
Fluorene	1.64	0.40	mg/kg wet	2.000		82	40-140			
Indeno(1,2,3-cd)Pyrene	1.92	0.40	mg/kg wet	2.000		96	40-140			
Naphthalene	1.18	0.40	mg/kg wet	2.000		59	40-140			
Phenanthrene	1.78	0.40	mg/kg wet	2.000		89	40-140			
Pyrene	1.86	0.40	mg/kg wet	2.000		93	40-140			
Surrogate: 2-Bromonaphthalene	50.1		mg/L	50.00		100	40-140			
Surrogate: 2-Fluorobiphenyl	48.0		mg/L	50.00		96	40-140			
Surrogate: O-Terphenyl	1.95		mg/kg wet	2.008		97	40-140			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS Dup										
C19-C36 Aliphatics1	14.3	15.0	mg/kg wet	16.00		89	40-140	7	25	
C9-C18 Aliphatics1	8.9	15.0	mg/kg wet	12.00		74	40-140	5	25	
Decane (C10)	1.1	0.5	mg/kg wet	2.000		54	40-140	6	25	
Docosane (C22)	1.6	0.5	mg/kg wet	2.000		82	40-140	6	25	
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		58	40-140	5	25	
Eicosane (C20)	1.6	0.5	mg/kg wet	2.000		80	40-140	7	25	
Hexacosane (C26)	1.6	0.5	mg/kg wet	2.000		81	40-140	6	25	
Hexadecane (C16)	1.4	0.5	mg/kg wet	2.000		72	40-140	7	25	
Hexatriacontane (C36)	1.5	0.5	mg/kg wet	2.000		74	40-140	7	25	
Nonadecane (C19)	1.6	0.5	mg/kg wet	2.000		79	40-140	7	25	
Nonane (C9)	0.9	0.5	mg/kg wet	2.000		45	30-140	4	25	
Octacosane (C28)	1.6	0.5	mg/kg wet	2.000		80	40-140	7	25	
Octadecane (C18)	1.6	0.5	mg/kg wet	2.000		79	40-140	7	25	
Tetracosane (C24)	1.6	0.5	mg/kg wet	2.000		82	40-140	6	25	
Tetradecane (C14)	1.3	0.5	mg/kg wet	2.000		65	40-140	4	25	
Triacotane (C30)	1.6	0.5	mg/kg wet	2.000		78	40-140	7	25	
Surrogate: 1-Chlorooctadecane	1.59		mg/kg wet	2.020		79	40-140			
LCS Dup										
2-Methylnaphthalene	1.32	0.20	mg/kg wet	2.000		66	40-140	12	30	
Acenaphthene	1.36	0.40	mg/kg wet	2.000		68	40-140	10	30	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH91208 - 3546

Acenaphthylene	1.32	0.20	mg/kg wet	2.000		66	40-140	11	30	
Anthracene	1.53	0.40	mg/kg wet	2.000		76	40-140	8	30	
Benzo(a)anthracene	1.93	0.40	mg/kg wet	2.000		97	40-140	12	30	
Benzo(a)pyrene	1.62	0.40	mg/kg wet	2.000		81	40-140	12	30	
Benzo(b)fluoranthene	1.83	0.40	mg/kg wet	2.000		91	40-140	14	30	
Benzo(g,h,i)perylene	1.61	0.40	mg/kg wet	2.000		81	40-140	13	30	
Benzo(k)fluoranthene	1.77	0.40	mg/kg wet	2.000		89	40-140	15	30	
C11-C22 Unadjusted Aromatics1	27.5	15.0	mg/kg wet	34.00		81	40-140	13	25	
Chrysene	1.83	0.40	mg/kg wet	2.000		91	40-140	13	30	
Dibenzo(a,h)Anthracene	1.64	0.20	mg/kg wet	2.000		82	40-140	18	30	
Fluoranthene	1.71	0.40	mg/kg wet	2.000		85	40-140	7	30	
Fluorene	1.48	0.40	mg/kg wet	2.000		74	40-140	10	30	
Indeno(1,2,3-cd)Pyrene	1.70	0.40	mg/kg wet	2.000		85	40-140	13	30	
Naphthalene	1.15	0.40	mg/kg wet	2.000		57	40-140	3	30	
Phenanthrene	1.53	0.40	mg/kg wet	2.000		77	40-140	15	30	
Pyrene	1.67	0.40	mg/kg wet	2.000		83	40-140	11	30	
Surrogate: 2-Bromonaphthalene	46.6		mg/L	50.00		93	40-140			
Surrogate: 2-Fluorobiphenyl	43.3		mg/L	50.00		87	40-140			
Surrogate: O-Terphenyl	1.72		mg/kg wet	2.008		86	40-140			

LCS Dup

2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

Notes and Definitions

- Z-10c Soil pH measured in water at 22.4 °C.
- Z-10b Soil pH measured in water at 22.3 °C.
- Z-10a Soil pH measured in water at 22.2 °C.
- Z-10 Soil pH measured in water at 22.1 °C.
- WL Results obtained from a deionized water leach of the sample.
- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- M+ Matrix Spike recovery is above upper control limit (M+).
- M- Matrix Spike recovery is below lower control limit (M-).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0165

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0165
 Date Received: 8/6/2019
 Project Due Date: 8/13/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 1.1 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: 8/6/19 Time: 1910
 b. Low Level VOA vials frozen: By: [Signature]

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	374131	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	374112	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	374121	Yes	NA	Yes	VOA Vial - Other	Other	
02	374122	Yes	NA	Yes	VOA Vial - Other	Other	
02	374130	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	374136	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	374111	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	374119	Yes	NA	Yes	VOA Vial - Other	Other	
03	374120	Yes	NA	Yes	VOA Vial - Other	Other	
03	374129	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	374135	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	374110	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
04	374117	Yes	NA	Yes	VOA Vial - Other	Other	
04	374118	Yes	NA	Yes	VOA Vial - Other	Other	
04	374128	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	374134	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	374109	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
05	374115	Yes	NA	Yes	VOA Vial - Other	Other	
05	374116	Yes	NA	Yes	VOA Vial - Other	Other	
05	374127	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	374133	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	374108	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
06	374113	Yes	NA	Yes	VOA Vial - Other	Other	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0165

Date Received: 8/6/2019

06	374114	Yes	NA	Yes	VOA Vial - Other	Other
06	374126	Yes	NA	Yes	4 oz. Jar - Unpres	NP
06	374132	Yes	NA	Yes	4 oz. Jar - Unpres	NP
07	374125	Yes	NA	Yes	4 oz. Jar - Unpres	NP
08	374124	Yes	NA	Yes	4 oz. Jar - Unpres	NP
09	374123	Yes	NA	Yes	4 oz. Jar - Unpres	NP

2nd Review

Were all containers scanned into storage/lab?

Initials: MS

Are barcode labels on correct containers?

Yes / No

Are all Flashpoint stickers attached/container ID # circled?

Yes / No / NA

Are all Hex Chrome stickers attached?

Yes / No / NA

Are all QC stickers attached?

Yes / No / NA

Are VOA stickers attached if bubbles noted?

Yes / No / NA

Completed

[Handwritten Signature]

Date & Time:

8/6/19

1816

Reviewed

[Handwritten Signature]

Date & Time:

8/6/19

1910

Delivered

[Handwritten Signature]

Date & Time:

8/6/19

1910

By:



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: *Tombarello Site Investigation* Project Location: *Lawrence, MA*

Project Number: *1802441* Project Manager: *L. Lombardo*

Send Report to: *Molly [redacted] / Lombardo@geiconsultants.com, b.angmurder@geiconsultants.com, blee@geiconsultants.com, csaledas@geiconsultants.com*

Send EDD to: *[redacted]@geiconsultants.com*
east region data

Preservative

None	None	None	None	None	None	None
------	------	------	------	------	------	------

Analysis

PCBs (808a)	EPH w/Target PAHs (MAEPH)	RCRA 8 Metals Plus Cu, Cd, Pb, Tl, Cr(VI)	Cr VI	VOC (High/Low)	Matrix Spike / Matrix Spike Dup
-------------	---------------------------	---	-------	----------------	---------------------------------

Page 1 of 2

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	Analysis									
		Date	Time				PCBs (808a)	EPH w/Target PAHs (MAEPH)	RCRA 8 Metals Plus Cu, Cd, Pb, Tl, Cr(VI)	Cr VI	VOC (High/Low)	Matrix Spike / Matrix Spike Dup				
—	1802441-EB-06	8/6/19	1200	Aq.	1	BRL	x									Equipment Blank
1	1802441-D-SNS (0-015)		1320	Soil	1	BRL	x									
2	1802441-W-07(0-3)		0750	Soil	5	BRL	x	x	x	x	x					
3	1802441-W-07(5-7)		0820	Soil	5	BRL	x	x	x	x	x					
4	1802441-Q-05(5-7)		0905	Soil	5	BRL	x	x	x	x	x					
5	1802441-WSB-26(5-7)		1150	Soil	5	BRL	x	x	x	x	x					
6	1802441-FG-34(5-7)		1100	Soil	5	BRL	x	x	x	x	x					
	1802441-D-SNS (0-015)		1320	Soil	1	BRL										
	1802441			Soil		BRL										
	1802441			Soil		BRL										
	1802441			Soil		BRL										

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal X Other ___

10-Day ___ 7-Day ___


5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by (signature): <i>[Signature]</i>	Date: 8/6/19	Time: 1450	Received by (signature): <i>[Signature]</i>
Relinquished by (signature): <i>[Signature]</i>	Date: 8/6/19	Time: 17:32	Received by (signature): <i>[Signature]</i> 8/6/19 1736
Relinquished by (signature):	Date:	Time:	Received by (signature):
Relinquished by (signature):	Date:	Time:	Received by (signature):

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfield QAPP.

Chain-of-Custody Record			Laboratory: ESS			Laboratory Job # 19H0165 (Lab use only)																																		
 GEI Consultants 400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073			Project Information			Project Location: Lawrence, MA Project Manager: L. Lombardo																																		
			Project Name: Tombarello Site Investigation						Project Number: 1802441																															
Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaedas@geiconsultants.com, blee@geiconsultants.com			Send EDD to: EastRegionData@geiconsultants.com			<table border="1"> <tr> <th colspan="3">Preservative</th> </tr> <tr> <td>None</td> <td></td> <td></td> </tr> </table>			Preservative			None																												
Preservative																																								
None																																								
MCP PRESUMPTIVE CERTAINTY REQUIRED - YES <input type="radio"/> NO <input checked="" type="radio"/>						<table border="1"> <tr> <td>YES</td> <td>NO</td> <td>NA</td> </tr> <tr> <td>YES</td> <td>NO</td> <td>NA</td> </tr> <tr> <td>YES</td> <td>NO</td> <td>NA</td> </tr> </table>			YES	NO	NA	YES	NO	NA	YES	NO	NA																							
YES	NO	NA																																						
YES	NO	NA																																						
YES	NO	NA																																						
If Yes, Are MCP Analytical Methods Required?																																								
Are Drinking Water Samples Submitted?																																								
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Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	<table border="1"> <tr> <td>None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>None</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		None								None								None								None							
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		Date	Time																																					
7	1802441-Berm-09N(0-1)	8/11/19	0935	Soil	1	AMS																																		
8	1802441-SB3W(3-5)	8/15/19	0150	Soil	1	BAL																																		
9	1802441-SB3W(3-5)	8/15/19	0905	Soil	1	BAL																																		
MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.						Turnaround Time (Business days): Normal <input checked="" type="checkbox"/> Other _____ 10-Day _____ 7-Day _____ 5-Day _____ 3-Day _____		Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.																																
Relinquished by: (signature)		Date:	Time:	Received by: (signature)		Additional Requirements/Comments/Remarks: Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.																																		
1. [Signature]		8/16/19	1450	1. [Signature]																																				
2. [Signature]		8/16/19	17:22	2. [Signature] 8/16/19 1730																																				
3.				3.																																				
4.				4.																																				

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CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0169

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 5:37 pm, Aug 13, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0169

SAMPLE RECEIPT

The following samples were received on August 06, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0169-01	1802441-EB-06	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0169

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0169

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0169

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0169-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 13, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-06
Date Sampled: 08/06/19 12:00
Percent Solids: N/A
Initial Volume: 1060
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19H0169
ESS Laboratory Sample ID: 19H0169-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: CAD
Prepared: 8/7/19 12:13

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1221	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1232	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1242	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1248	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1254	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1260	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1262	ND (0.09)		8082A		1	08/07/19 15:39		CH90710
Aroclor 1268	ND (0.09)		8082A		1	08/07/19 15:39		CH90710

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	86 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	58 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	65 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0169

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90710 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

Surrogate: Decachlorobiphenyl	0.0396		ug/L	0.05000		79	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0360		ug/L	0.05000		72	30-150			
Surrogate: Tetrachloro-m-xylene	0.0272		ug/L	0.05000		54	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0282		ug/L	0.05000		56	30-150			

LCS

Aroclor 1016	0.91	0.10	ug/L	1.000		91	40-140			
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140			
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0478		ug/L	0.05000		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0441		ug/L	0.05000		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0289		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0302		ug/L	0.05000		60	30-150			

LCS Dup

Aroclor 1016	0.92	0.10	ug/L	1.000		92	40-140	0.8	20	
Aroclor 1016 [2C]	0.91	0.10	ug/L	1.000		91	40-140	2	20	
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140	0.2	20	
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140	0.4	20	

Surrogate: Decachlorobiphenyl	0.0460		ug/L	0.05000		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0423		ug/L	0.05000		85	30-150			
Surrogate: Tetrachloro-m-xylene	0.0315		ug/L	0.05000		63	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0327		ug/L	0.05000		65	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0169

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0169

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0169

Date Received: 8/6/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 8/13/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 1.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	374166	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Initials [Signature]
- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/6/19 1742
 Reviewed By: [Signature] Date & Time: 8/6/19 1912
 Delivered By: [Signature] Date & Time: 8/6/19 1912

Chain-of-Custody Record

Laboratory:

Laboratory Job #

(Lab. use only)

19H0169



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: *Tombarello Site Investigation*

Project Location: *Lawrence, MA*

Page 1 of 2

Project Number: *1802441*

Project Manager: *L. Lombardo*

Send Report to: *Molly Lombardo@geiconsultants.com, bkingmurdoch@geiconsultants.com, blee@geiconsultants.com, csaledas@geiconsultants.com*
Send EDD to: *labdata@geiconsultants.com*
east region data

Preservative

None None None None None None None

Analysis

PCBs (8082)
EPA w/Target PAHs (CMAEPH)
RPCAA 8 Metals Plus Cu (6010, 7471, Cr10)
Cr VI
VOC (high/low)
Matrix Spike / Dup
Matrix Spike

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	Analysis										Sample Specific Remarks	
		Date	Time				PCBs (8082)	EPA w/Target PAHs (CMAEPH)	RPCAA 8 Metals Plus Cu (6010, 7471, Cr10)	Cr VI	VOC (high/low)	Matrix Spike / Dup	Matrix Spike					
1	1802441-EB-06	8/6/19	1200	Aq.	1	BRL	X											Equipment Blank
	1802441-D-SNS (0-015)		1320	Soil	1	BRL	X											
	1802441-W-07(0-3)		0750	Soil	5	BRL	X	X	X	X	X							
	1802441-W-07(5-7)		0820	Soil	5	BRL	X	X	X	X	X							
	1802441-Q-05(5-7)		0905	Soil	5	BRL	X	X	X	X	X							
	1802441-WSB-26(5-7)		1150	Soil	5	BRL	X	X	X	X	X							
	1802441-FG-34(5-7)		1400	Soil	5	BRL	X	X	X	X	X							
	1802441-D-SNS (0-015)		1320	Soil	1	BRL	X											
	1802441			Soil		BRL												
	1802441			Soil		BRL												
	1802441			Soil		BRL												

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) 1. <i>[Signature]</i>	Date: 8/6/19	Time: 1450	Received by: (signature) 1. <i>[Signature]</i>
Relinquished by: (signature) 2. <i>[Signature]</i>	Date: 8/6/19	Time: 17:30	Received by: (signature) 2. <i>[Signature]</i> 8/6/19 17:30
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Normal Other
10-Day 7-Day
5-Day 3-Day

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's generic Brownfield QAPP.



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0194

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 2:28 pm, Aug 15, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0194

SAMPLE RECEIPT

The following samples were received on August 07, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0194-01	1802441-SB-3W 3-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0194

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0194

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0194

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0194-01**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 14, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3W 3-5
Date Sampled: 08/05/19 09:20
Percent Solids: 86
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0194
ESS Laboratory Sample ID: 19H0194-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/9/19 16:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1221	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1232	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1242	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1248	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1254	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1260	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1262	ND (0.06)		8082A		1	08/12/19 18:46		CH90908
Aroclor 1268	ND (0.06)		8082A		1	08/12/19 18:46		CH90908

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	<i>100 %</i>		<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>95 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>87 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>100 %</i>		<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0194

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90908 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0213		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0195		mg/kg wet	0.02500		78	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			

Surrogate: Decachlorobiphenyl	0.0231		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0216		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0196		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0207		mg/kg wet	0.02500		83	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0215		mg/kg wet	0.02500		86	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0194

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0194

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0194
 Date Received: 8/7/2019
 Project Due Date: 8/14/2019
 Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / **NA**
- 10. Were any analyses received outside of hold time? Yes / **No**

11. Any Subcontracting needed? Yes / **No**
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / **No**
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? **Yes** / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / **No**
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	374508	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab?

- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

Initials: [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

Completed By: [Signature] Date & Time: 8/7/19 2232
 Reviewed By: [Signature] Date & Time: 8/7/19 2246
 Delivered By: [Signature] Date & Time: 8/7/19 2246

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job # **1940194**
(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation
Project Number: 1802441
Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
Send EDD to: EastRegionData@geiconsultants.com

Project Location: Lawrence, MA
Project Manager: L. Lombardo

Page 1 of 1

Preservative				
None	None	None	None	None

Sample Handling
Samples Field Filtered
YES NO **NA**
Sampled Shipped With Ice
YES NO **NA**
Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - **YES** NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
Are Drinking Water Samples Submitted? YES NO NA
If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)	MS/MSD RCRA 8 metals					
		Date	Time													
1	1802441-5B-3W(3-5)	8/5/19	0920	Soil	1	BRL	X									

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date	Time	Received by: (signature)
1. <i>BRL</i>	8/5/19	1600	1. GEI Refrigerator
2. GEI Refrigerator	8/7/19	1125	2. <i>[Signature]</i>
3. <i>[Signature]</i>	8/12/19	125	3. <i>[Signature]</i>
4. <i>[Signature]</i>	8/17/19	18:51	4. <i>CAH</i> 8/17/19 2224

Turnaround Time (Business days):
Normal X Other ___
10-Day ___ 7-Day ___
5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relin: *[Signature]*
icc temp: 3.9



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0200

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 4:03 pm, Aug 19, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

SAMPLE RECEIPT

The following samples were received on August 07, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Low Level VOA vials were frozen by ESS Laboratory on 8/7/19 at 20:15.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
19H0200-01	1802441-SVA-05 5-7	Soil	2580, 6010C, 6020A, 7196A, 7471B, 8260B Low, 9045, EPH8270, MADEP-EPH
19H0200-02	1802441-SVA-05 3-5	Soil	8082A
19H0200-03	1802441-SVA-05W 0-0.5	Soil	8082A
19H0200-04	1802441-SVA-05W 1-2	Soil	8082A
19H0200-05	1802441-SVA-05W 2-3	Soil	8082A
19H0200-06	1802441-SVA-05W 3-5	Soil	8082A
19H0200-07	1802441-SVA-05E 0-0.5	Soil	8082A
19H0200-08	1802441-SVA-05E 1-2	Soil	8082A
19H0200-09	1802441-SVA-05E 2-3	Soil	8082A
19H0200-10	1802441-TB-1	Solid	8260B Low



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CH90838-BSD1 Relative percent difference for duplicate is outside of criteria (D+).
 Tetrahydrofuran (21% @ 20%)

8082A Polychlorinated Biphenyls (PCB)

19H0200-07 Lower value is used due to matrix interferences (LC).
 Aroclor 1242 [2C]

19H0200-07 Percent difference between primary and confirmation results exceeds 40% (P).
 Aroclor 1242 [2C]

19H0200-08 Elevated Method Reporting Limits due to sample matrix (EL).

19H0200-08 Surrogate recovery(ies) diluted below the MRL (SD).
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene
 (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

Total Metals

19H0200-01 Elevated Method Reporting Limits due to sample matrix (EL).
 Selenium , Silver

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0200-01 through 19H0200-10**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|---|---|---|------------------------------------|
| <input checked="" type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | <input checked="" type="checkbox"/> 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 19, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 5-7
Date Sampled: 08/07/19 10:00
Percent Solids: 48

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	20.4 (2.06)		6010C		1	KJK	08/14/19 3:26	5.09	100	CH91236
Barium	512 (2.06)		6010C		1	KJK	08/14/19 3:26	5.09	100	CH91236
Cadmium	3.52 (0.41)		6010C		1	KJK	08/14/19 3:26	5.09	100	CH91236
Chromium	60.8 (0.82)		6010C		1	KJK	08/14/19 3:26	5.09	100	CH91236
Lead	1220 (8.24)		6010C		2	KJK	08/14/19 17:27	5.09	100	CH91236
Mercury	0.593 (0.190)		7471B		10	MKS	08/13/19 14:56	2.19	40	CH91235
Selenium	EL ND (1.65)		6020A		1	NAR	08/14/19 21:21	5.09	100	CH91236
Silver	EL ND (2.06)		6010C		5	KJK	08/15/19 13:29	5.09	100	CH91236
Zinc	1550 (4.12)		6010C		2	KJK	08/14/19 17:27	5.09	100	CH91236



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 5-7
Date Sampled: 08/07/19 10:00
Percent Solids: 48
Initial Volume: 7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,1,1-Trichloroethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,1,2,2-Tetrachloroethane	ND (0.0030)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,1,2-Trichloroethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,1-Dichloroethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,1-Dichloroethene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,1-Dichloropropene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2,3-Trichlorobenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2,3-Trichloropropane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2,4-Trichlorobenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2,4-Trimethylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2-Dibromo-3-Chloropropane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2-Dibromoethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2-Dichlorobenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2-Dichloroethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,2-Dichloropropane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,3,5-Trimethylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,3-Dichlorobenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,3-Dichloropropane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,4-Dichlorobenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
1,4-Dioxane	ND (0.150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
2,2-Dichloropropane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
2-Butanone	0.0901 (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
2-Chlorotoluene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
2-Hexanone	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
4-Chlorotoluene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
4-Isopropyltoluene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
4-Methyl-2-Pentanone	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Acetone	0.783 (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Benzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Bromobenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Bromochloromethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 5-7
Date Sampled: 08/07/19 10:00
Percent Solids: 48
Initial Volume: 7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Bromoform	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Bromomethane	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Carbon Disulfide	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Carbon Tetrachloride	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Chlorobenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Chloroethane	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Chloroform	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Chloromethane	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
cis-1,2-Dichloroethene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
cis-1,3-Dichloropropene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Dibromochloromethane	ND (0.0030)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Dibromomethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Dichlorodifluoromethane	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Diethyl Ether	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Di-isopropyl ether	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Ethyl tertiary-butyl ether	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Ethylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Hexachlorobutadiene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Isopropylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Methyl tert-Butyl Ether	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Methylene Chloride	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Naphthalene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
n-Butylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
n-Propylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
sec-Butylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Styrene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
tert-Butylbenzene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Tertiary-amyl methyl ether	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Tetrachloroethene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Tetrahydrofuran	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Toluene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 5-7
Date Sampled: 08/07/19 10:00
Percent Solids: 48
Initial Volume: 7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
trans-1,3-Dichloropropene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Trichloroethene	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Trichlorofluoromethane	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Vinyl Chloride	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Xylene O	ND (0.0075)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Xylene P,M	ND (0.0150)		8260B Low		1	08/08/19 19:50	C9H0178	CH90838
Xylenes (Total)	ND (0.0150)		8260B Low		1	08/08/19 19:50		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>119 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>83 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 5-7
Date Sampled: 08/07/19 10:00
Percent Solids: 48

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-01
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	7.07 (N/A)		9045		1	CCP	08/07/19 22:03	S.U.	CH90743
Corrosivity (pH) Sample Temp	Soil pH measured in water at 21.6								
Eh (ORP)	WL 341 (N/A)		2580		1	CCP	08/07/19 22:03	mv	CH90766
Hexavalent Chromium	ND (0.9)		7196A		1	CCP	08/07/19 20:48	mg/kg dry	CH90746



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 5-7
Date Sampled: 08/07/19 10:00
Percent Solids: 48
Initial Volume: 24.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-01
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/9/19 10:35

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (32.1)		MADEP-EPH		1	CAD	08/11/19 1:35	C9H0125	CH90862
C19-C36 Aliphatics1	44.7 (32.1)		MADEP-EPH		1	CAD	08/11/19 1:35	C9H0125	CH90862
C11-C22 Unadjusted Aromatics1	ND (32.1)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
C11-C22 Aromatics1,2	ND (32.1)		EPH8270			VSC	08/15/19 2:35		[CALC]
2-Methylnaphthalene	ND (0.43)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Acenaphthene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Naphthalene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Phenanthrene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Acenaphthylene	ND (0.43)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Anthracene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Benzo(a)anthracene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Benzo(a)pyrene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Benzo(b)fluoranthene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Benzo(g,h,i)perylene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Benzo(k)fluoranthene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Chrysene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Dibenzo(a,h)Anthracene	ND (0.43)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Fluoranthene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Fluorene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Indeno(1,2,3-cd)Pyrene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862
Pyrene	ND (0.86)		EPH8270		1	VSC	08/15/19 2:35	C9H0294	CH90862

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	65 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	108 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	85 %		40-140
<i>Surrogate: O-Terphenyl</i>	59 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 3-5
Date Sampled: 08/07/19 09:55
Percent Solids: 67
Initial Volume: 20.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1221	ND (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1232	ND (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1242	0.09 (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1248	ND (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1254 [2C]	0.3 (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1260	ND (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1262 [2C]	0.2 (0.07)		8082A		1	08/16/19 14:00		CH91552
Aroclor 1268	ND (0.07)		8082A		1	08/16/19 14:00		CH91552

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	113 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	126 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	41 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	48 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05W 0-0.5
Date Sampled: 08/07/19 10:20
Percent Solids: 78
Initial Volume: 19
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/14/19 12:27		CH91210
Aroclor 1221	ND (0.07)		8082A		1	08/14/19 12:27		CH91210
Aroclor 1232	ND (0.07)		8082A		1	08/14/19 12:27		CH91210
Aroclor 1242	0.5 (0.07)		8082A		1	08/14/19 12:27		CH91210
Aroclor 1248	ND (0.07)		8082A		1	08/14/19 12:27		CH91210
Aroclor 1254 [2C]	2.0 (0.3)		8082A		5	08/16/19 14:19		CH91210
Aroclor 1260	2.4 (0.3)		8082A		5	08/16/19 14:19		CH91210
Aroclor 1262	ND (0.07)		8082A		1	08/14/19 12:27		CH91210
Aroclor 1268	ND (0.07)		8082A		1	08/14/19 12:27		CH91210

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	42 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	141 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	35 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	40 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05W 1-2
Date Sampled: 08/07/19 10:25
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 15:06		CH91211
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 15:06		CH91211
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 15:06		CH91211
Aroclor 1242	0.5 (0.05)		8082A		1	08/13/19 15:06		CH91211
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 15:06		CH91211
Aroclor 1254	ND (0.05)		8082A		1	08/13/19 15:06		CH91211
Aroclor 1260	7.5 (0.5)		8082A		10	08/15/19 19:34		CH91211
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 15:06		CH91211
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 15:06		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	70 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	45 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05W 2-3
Date Sampled: 08/07/19 10:30
Percent Solids: 95
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 15:43		CH91211
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 15:43		CH91211
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 15:43		CH91211
Aroclor 1242	ND (0.05)		8082A		1	08/13/19 15:43		CH91211
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 15:43		CH91211
Aroclor 1254 [2C]	2.5 (0.3)		8082A		5	08/15/19 19:53		CH91211
Aroclor 1260	0.3 (0.05)		8082A		1	08/13/19 15:43		CH91211
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 15:43		CH91211
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 15:43		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	79 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	88 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	48 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05W 3-5
Date Sampled: 08/07/19 10:35
Percent Solids: 48
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1221	ND (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1232	ND (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1242	ND (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1248	ND (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1254 [2C]	0.1 (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1260	ND (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1262	ND (0.1)		8082A		1	08/16/19 10:48		CH91550
Aroclor 1268	ND (0.1)		8082A		1	08/16/19 10:48		CH91550

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	71 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	56 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05E 0-0.5
Date Sampled: 08/07/19 09:15
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 16:20		CH91211
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 16:20		CH91211
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 16:20		CH91211
Aroclor 1242 [2C]	P, LC 0.6 (0.06)		8082A		1	08/13/19 16:20		CH91211
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 16:20		CH91211
Aroclor 1254 [2C]	2.9 (0.3)		8082A		5	08/15/19 20:12		CH91211
Aroclor 1260	3.0 (0.3)		8082A		5	08/15/19 20:12		CH91211
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 16:20		CH91211
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 16:20		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	53 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	103 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	41 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	40 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05E 1-2
Date Sampled: 08/07/19 09:20
Percent Solids: 85
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1221	ND (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1232	ND (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1242	ND (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1248	ND (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1254 [2C]	12.7 (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1260	14.4 (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1262	ND (1.2)		8082A		20	08/15/19 20:31		CH91211
Aroclor 1268	ND (1.2)		8082A		20	08/15/19 20:31		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05E 2-3
Date Sampled: 08/07/19 09:25
Percent Solids: 75
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/13/19 16:58		CH91211
Aroclor 1221	ND (0.07)		8082A		1	08/13/19 16:58		CH91211
Aroclor 1232	ND (0.07)		8082A		1	08/13/19 16:58		CH91211
Aroclor 1242	ND (0.07)		8082A		1	08/13/19 16:58		CH91211
Aroclor 1248	ND (0.07)		8082A		1	08/13/19 16:58		CH91211
Aroclor 1254 [2C]	10.0 (0.7)		8082A		10	08/15/19 20:50		CH91211
Aroclor 1260	1.2 (0.07)		8082A		1	08/13/19 16:58		CH91211
Aroclor 1262	ND (0.07)		8082A		1	08/13/19 16:58		CH91211
Aroclor 1268	ND (0.07)		8082A		1	08/13/19 16:58		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	119 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	126 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	31 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	34 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TB-1
Date Sampled: 08/07/19 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19H0200
ESS Laboratory Sample ID: 19H0200-10
Sample Matrix: Solid
Units: mg/kg
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,1,1-Trichloroethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,1,2,2-Tetrachloroethane	ND (0.0020)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,1,2-Trichloroethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,1-Dichloroethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,1-Dichloroethene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,1-Dichloropropene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2,3-Trichlorobenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2,3-Trichloropropane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2,4-Trichlorobenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2,4-Trimethylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2-Dibromoethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2-Dichlorobenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2-Dichloroethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,2-Dichloropropane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,3,5-Trimethylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,3-Dichlorobenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,3-Dichloropropane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,4-Dichlorobenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
1,4-Dioxane	ND (0.100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
2,2-Dichloropropane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
2-Butanone	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
2-Chlorotoluene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
2-Hexanone	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
4-Chlorotoluene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
4-Isopropyltoluene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
4-Methyl-2-Pentanone	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Acetone	0.0256 (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Benzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Bromobenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Bromochloromethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TB-1
 Date Sampled: 08/07/19 00:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 19H0200
 ESS Laboratory Sample ID: 19H0200-10
 Sample Matrix: Solid
 Units: mg/kg
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Bromoform	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Bromomethane	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Carbon Disulfide	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Carbon Tetrachloride	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Chlorobenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Chloroethane	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Chloroform	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Chloromethane	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
cis-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
cis-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Dibromochloromethane	ND (0.0020)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Dibromomethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Dichlorodifluoromethane	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Diethyl Ether	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Di-isopropyl ether	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Ethyl tertiary-butyl ether	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Ethylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Hexachlorobutadiene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Isopropylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Methyl tert-Butyl Ether	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Methylene Chloride	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Naphthalene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
n-Butylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
n-Propylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
sec-Butylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Styrene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
tert-Butylbenzene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Tertiary-amyl methyl ether	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Tetrachloroethene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Tetrahydrofuran	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Toluene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TB-1
 Date Sampled: 08/07/19 00:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 19H0200
 ESS Laboratory Sample ID: 19H0200-10
 Sample Matrix: Solid
 Units: mg/kg
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
trans-1,2-Dichloroethene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
trans-1,3-Dichloropropene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Trichloroethene	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Trichlorofluoromethane	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Vinyl Chloride	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Xylene O	ND (0.0050)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Xylene P,M	ND (0.0100)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832
Xylenes (Total)	ND (0.0075)		8260B Low		1	08/08/19 11:46	C9H0172	CH90832

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	92 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	101 %		70-130
<i>Surrogate: Toluene-d8</i>	99 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH91235 - 7471B

Blank

Mercury ND 0.033 mg/kg wet

LCS

Mercury 23.1 3.41 mg/kg wet 27.30 85 80-120

LCS Dup

Mercury 24.0 3.30 mg/kg wet 27.30 88 80-120 4 20

Batch CH91236 - 3050B

Blank

Arsenic ND 2.50 mg/kg wet
Barium ND 2.50 mg/kg wet
Cadmium ND 0.50 mg/kg wet
Chromium ND 1.00 mg/kg wet
Lead ND 5.00 mg/kg wet
Selenium ND 2.00 mg/kg wet
Silver ND 0.50 mg/kg wet
Zinc ND 2.50 mg/kg wet

LCS

Arsenic 127 8.93 mg/kg wet 128.0 99 80-120
Barium 564 8.93 mg/kg wet 536.0 105 80-120
Cadmium 94.2 1.79 mg/kg wet 99.00 95 80-120
Chromium 121 3.57 mg/kg wet 116.0 104 80-120
Lead 299 17.9 mg/kg wet 277.0 108 80-120
Selenium 232 35.7 mg/kg wet 242.0 96 80-120
Silver 64.5 1.79 mg/kg wet 64.30 100 80-120
Zinc 567 8.93 mg/kg wet 561.0 101 80-120

LCS Dup

Arsenic 125 9.26 mg/kg wet 128.0 97 80-120 2 20
Barium 520 9.26 mg/kg wet 536.0 97 80-120 8 20
Cadmium 90.5 1.85 mg/kg wet 99.00 91 80-120 4 20
Chromium 115 3.70 mg/kg wet 116.0 99 80-120 5 20
Lead 283 18.5 mg/kg wet 277.0 102 80-120 6 20
Selenium 207 37.0 mg/kg wet 242.0 85 80-120 12 30
Silver 60.5 1.85 mg/kg wet 64.30 94 80-120 7 20
Zinc 530 9.26 mg/kg wet 561.0 95 80-120 7 20

5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Blank

1,1,1,2-Tetrachloroethane ND 0.0050 mg/kg
1,1,1-Trichloroethane ND 0.0050 mg/kg
1,1,2,2-Tetrachloroethane ND 0.0020 mg/kg
1,1,2-Trichloroethane ND 0.0050 mg/kg
1,1-Dichloroethane ND 0.0050 mg/kg



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

1,1-Dichloroethene	ND	0.0050	mg/kg
1,1-Dichloropropene	ND	0.0050	mg/kg
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg
1,2,3-Trichloropropane	ND	0.0050	mg/kg
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg
1,2-Dibromoethane	ND	0.0050	mg/kg
1,2-Dichlorobenzene	ND	0.0050	mg/kg
1,2-Dichloroethane	ND	0.0050	mg/kg
1,2-Dichloropropane	ND	0.0050	mg/kg
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg
1,3-Dichlorobenzene	ND	0.0050	mg/kg
1,3-Dichloropropane	ND	0.0050	mg/kg
1,4-Dichlorobenzene	ND	0.0050	mg/kg
1,4-Dioxane	ND	0.100	mg/kg
2,2-Dichloropropane	ND	0.0050	mg/kg
2-Butanone	ND	0.0100	mg/kg
2-Chlorotoluene	ND	0.0050	mg/kg
2-Hexanone	ND	0.0100	mg/kg
4-Chlorotoluene	ND	0.0050	mg/kg
4-Isopropyltoluene	ND	0.0050	mg/kg
4-Methyl-2-Pentanone	ND	0.0100	mg/kg
Acetone	ND	0.0100	mg/kg
Benzene	ND	0.0050	mg/kg
Bromobenzene	ND	0.0050	mg/kg
Bromochloromethane	ND	0.0050	mg/kg
Bromodichloromethane	ND	0.0050	mg/kg
Bromoform	ND	0.0050	mg/kg
Bromomethane	ND	0.0100	mg/kg
Carbon Disulfide	ND	0.0050	mg/kg
Carbon Tetrachloride	ND	0.0050	mg/kg
Chlorobenzene	ND	0.0050	mg/kg
Chloroethane	ND	0.0100	mg/kg
Chloroform	ND	0.0050	mg/kg
Chloromethane	ND	0.0100	mg/kg
cis-1,2-Dichloroethene	ND	0.0050	mg/kg
cis-1,3-Dichloropropene	ND	0.0050	mg/kg
Dibromochloromethane	ND	0.0020	mg/kg
Dibromomethane	ND	0.0050	mg/kg
Dichlorodifluoromethane	ND	0.0100	mg/kg
Diethyl Ether	ND	0.0050	mg/kg
Di-isopropyl ether	ND	0.0050	mg/kg
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg
Ethylbenzene	ND	0.0050	mg/kg



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Hexachlorobutadiene	ND	0.0050	mg/kg							
Isopropylbenzene	ND	0.0050	mg/kg							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg							
Methylene Chloride	ND	0.0100	mg/kg							
Naphthalene	ND	0.0050	mg/kg							
n-Butylbenzene	ND	0.0050	mg/kg							
n-Propylbenzene	ND	0.0050	mg/kg							
sec-Butylbenzene	ND	0.0050	mg/kg							
Styrene	ND	0.0050	mg/kg							
tert-Butylbenzene	ND	0.0050	mg/kg							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg							
Tetrachloroethene	ND	0.0050	mg/kg							
Tetrahydrofuran	ND	0.0050	mg/kg							
Toluene	ND	0.0050	mg/kg							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg							
Trichloroethene	ND	0.0050	mg/kg							
Trichlorofluoromethane	ND	0.0050	mg/kg							
Vinyl Chloride	ND	0.0100	mg/kg							
Xylene O	ND	0.0050	mg/kg							
Xylene P,M	ND	0.0100	mg/kg							
Xylenes (Total)	ND	0.0075	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.0499		mg/kg	0.05000		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0468		mg/kg	0.05000		94	70-130			
Surrogate: Dibromofluoromethane	0.0487		mg/kg	0.05000		97	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg	0.05000		98	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0519	0.0050	mg/kg	0.05000		104	70-130			
1,1,1-Trichloroethane	0.0562	0.0050	mg/kg	0.05000		112	70-130			
1,1,2,2-Tetrachloroethane	0.0483	0.0020	mg/kg	0.05000		97	70-130			
1,1,2-Trichloroethane	0.0513	0.0050	mg/kg	0.05000		103	70-130			
1,1-Dichloroethane	0.0536	0.0050	mg/kg	0.05000		107	70-130			
1,1-Dichloroethene	0.0546	0.0050	mg/kg	0.05000		109	70-130			
1,1-Dichloropropene	0.0541	0.0050	mg/kg	0.05000		108	70-130			
1,2,3-Trichlorobenzene	0.0490	0.0050	mg/kg	0.05000		98	70-130			
1,2,3-Trichloropropane	0.0490	0.0050	mg/kg	0.05000		98	70-130			
1,2,4-Trichlorobenzene	0.0504	0.0050	mg/kg	0.05000		101	70-130			
1,2,4-Trimethylbenzene	0.0528	0.0050	mg/kg	0.05000		106	70-130			
1,2-Dibromo-3-Chloropropane	0.0458	0.0050	mg/kg	0.05000		92	70-130			
1,2-Dibromoethane	0.0492	0.0050	mg/kg	0.05000		98	70-130			
1,2-Dichlorobenzene	0.0490	0.0050	mg/kg	0.05000		98	70-130			
1,2-Dichloroethane	0.0508	0.0050	mg/kg	0.05000		102	70-130			
1,2-Dichloropropane	0.0504	0.0050	mg/kg	0.05000		101	70-130			
1,3,5-Trimethylbenzene	0.0515	0.0050	mg/kg	0.05000		103	70-130			
1,3-Dichlorobenzene	0.0497	0.0050	mg/kg	0.05000		99	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

1,3-Dichloropropane	0.0503	0.0050	mg/kg	0.05000		101	70-130			
1,4-Dichlorobenzene	0.0487	0.0050	mg/kg	0.05000		97	70-130			
1,4-Dioxane	1.08	0.100	mg/kg	1.000		108	70-130			
2,2-Dichloropropane	0.0570	0.0050	mg/kg	0.05000		114	70-130			
2-Butanone	0.265	0.0100	mg/kg	0.2500		106	70-130			
2-Chlorotoluene	0.0500	0.0050	mg/kg	0.05000		100	70-130			
2-Hexanone	0.224	0.0100	mg/kg	0.2500		90	70-130			
4-Chlorotoluene	0.0502	0.0050	mg/kg	0.05000		100	70-130			
4-Isopropyltoluene	0.0516	0.0050	mg/kg	0.05000		103	70-130			
4-Methyl-2-Pentanone	0.232	0.0100	mg/kg	0.2500		93	70-130			
Acetone	0.242	0.0100	mg/kg	0.2500		97	70-130			
Benzene	0.0508	0.0050	mg/kg	0.05000		102	70-130			
Bromobenzene	0.0504	0.0050	mg/kg	0.05000		101	70-130			
Bromochloromethane	0.0505	0.0050	mg/kg	0.05000		101	70-130			
Bromodichloromethane	0.0498	0.0050	mg/kg	0.05000		100	70-130			
Bromoform	0.0453	0.0050	mg/kg	0.05000		91	70-130			
Bromomethane	0.0465	0.0100	mg/kg	0.05000		93	70-130			
Carbon Disulfide	0.0564	0.0050	mg/kg	0.05000		113	70-130			
Carbon Tetrachloride	0.0561	0.0050	mg/kg	0.05000		112	70-130			
Chlorobenzene	0.0478	0.0050	mg/kg	0.05000		96	70-130			
Chloroethane	0.0483	0.0100	mg/kg	0.05000		97	70-130			
Chloroform	0.0514	0.0050	mg/kg	0.05000		103	70-130			
Chloromethane	0.0522	0.0100	mg/kg	0.05000		104	70-130			
cis-1,2-Dichloroethene	0.0535	0.0050	mg/kg	0.05000		107	70-130			
cis-1,3-Dichloropropene	0.0539	0.0050	mg/kg	0.05000		108	70-130			
Dibromochloromethane	0.0445	0.0020	mg/kg	0.05000		89	70-130			
Dibromomethane	0.0518	0.0050	mg/kg	0.05000		104	70-130			
Dichlorodifluoromethane	0.0436	0.0100	mg/kg	0.05000		87	70-130			
Diethyl Ether	0.0518	0.0050	mg/kg	0.05000		104	70-130			
Di-isopropyl ether	0.0501	0.0050	mg/kg	0.05000		100	70-130			
Ethyl tertiary-butyl ether	0.0471	0.0050	mg/kg	0.05000		94	70-130			
Ethylbenzene	0.0510	0.0050	mg/kg	0.05000		102	70-130			
Hexachlorobutadiene	0.0523	0.0050	mg/kg	0.05000		105	70-130			
Isopropylbenzene	0.0514	0.0050	mg/kg	0.05000		103	70-130			
Methyl tert-Butyl Ether	0.0506	0.0050	mg/kg	0.05000		101	70-130			
Methylene Chloride	0.0466	0.0100	mg/kg	0.05000		93	70-130			
Naphthalene	0.0489	0.0050	mg/kg	0.05000		98	70-130			
n-Butylbenzene	0.0526	0.0050	mg/kg	0.05000		105	70-130			
n-Propylbenzene	0.0517	0.0050	mg/kg	0.05000		103	70-130			
sec-Butylbenzene	0.0509	0.0050	mg/kg	0.05000		102	70-130			
Styrene	0.0510	0.0050	mg/kg	0.05000		102	70-130			
tert-Butylbenzene	0.0512	0.0050	mg/kg	0.05000		102	70-130			
Tertiary-amyl methyl ether	0.0489	0.0050	mg/kg	0.05000		98	70-130			
Tetrachloroethene	0.0507	0.0050	mg/kg	0.05000		101	70-130			
Tetrahydrofuran	0.0454	0.0050	mg/kg	0.05000		91	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Toluene	0.0510	0.0050	mg/kg	0.05000		102	70-130			
trans-1,2-Dichloroethene	0.0538	0.0050	mg/kg	0.05000		108	70-130			
trans-1,3-Dichloropropene	0.0473	0.0050	mg/kg	0.05000		95	70-130			
Trichloroethene	0.0522	0.0050	mg/kg	0.05000		104	70-130			
Trichlorofluoromethane	0.0544	0.0050	mg/kg	0.05000		109	70-130			
Vinyl Chloride	0.0526	0.0100	mg/kg	0.05000		105	70-130			
Xylene O	0.0469	0.0050	mg/kg	0.05000		94	70-130			
Xylene P,M	0.104	0.0100	mg/kg	0.1000		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0498		mg/kg	0.05000		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0489		mg/kg	0.05000		98	70-130			
Surrogate: Dibromofluoromethane	0.0509		mg/kg	0.05000		102	70-130			
Surrogate: Toluene-d8	0.0487		mg/kg	0.05000		97	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0558	0.0050	mg/kg	0.05000		112	70-130	7	25	
1,1,1-Trichloroethane	0.0566	0.0050	mg/kg	0.05000		113	70-130	0.7	25	
1,1,2,2-Tetrachloroethane	0.0511	0.0020	mg/kg	0.05000		102	70-130	6	25	
1,1,2-Trichloroethane	0.0531	0.0050	mg/kg	0.05000		106	70-130	3	25	
1,1-Dichloroethane	0.0552	0.0050	mg/kg	0.05000		110	70-130	3	25	
1,1-Dichloroethene	0.0565	0.0050	mg/kg	0.05000		113	70-130	3	25	
1,1-Dichloropropene	0.0555	0.0050	mg/kg	0.05000		111	70-130	3	25	
1,2,3-Trichlorobenzene	0.0521	0.0050	mg/kg	0.05000		104	70-130	6	25	
1,2,3-Trichloropropane	0.0521	0.0050	mg/kg	0.05000		104	70-130	6	25	
1,2,4-Trichlorobenzene	0.0535	0.0050	mg/kg	0.05000		107	70-130	6	25	
1,2,4-Trimethylbenzene	0.0549	0.0050	mg/kg	0.05000		110	70-130	4	25	
1,2-Dibromo-3-Chloropropane	0.0492	0.0050	mg/kg	0.05000		98	70-130	7	25	
1,2-Dibromoethane	0.0549	0.0050	mg/kg	0.05000		110	70-130	11	25	
1,2-Dichlorobenzene	0.0513	0.0050	mg/kg	0.05000		103	70-130	5	25	
1,2-Dichloroethane	0.0530	0.0050	mg/kg	0.05000		106	70-130	4	25	
1,2-Dichloropropane	0.0527	0.0050	mg/kg	0.05000		105	70-130	4	25	
1,3,5-Trimethylbenzene	0.0535	0.0050	mg/kg	0.05000		107	70-130	4	25	
1,3-Dichlorobenzene	0.0511	0.0050	mg/kg	0.05000		102	70-130	3	25	
1,3-Dichloropropane	0.0544	0.0050	mg/kg	0.05000		109	70-130	8	25	
1,4-Dichlorobenzene	0.0520	0.0050	mg/kg	0.05000		104	70-130	7	25	
1,4-Dioxane	1.16	0.100	mg/kg	1.000		116	70-130	7	20	
2,2-Dichloropropane	0.0578	0.0050	mg/kg	0.05000		116	70-130	1	25	
2-Butanone	0.284	0.0100	mg/kg	0.2500		113	70-130	7	25	
2-Chlorotoluene	0.0517	0.0050	mg/kg	0.05000		103	70-130	3	25	
2-Hexanone	0.248	0.0100	mg/kg	0.2500		99	70-130	10	25	
4-Chlorotoluene	0.0521	0.0050	mg/kg	0.05000		104	70-130	4	25	
4-Isopropyltoluene	0.0530	0.0050	mg/kg	0.05000		106	70-130	3	25	
4-Methyl-2-Pentanone	0.246	0.0100	mg/kg	0.2500		99	70-130	6	25	
Acetone	0.252	0.0100	mg/kg	0.2500		101	70-130	4	25	
Benzene	0.0524	0.0050	mg/kg	0.05000		105	70-130	3	25	
Bromobenzene	0.0528	0.0050	mg/kg	0.05000		106	70-130	5	25	
Bromochloromethane	0.0536	0.0050	mg/kg	0.05000		107	70-130	6	25	



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90832 - 5035

Bromodichloromethane	0.0514	0.0050	mg/kg	0.05000		103	70-130	3	25	
Bromoform	0.0492	0.0050	mg/kg	0.05000		98	70-130	8	25	
Bromomethane	0.0465	0.0100	mg/kg	0.05000		93	70-130	0.04	25	
Carbon Disulfide	0.0575	0.0050	mg/kg	0.05000		115	70-130	2	25	
Carbon Tetrachloride	0.0566	0.0050	mg/kg	0.05000		113	70-130	0.9	25	
Chlorobenzene	0.0512	0.0050	mg/kg	0.05000		102	70-130	7	25	
Chloroethane	0.0493	0.0100	mg/kg	0.05000		99	70-130	2	25	
Chloroform	0.0527	0.0050	mg/kg	0.05000		105	70-130	2	25	
Chloromethane	0.0523	0.0100	mg/kg	0.05000		105	70-130	0.3	25	
cis-1,2-Dichloroethene	0.0553	0.0050	mg/kg	0.05000		111	70-130	3	25	
cis-1,3-Dichloropropene	0.0566	0.0050	mg/kg	0.05000		113	70-130	5	25	
Dibromochloromethane	0.0476	0.0020	mg/kg	0.05000		95	70-130	7	25	
Dibromomethane	0.0530	0.0050	mg/kg	0.05000		106	70-130	2	25	
Dichlorodifluoromethane	0.0432	0.0100	mg/kg	0.05000		86	70-130	0.8	25	
Diethyl Ether	0.0556	0.0050	mg/kg	0.05000		111	70-130	7	25	
Di-isopropyl ether	0.0529	0.0050	mg/kg	0.05000		106	70-130	5	25	
Ethyl tertiary-butyl ether	0.0496	0.0050	mg/kg	0.05000		99	70-130	5	25	
Ethylbenzene	0.0545	0.0050	mg/kg	0.05000		109	70-130	7	25	
Hexachlorobutadiene	0.0549	0.0050	mg/kg	0.05000		110	70-130	5	25	
Isopropylbenzene	0.0534	0.0050	mg/kg	0.05000		107	70-130	4	25	
Methyl tert-Butyl Ether	0.0540	0.0050	mg/kg	0.05000		108	70-130	6	25	
Methylene Chloride	0.0491	0.0100	mg/kg	0.05000		98	70-130	5	25	
Naphthalene	0.0532	0.0050	mg/kg	0.05000		106	70-130	8	25	
n-Butylbenzene	0.0548	0.0050	mg/kg	0.05000		110	70-130	4	25	
n-Propylbenzene	0.0538	0.0050	mg/kg	0.05000		108	70-130	4	25	
sec-Butylbenzene	0.0524	0.0050	mg/kg	0.05000		105	70-130	3	25	
Styrene	0.0551	0.0050	mg/kg	0.05000		110	70-130	8	25	
tert-Butylbenzene	0.0535	0.0050	mg/kg	0.05000		107	70-130	4	25	
Tertiary-amyl methyl ether	0.0523	0.0050	mg/kg	0.05000		105	70-130	7	25	
Tetrachloroethene	0.0532	0.0050	mg/kg	0.05000		106	70-130	5	25	
Tetrahydrofuran	0.0483	0.0050	mg/kg	0.05000		97	70-130	6	25	
Toluene	0.0534	0.0050	mg/kg	0.05000		107	70-130	5	25	
trans-1,2-Dichloroethene	0.0553	0.0050	mg/kg	0.05000		111	70-130	3	25	
trans-1,3-Dichloropropene	0.0497	0.0050	mg/kg	0.05000		99	70-130	5	25	
Trichloroethene	0.0532	0.0050	mg/kg	0.05000		106	70-130	2	25	
Trichlorofluoromethane	0.0548	0.0050	mg/kg	0.05000		110	70-130	0.9	25	
Vinyl Chloride	0.0522	0.0100	mg/kg	0.05000		104	70-130	0.7	25	
Xylene O	0.0500	0.0050	mg/kg	0.05000		100	70-130	6	25	
Xylene P,M	0.113	0.0100	mg/kg	0.1000		113	70-130	8	25	
Surrogate: 1,2-Dichloroethane-d4	0.0484		mg/kg	0.05000		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0500		mg/kg	0.05000		100	70-130			
Surrogate: Dibromofluoromethane	0.0502		mg/kg	0.05000		100	70-130			
Surrogate: Toluene-d8	0.0498		mg/kg	0.05000		100	70-130			

Batch CH90838 - 5035

Blank



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90838 - 5035

1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0020	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0100	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0100	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0100	mg/kg wet							
Acetone	ND	0.0100	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0020	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							



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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90838 - 5035

Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0100	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0549		mg/kg wet	0.05000		110	70-130			
Surrogate: 4-Bromofluorobenzene	0.0453		mg/kg wet	0.05000		91	70-130			
Surrogate: Dibromofluoromethane	0.0499		mg/kg wet	0.05000		100	70-130			
Surrogate: Toluene-d8	0.0499		mg/kg wet	0.05000		100	70-130			

LCS

1,1,1,2-Tetrachloroethane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
1,1,1-Trichloroethane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
1,1,2,2-Tetrachloroethane	0.0488	0.0020	mg/kg wet	0.05000		98	70-130			
1,1,2-Trichloroethane	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
1,1-Dichloroethane	0.0551	0.0050	mg/kg wet	0.05000		110	70-130			
1,1-Dichloroethene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
1,1-Dichloropropene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
1,2,3-Trichlorobenzene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
1,2,3-Trichloropropane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,2,4-Trichlorobenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
1,2,4-Trimethylbenzene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130			
1,2-Dibromo-3-Chloropropane	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
1,2-Dibromoethane	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
1,2-Dichlorobenzene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			



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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90838 - 5035

1,2-Dichloroethane	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichloropropane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
1,3,5-Trimethylbenzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
1,3-Dichlorobenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
1,3-Dichloropropane	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
1,4-Dichlorobenzene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
1,4-Dioxane	1.02	0.100	mg/kg wet	1.000		102	70-130			
2,2-Dichloropropane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
2-Butanone	0.257	0.0100	mg/kg wet	0.2500		103	70-130			
2-Chlorotoluene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
2-Hexanone	0.241	0.0100	mg/kg wet	0.2500		96	70-130			
4-Chlorotoluene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
4-Isopropyltoluene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
4-Methyl-2-Pentanone	0.237	0.0100	mg/kg wet	0.2500		95	70-130			
Acetone	0.264	0.0100	mg/kg wet	0.2500		106	70-130			
Benzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Bromobenzene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
Bromochloromethane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Bromodichloromethane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
Bromoform	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
Bromomethane	0.0468	0.0100	mg/kg wet	0.05000		94	70-130			
Carbon Disulfide	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Carbon Tetrachloride	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Chlorobenzene	0.0476	0.0050	mg/kg wet	0.05000		95	70-130			
Chloroethane	0.0499	0.0100	mg/kg wet	0.05000		100	70-130			
Chloroform	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Chloromethane	0.0495	0.0100	mg/kg wet	0.05000		99	70-130			
cis-1,2-Dichloroethene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
cis-1,3-Dichloropropene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
Dibromochloromethane	0.0453	0.0020	mg/kg wet	0.05000		91	70-130			
Dibromomethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Dichlorodifluoromethane	0.0423	0.0100	mg/kg wet	0.05000		85	70-130			
Diethyl Ether	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Di-isopropyl ether	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Ethyl tertiary-butyl ether	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
Ethylbenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
Hexachlorobutadiene	0.0476	0.0050	mg/kg wet	0.05000		95	70-130			
Isopropylbenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
Methyl tert-Butyl Ether	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
Methylene Chloride	0.0555	0.0100	mg/kg wet	0.05000		111	70-130			
Naphthalene	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
n-Butylbenzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
n-Propylbenzene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
sec-Butylbenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
Styrene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90838 - 5035

tert-Butylbenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
Tertiary-amyl methyl ether	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
Tetrachloroethene	0.0400	0.0050	mg/kg wet	0.05000		80	70-130			
Tetrahydrofuran	0.0473	0.0050	mg/kg wet	0.05000		95	70-130			
Toluene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
trans-1,2-Dichloroethene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130			
trans-1,3-Dichloropropene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Trichloroethene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Trichlorofluoromethane	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
Vinyl Chloride	0.0463	0.0100	mg/kg wet	0.05000		93	70-130			
Xylene O	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Xylene P,M	0.0979	0.0100	mg/kg wet	0.1000		98	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0526		mg/kg wet	0.05000		105	70-130			
Surrogate: 4-Bromofluorobenzene	0.0491		mg/kg wet	0.05000		98	70-130			
Surrogate: Dibromofluoromethane	0.0524		mg/kg wet	0.05000		105	70-130			
Surrogate: Toluene-d8	0.0492		mg/kg wet	0.05000		98	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	10	20	
1,1,1-Trichloroethane	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	12	20	
1,1,2,2-Tetrachloroethane	0.0554	0.0020	mg/kg wet	0.05000		111	70-130	13	20	
1,1,2-Trichloroethane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	8	20	
1,1-Dichloroethane	0.0606	0.0050	mg/kg wet	0.05000		121	70-130	10	20	
1,1-Dichloroethene	0.0590	0.0050	mg/kg wet	0.05000		118	70-130	15	20	
1,1-Dichloropropene	0.0603	0.0050	mg/kg wet	0.05000		121	70-130	12	20	
1,2,3-Trichlorobenzene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	12	20	
1,2,3-Trichloropropane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	12	20	
1,2,4-Trichlorobenzene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	12	20	
1,2,4-Trimethylbenzene	0.0580	0.0050	mg/kg wet	0.05000		116	70-130	11	20	
1,2-Dibromo-3-Chloropropane	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	19	20	
1,2-Dibromoethane	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	9	20	
1,2-Dichlorobenzene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	10	20	
1,2-Dichloroethane	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	7	20	
1,2-Dichloropropane	0.0570	0.0050	mg/kg wet	0.05000		114	70-130	7	20	
1,3,5-Trimethylbenzene	0.0574	0.0050	mg/kg wet	0.05000		115	70-130	12	20	
1,3-Dichlorobenzene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	10	20	
1,3-Dichloropropane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	9	20	
1,4-Dichlorobenzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	9	20	
1,4-Dioxane	1.23	0.100	mg/kg wet	1.000		123	70-130	18	20	
2,2-Dichloropropane	0.0580	0.0050	mg/kg wet	0.05000		116	70-130	11	20	
2-Butanone	0.277	0.0100	mg/kg wet	0.2500		111	70-130	7	20	
2-Chlorotoluene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	11	20	
2-Hexanone	0.289	0.0100	mg/kg wet	0.2500		116	70-130	18	20	
4-Chlorotoluene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	10	20	
4-Isopropyltoluene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	13	20	
4-Methyl-2-Pentanone	0.276	0.0100	mg/kg wet	0.2500		110	70-130	15	20	



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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90838 - 5035

Acetone	0.321	0.0100	mg/kg wet	0.2500		128	70-130	19	20	
Benzene	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	9	20	
Bromobenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	8	20	
Bromochloromethane	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	6	20	
Bromodichloromethane	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	8	20	
Bromoform	0.0470	0.0050	mg/kg wet	0.05000		94	70-130	9	20	
Bromomethane	0.0489	0.0100	mg/kg wet	0.05000		98	70-130	4	20	
Carbon Disulfide	0.0616	0.0050	mg/kg wet	0.05000		123	70-130	12	20	
Carbon Tetrachloride	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	13	20	
Chlorobenzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	10	20	
Chloroethane	0.0553	0.0100	mg/kg wet	0.05000		111	70-130	10	20	
Chloroform	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	9	20	
Chloromethane	0.0547	0.0100	mg/kg wet	0.05000		109	70-130	10	20	
cis-1,2-Dichloroethene	0.0572	0.0050	mg/kg wet	0.05000		114	70-130	8	20	
cis-1,3-Dichloropropene	0.0592	0.0050	mg/kg wet	0.05000		118	70-130	7	20	
Dibromochloromethane	0.0496	0.0020	mg/kg wet	0.05000		99	70-130	9	20	
Dibromomethane	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	7	20	
Dichlorodifluoromethane	0.0488	0.0100	mg/kg wet	0.05000		98	70-130	14	20	
Diethyl Ether	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	7	20	
Di-isopropyl ether	0.0580	0.0050	mg/kg wet	0.05000		116	70-130	7	20	
Ethyl tertiary-butyl ether	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	6	20	
Ethylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	12	20	
Hexachlorobutadiene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	18	20	
Isopropylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	12	20	
Methyl tert-Butyl Ether	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	7	20	
Methylene Chloride	0.0595	0.0100	mg/kg wet	0.05000		119	70-130	7	20	
Naphthalene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	16	20	
n-Butylbenzene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	14	20	
n-Propylbenzene	0.0574	0.0050	mg/kg wet	0.05000		115	70-130	12	20	
sec-Butylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	14	20	
Styrene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	9	20	
tert-Butylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	13	20	
Tertiary-amyl methyl ether	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	6	20	
Tetrachloroethene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	14	20	
Tetrahydrofuran	0.0585	0.0050	mg/kg wet	0.05000		117	70-130	21	20	D+
Toluene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	10	20	
trans-1,2-Dichloroethene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	12	20	
trans-1,3-Dichloropropene	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	7	20	
Trichloroethene	0.0570	0.0050	mg/kg wet	0.05000		114	70-130	11	20	
Trichlorofluoromethane	0.0612	0.0050	mg/kg wet	0.05000		122	70-130	13	20	
Vinyl Chloride	0.0524	0.0100	mg/kg wet	0.05000		105	70-130	12	20	
Xylene O	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	11	20	
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130	12	20	
Surrogate: 1,2-Dichloroethane-d4	0.0527		mg/kg wet	0.05000		105	70-130			
Surrogate: 4-Bromofluorobenzene	0.0493		mg/kg wet	0.05000		99	70-130			



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5035/8260B Volatile Organic Compounds / Low Level

Batch CH90838 - 5035

Surrogate: Dibromofluoromethane	0.0520		mg/kg wet	0.05000		104	70-130			
Surrogate: Toluene-d8	0.0488		mg/kg wet	0.05000		98	70-130			

8082A Polychlorinated Biphenyls (PCB)

Batch CH91210 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0213		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0275		mg/kg wet	0.02500		110	30-150			
Surrogate: Tetrachloro-m-xylene	0.0182		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0218		mg/kg wet	0.02500		87	30-150			

LCS

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		89	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		99	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		100	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		92	40-140			

Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0256		mg/kg wet	0.02500		103	30-150			
Surrogate: Tetrachloro-m-xylene	0.0200		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0224		mg/kg wet	0.02500		89	30-150			

LCS Dup

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		88	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140	2	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		98	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		94	40-140	2	30	



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8082A Polychlorinated Biphenyls (PCB)

Batch CH91210 - 3540C

Surrogate: Decachlorobiphenyl	0.0224		mg/kg wet	0.02500		90	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0241		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0198		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0222		mg/kg wet	0.02500		89	30-150			

Batch CH91211 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0232		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0172		mg/kg wet	0.02500		69	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0186		mg/kg wet	0.02500		74	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			

Surrogate: Decachlorobiphenyl	0.0244		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0250		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0205		mg/kg wet	0.02500		82	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140	0.2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	0.8	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	1	30	



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8082A Polychlorinated Biphenyls (PCB)

Batch CH91211 - 3540C

Surrogate: Decachlorobiphenyl	0.0244		mg/kg wet	0.02500		97	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0249		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0193		mg/kg wet	0.02500		77	30-150			

Batch CH91550 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0206		mg/kg wet	0.02500		82	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140			

Surrogate: Decachlorobiphenyl	0.0226		mg/kg wet	0.02500		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0224		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0201		mg/kg wet	0.02500		80	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140	0.6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		93	40-140	2	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140	2	30	



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8082A Polychlorinated Biphenyls (PCB)

Batch CH91550 - 3540C

Surrogate: Decachlorobiphenyl	0.0230		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0189		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0191		mg/kg wet	0.02500		77	30-150			

Batch CH91552 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0194		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0205		mg/kg wet	0.02500		82	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		84	40-140			

Surrogate: Decachlorobiphenyl	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0214		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0209		mg/kg wet	0.02500		83	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		103	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	0.4	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		94	40-140	3	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140	5	30	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH91552 - 3540C

Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0212		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0213		mg/kg wet	0.02500		85	30-150			

Classical Chemistry

Batch CH90746 - General Preparation

Blank

Hexavalent Chromium	ND	0.7	mg/kg wet							
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LCS

Hexavalent Chromium	32.5	0.7	mg/kg wet	33.32		97	80-120			
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LCS Dup

Hexavalent Chromium	32.8	0.7	mg/kg wet	33.32		99	80-120	1	20	
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Reference

Hexavalent Chromium	77.0	2.0	mg/kg wet	71.00		108	20.3-222.5			
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90862 - 3546

Blank

C19-C36 Aliphatics1	ND	8.0	mg/kg wet							
C9-C18 Aliphatics1	ND	8.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacotane (C30)	ND	0.5	mg/kg wet							

Surrogate: 1-Chlorooctadecane	1.62		mg/kg wet	2.020		80	40-140			
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Blank

2-Methylnaphthalene	ND	0.20	mg/kg wet							
Acenaphthene	ND	0.40	mg/kg wet							
Acenaphthylene	ND	0.20	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH90862 - 3546

Benzo(a)pyrene	ND	0.40	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	8.00	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.20	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.40	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							
Surrogate: 2-Bromonaphthalene	48.8		mg/L	50.00		98	40-140			
Surrogate: 2-Fluorobiphenyl	39.8		mg/L	50.00		80	40-140			
Surrogate: O-Terphenyl	1.48		mg/kg wet	2.008		74	40-140			

LCS

C19-C36 Aliphatics1	13.9	15.0	mg/kg wet	16.00		87	40-140			
C9-C18 Aliphatics1	8.4	15.0	mg/kg wet	12.00		70	40-140			
Decane (C10)	1.0	0.5	mg/kg wet	2.000		48	40-140			
Docosane (C22)	1.6	0.5	mg/kg wet	2.000		82	40-140			
Dodecane (C12)	1.1	0.5	mg/kg wet	2.000		53	40-140			
Eicosane (C20)	1.6	0.5	mg/kg wet	2.000		80	40-140			
Hexacosane (C26)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Hexadecane (C16)	1.4	0.5	mg/kg wet	2.000		72	40-140			
Hexatriacontane (C36)	1.6	0.5	mg/kg wet	2.000		78	40-140			
Nonadecane (C19)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonane (C9)	0.8	0.5	mg/kg wet	2.000		39	30-140			
Octacosane (C28)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Octadecane (C18)	1.6	0.5	mg/kg wet	2.000		78	40-140			
Tetracosane (C24)	1.6	0.5	mg/kg wet	2.000		81	40-140			
Tetradecane (C14)	1.3	0.5	mg/kg wet	2.000		63	40-140			
triacontane (C30)	1.6	0.5	mg/kg wet	2.000		79	40-140			

Surrogate: 1-Chlorooctadecane

1.70 mg/kg wet 2.020 84 40-140

LCS

2-Methylnaphthalene	1.35	0.20	mg/kg wet	2.000		68	40-140			
Acenaphthene	1.39	0.40	mg/kg wet	2.000		70	40-140			
Acenaphthylene	1.50	0.20	mg/kg wet	2.000		75	40-140			
Anthracene	1.71	0.40	mg/kg wet	2.000		86	40-140			
Benzo(a)anthracene	1.65	0.40	mg/kg wet	2.000		83	40-140			
Benzo(a)pyrene	1.54	0.40	mg/kg wet	2.000		77	40-140			
Benzo(b)fluoranthene	1.60	0.40	mg/kg wet	2.000		80	40-140			
Benzo(g,h,i)perylene	1.37	0.40	mg/kg wet	2.000		68	40-140			
Benzo(k)fluoranthene	1.65	0.40	mg/kg wet	2.000		83	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90862 - 3546										
C11-C22 Unadjusted Aromatics1	27.0	15.0	mg/kg wet	34.00		79	40-140			
Chrysene	1.72	0.40	mg/kg wet	2.000		86	40-140			
Dibenzo(a,h)Anthracene	1.63	0.20	mg/kg wet	2.000		81	40-140			
Fluoranthene	1.68	0.40	mg/kg wet	2.000		84	40-140			
Fluorene	1.56	0.40	mg/kg wet	2.000		78	40-140			
Indeno(1,2,3-cd)Pyrene	1.54	0.40	mg/kg wet	2.000		77	40-140			
Naphthalene	1.22	0.40	mg/kg wet	2.000		61	40-140			
Phenanthrene	1.66	0.40	mg/kg wet	2.000		83	40-140			
Pyrene	1.68	0.40	mg/kg wet	2.000		84	40-140			
Surrogate: 2-Bromonaphthalene	54.5		mg/L	50.00		109	40-140			
Surrogate: 2-Fluorobiphenyl	47.1		mg/L	50.00		94	40-140			
Surrogate: O-Terphenyl	1.52		mg/kg wet	2.008		76	40-140			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS Dup										
C19-C36 Aliphatics1	14.7	15.0	mg/kg wet	16.00		92	40-140	6	25	
C9-C18 Aliphatics1	9.0	15.0	mg/kg wet	12.00		75	40-140	7	25	
Decane (C10)	1.0	0.5	mg/kg wet	2.000		52	40-140	8	25	
Docosane (C22)	1.7	0.5	mg/kg wet	2.000		87	40-140	6	25	
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		58	40-140	10	25	
Eicosane (C20)	1.7	0.5	mg/kg wet	2.000		85	40-140	7	25	
Hexacosane (C26)	1.7	0.5	mg/kg wet	2.000		86	40-140	6	25	
Hexadecane (C16)	1.6	0.5	mg/kg wet	2.000		79	40-140	9	25	
Hexatriacontane (C36)	1.7	0.5	mg/kg wet	2.000		83	40-140	6	25	
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		84	40-140	7	25	
Nonane (C9)	0.8	0.5	mg/kg wet	2.000		42	30-140	7	25	
Octacosane (C28)	1.7	0.5	mg/kg wet	2.000		86	40-140	6	25	
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		84	40-140	7	25	
Tetracosane (C24)	1.7	0.5	mg/kg wet	2.000		86	40-140	6	25	
Tetradecane (C14)	1.4	0.5	mg/kg wet	2.000		69	40-140	10	25	
Triacontane (C30)	1.7	0.5	mg/kg wet	2.000		84	40-140	6	25	
Surrogate: 1-Chlorooctadecane	1.78		mg/kg wet	2.020		88	40-140			
LCS Dup										
2-Methylnaphthalene	1.47	0.20	mg/kg wet	2.000		74	40-140	9	30	
Acenaphthene	1.52	0.40	mg/kg wet	2.000		76	40-140	9	30	
Acenaphthylene	1.61	0.20	mg/kg wet	2.000		81	40-140	7	30	
Anthracene	1.88	0.40	mg/kg wet	2.000		94	40-140	10	30	
Benzo(a)anthracene	1.81	0.40	mg/kg wet	2.000		91	40-140	9	30	
Benzo(a)pyrene	1.72	0.40	mg/kg wet	2.000		86	40-140	11	30	
Benzo(b)fluoranthene	1.79	0.40	mg/kg wet	2.000		89	40-140	11	30	
Benzo(g,h,i)perylene	1.53	0.40	mg/kg wet	2.000		77	40-140	12	30	
Benzo(k)fluoranthene	1.79	0.40	mg/kg wet	2.000		90	40-140	8	30	
C11-C22 Unadjusted Aromatics1	30.1	15.0	mg/kg wet	34.00		89	40-140	11	25	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH90862 - 3546										
Chrysene	1.88	0.40	mg/kg wet	2.000		94	40-140	9	30	
Dibenzo(a,h)Anthracene	1.82	0.20	mg/kg wet	2.000		91	40-140	11	30	
Fluoranthene	1.86	0.40	mg/kg wet	2.000		93	40-140	10	30	
Fluorene	1.74	0.40	mg/kg wet	2.000		87	40-140	11	30	
Indeno(1,2,3-cd)Pyrene	1.69	0.40	mg/kg wet	2.000		85	40-140	10	30	
Naphthalene	1.32	0.40	mg/kg wet	2.000		66	40-140	8	30	
Phenanthrene	1.84	0.40	mg/kg wet	2.000		92	40-140	10	30	
Pyrene	1.85	0.40	mg/kg wet	2.000		92	40-140	10	30	
Surrogate: 2-Bromonaphthalene	54.4		mg/L	50.00		109	40-140			
Surrogate: 2-Fluorobiphenyl	47.6		mg/L	50.00		95	40-140			
Surrogate: O-Terphenyl	1.68		mg/kg wet	2.008		84	40-140			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

Notes and Definitions

- Z-10 Soil pH measured in water at 21.6 °C.
- WL Results obtained from a deionized water leach of the sample.
- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- P Percent difference between primary and confirmation results exceeds 40% (P).
- LC Lower value is used due to matrix interferences (LC).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0200

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0200
 Date Received: 8/7/2019
 Project Due Date: 8/14/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 4.8 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: 8/7/19 Time: 2015
 b. Low Level VOA vials frozen: By: [Signature]

Sample Receiving Notes:

First 2 samples on COC (not numbered) are duplicates of samples 6 & 7 on job 19H0202

Only 1 jar rec'd for Hex Cr

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	374574	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	374961	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	374962	Yes	NA	Yes	VOA Vial - Other	Other	
01	374963	Yes	NA	Yes	VOA Vial - Other	Other	
02	374573	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	374572	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	374571	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	374570	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	374569	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	374568	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	374567	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	374566	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials [Signature]
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0200

Date Received: 8/7/2019

Completed By: [Signature]

Date & Time: 8/7/19 2001

Reviewed By: [Signature]

Date & Time: 8/7/19 2015

Delivered By: [Signature]

Date & Time: 8/7/19 2015

1940200

Chain-of-Custody Record Laboratory: **ESS** Laboratory Job # (Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information
 Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**
 Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csafedas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Page 2 of 3
BRL

MCP PRESUMPTIVE CERTAINTY REQUIRED **YES** ~~NO~~ **BRL**

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative							
None	None	None	None	None	None	None	None
PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, Hg)	PCBs (aqueous)	MS/MSD RCRA 8 metals	CRVI	VOC (High, Low)	ORP/PH
					X		
					X		
			X				
	X	X			X	X	X
X							
X							
X							
X							
X							
X							
X							

Sample Handling

Samples Field Filtered YES NO NA
 Sampled Shipped With Ice YES NO NA
 Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, Hg)	PCBs (aqueous)	MS/MSD RCRA 8 metals	CRVI	VOC (High, Low)	ORP/PH	Sample Specific Remarks
		Date	Time												
1	1802441-SVA-06(0-1)	08/07/19	0800	SO	1	DAL									
2	1802441-SVA-06(1-2)	08/07/19	0805	SO	1	BRL									
3	1802441-EB-07	08/07/19	0810	Water	1	BRL				X					Equip. Blank
4	1802441-SVA-05(5-7)	08/07/19	1000	SO	4	BRL		X	X			X	X	X	
5	1802441-SVA-05(3-5)	08/07/19	0955	SO	1	BRL	X								
6	1802441-SVA-05W(0-0.5)	8/7/19	1020	SO	1	BRL	X								
7	1802441-SVA-05W(1-2)	8/7/19	1025	SO	1	BRL	X								
8	1802441-SVA-05W(2-3)	8/7/19	1030	SO	1	BRL	X								
9	1802441-SVA-05W(3-5)	8/7/19	1035	SO	1	BRL	X								
10	1802441-SVA-05E(0-0.5)	8/7/19	0915	SO	1	BRL	X								
11	1802441-SVA-05E(1-2)	8/7/19	0920	SO	1	BRL	X								
12	1802441-SVA-05E(2-3)	8/7/19	0925	SO	1	BRL	X								

BFM
 BFM
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 BRL
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MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature) 1. [Signature]	Date: 08/07/19	Time: 1330	Received by: (signature) 1. GEI Refrigerator - DAL [Signature]
Relinquished by: (signature) 2. [Signature]	Date: 8/7/19	Time: 18:57	Received by: (signature) 2. [Signature] 8/19 1935
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Turnaround Time (Business days):
 Normal Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

ICE Ramp: 4.8

~~19H0202~~

Chain-of-Custody Record Laboratory: **ESS** Laboratory Job # **(Lab use only)**

Project Information

Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**

Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

None	None	None	None	None	None	DF	MeOH
------	------	------	------	------	------	----	------

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO **BRL**

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)	MS/MSD RCRA 8 metals	VOC (High/Low)	Sample Handling	
		Date	Time										YES	NO
10 13	1802441-TB-1	8/7/19	1209	Liquids Solid	2	BRL						X	YES	NO <input checked="" type="checkbox"/>
													YES	NO

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature) 1. <i>[Signature]</i>	Date: 08/07/19	Time: 1330	Received by: (signature) 1. <i>[Signature]</i> BAL
Relinquished by: (signature) 2. <i>[Signature]</i>	Date: 8/7/19	Time: 18157	Received by: (signature) 2. <i>[Signature]</i> 8/19 1935
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Turnaround Time (Business days):
 Normal Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.
 *LLB 8/13/19

icc temp 4-8

1940200

Chain-of-Custody Record Laboratory: **ESS** Laboratory Job # (Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information
Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**
Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csafed@geiconsultants.com, blee@geiconsultants.com
Send EDD to: EastRegionData@geiconsultants.com

Page 2 of 3
BRL

Sample Handling
Samples Field Filtered: YES NO NA
Sampled Shipped With Ice: YES NO
Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO BRL
If Yes, Are MCP Analytical Methods Required? YES NO NA
Are Drinking Water Samples Submitted? YES NO NA
If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative	None	None	None	None	None	None	None	None	None
PCBs (8082)									
EPH with Target PAHs (MAEPH)									
RCRA 8 Metals plus Zinc (6010, 7471, Hg)									
PCBs (aqueous)									
MS/MSD RCRA 8 metals									
CRVI									
VOC (High, Low)									
ORP/PH									

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials
		Date	Time			
1	1802441-SVA-06(0-1)	08/07/19	0800	SO	1	DAL
2	1802441-SVA-06(1-2)	08/07/19	0805	SO	1	BRL
3	1802441-EB-07	06/07/19	0410	Water	1	BRL
4	1802441-SVA-05(5-7)	08/07/19	1000	SO	4	BRL
5	1802441-SVA-05(3-5)	08/07/19	0955	SO	1	BRL
6	1802441-SVA-05W(0-0.5)	8/7/19	1020	SO	1	BRL
7	1802441-SVA-05W(1-2)	8/7/19	1025	SO	1	BRL
8	1802441-SVA-05W(2-3)	8/7/19	1030	SO	1	BRL
9	1802441-SVA-05W(3-5)	8/7/19	1035	SO	1	BRL
10	1802441-SVA-05E(0-0.5)	8/7/19	0915	SO	1	BRL
11	1802441-SVA-05E(1-2)	8/7/19	0920	SO	1	BRL
12	1802441-SVA-05E(2-3)	8/7/19	0925	SO	1	BRL

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature) 1. [Signature]	Date: 08/07/19	Time: 1330	Received by: (signature) 1. [Signature]
Relinquished by: (signature) 2. [Signature]	Date: 8/7/19	Time: 18:57	Received by: (signature) 2. [Signature]
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Turnaround Time (Business days):
Normal Other ___
10-Day ___ 7-Day ___
5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

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CC-RMP: 4.8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0201

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 1:05 pm, Aug 12, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0201

SAMPLE RECEIPT

The following samples were received on August 07, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0201-01	1802441-EB-07	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0201

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0201

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0201

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0201-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 09, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-07
Date Sampled: 08/07/19 08:10
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19H0201
ESS Laboratory Sample ID: 19H0201-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: CAD
Prepared: 8/8/19 11:35

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1221	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1232	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1242	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1248	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1254	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1260	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1262	ND (0.09)		8082A		1	08/09/19 1:09		CH90710
Aroclor 1268	ND (0.09)		8082A		1	08/09/19 1:09		CH90710

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	90 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	83 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	59 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	67 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0201

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90710 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

Surrogate: Decachlorobiphenyl	0.0396		ug/L	0.05000		79	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0360		ug/L	0.05000		72	30-150			
Surrogate: Tetrachloro-m-xylene	0.0272		ug/L	0.05000		54	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0282		ug/L	0.05000		56	30-150			

LCS

Aroclor 1016	0.91	0.10	ug/L	1.000		91	40-140			
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140			
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0478		ug/L	0.05000		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0441		ug/L	0.05000		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0289		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0302		ug/L	0.05000		60	30-150			

LCS Dup

Aroclor 1016	0.92	0.10	ug/L	1.000		92	40-140	0.8	20	
Aroclor 1016 [2C]	0.91	0.10	ug/L	1.000		91	40-140	2	20	
Aroclor 1260	0.97	0.10	ug/L	1.000		97	40-140	0.2	20	
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140	0.4	20	

Surrogate: Decachlorobiphenyl	0.0460		ug/L	0.05000		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0423		ug/L	0.05000		85	30-150			
Surrogate: Tetrachloro-m-xylene	0.0315		ug/L	0.05000		63	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0327		ug/L	0.05000		65	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0201

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0201

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0201

Date Received: 8/7/2019

Project Due Date: 8/14/2019

Days for Project: 5 Day

Shipped/Delivered Via: ESS Courier

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 4.8 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about **short holds & rushes**? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No / NA
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	374578	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Initials W
- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/7/19 1958
 Reviewed By: [Signature] Date & Time: 8/7/19 2012
 Delivered By: [Signature] Date & Time: 8/7/19 2012

1940201

Chain-of-Custody Record Laboratory: ESS Laboratory Job # (Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

2
Page 4 of 3
BRL

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO BRL

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative		None	None	None	None	None	None	None	None	None
PCBs (8082)	EPH with Target PAHs (MAEPH)									
	RCRA 8 Metals plus Zinc (6010, 7471 (Hg))									
	PCBs (aqueous)									
	MSMSD RCRA 8 metals									
	CRVI									
	VOC (High/Low)									
	ORP/PH									

Sample Handling

Samples Field Filtered YES NO NA

Sampled Shipped With Ice YES NO

Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 (Hg))	PCBs (aqueous)	MSMSD RCRA 8 metals	CRVI	VOC (High/Low)	ORP/PH
		Date	Time											
	1802441-SVA-06(0-1)	08/07/19	0800	SO	1	BAL								
	1802441-SVA-06(1-2)	08/07/19	0805	SO	1	BRL								
1	1802441-EB-07	08/07/19	0410	Water	1	BRL			X					
	1802441-SVA-05(5-7)	08/07/19	1000	SO	4	BRL		X	X			X	X	X
BRL	1802441-SVA-05(1-3)	08/07/19	0800											
	1802441-SVA-05(3-5)	08/07/19	0955	SO	1	BRL	X							
	1802441-SVA-05W(0-0.5)	8/7/19	1020	SO	1	BRL	X							
	1802441-SVA-05W(1-2)	8/7/19	1025	SO	1	BRL	X							
	1802441-SVA-05W(2-3)	8/7/19	1030	SO	1	BRL	X							
	1802441-SVA-05W(3-5)	8/7/19	1035	SO	1	BRL	X							
	1802441-SVA-05E(0-0.5)	8/7/19	0915	SO	1	BRL	X							
	1802441-SVA-05E(1-2)	8/7/19	0920	SO	1	BRL	X							
	1802441-SVA-05E(2-3)	8/7/19	0925	SO	1	BRL	X							

Equip. Blank

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal Other
 10-Day 7-Day
 5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) 1. [Signature]	Date: 08/07/19	Time: 1330	Received by: (signature) 1. [Signature]
Relinquished by: (signature) 2. [Signature]	Date: 8/7/19	Time: 1857	Received by: (signature) 2. [Signature]
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

ICC Ramp: 4.8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0202

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 2:24 pm, Aug 27, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

SAMPLE RECEIPT

The following samples were received on August 07, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Low Level VOA vials were frozen by ESS Laboratory on 8/7/19 at 20:15.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Revision 1 August 27, 2019: This report has been revised to include Total Chromium on samples 19H0202-06 and 19H0202-07 per client's request.

Lab Number	Sample Name	Matrix	Analysis
19H0202-01	1802441-SVA-05E 3-5	Soil	8082A
19H0202-02	1802441-SVA-05N 0-0.5	Soil	8082A
19H0202-03	1802441-SVA-05N 1-2	Soil	8082A
19H0202-04	1802441-SVA-05N 2-3	Soil	8082A
19H0202-05	1802441-SVA-05N 3-5	Soil	8082A
19H0202-06	1802441-SVA-06 0-1	Soil	2580, 6010C, 7196A, 9045
19H0202-07	1802441-SVA-06 1-2	Soil	2580, 6010C, 7196A, 9045
19H0202-08	1802441-SP01-1 4-5	Soil	8082A
19H0202-09	1802441-SP01-3 2-3	Soil	8082A
19H0202-10	1802441-SP01-2 3-4	Soil	8082A
19H0202-11	1802441-FD-16	Soil	8082A
19H0202-12	1802441-FD-15	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0202-04 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1260 [2C]
- 19H0202-04 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1260 [2C]
- 19H0202-04 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (2640% @ 30-150%)
- 19H0202-08 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242
- 19H0202-08 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242
- 19H0202-08 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (215% @ 30-150%)
- 19H0202-09 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (289% @ 30-150%)
- 19H0202-10 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19H0202-10 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19H0202-10 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (642% @ 30-150%)
- 19H0202-11 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (300% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0202-01 through 19H0202-12**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input checked="" type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

***All negative responses must be addressed in an attached laboratory narrative.**

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 19, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05E 3-5
Date Sampled: 08/07/19 08:30
Percent Solids: 62
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1221	ND (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1232	ND (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1242	ND (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1248	ND (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1254 [2C]	0.4 (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1260	0.1 (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1262	ND (0.08)		8082A		1	08/16/19 11:08		CH91550
Aroclor 1268	ND (0.08)		8082A		1	08/16/19 11:08		CH91550

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	44 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	45 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SVA-05N 0-0.5
 Date Sampled: 08/07/19 08:50
 Percent Solids: 92
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
 ESS Laboratory Sample ID: 19H0202-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 17:37		CH91211
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 17:37		CH91211
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 17:37		CH91211
Aroclor 1242	0.4 (0.06)		8082A		1	08/13/19 17:37		CH91211
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 17:37		CH91211
Aroclor 1254	ND (0.06)		8082A		1	08/13/19 17:37		CH91211
Aroclor 1260	1.9 (0.3)		8082A		5	08/15/19 21:09		CH91211
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 17:37		CH91211
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 17:37		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	39 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	41 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	36 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	44 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05N 1-2
Date Sampled: 08/07/19 08:55
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/13/19 17:56		CH91211
Aroclor 1221	ND (0.06)		8082A		1	08/13/19 17:56		CH91211
Aroclor 1232	ND (0.06)		8082A		1	08/13/19 17:56		CH91211
Aroclor 1242	0.4 (0.06)		8082A		1	08/13/19 17:56		CH91211
Aroclor 1248	ND (0.06)		8082A		1	08/13/19 17:56		CH91211
Aroclor 1254	ND (0.06)		8082A		1	08/13/19 17:56		CH91211
Aroclor 1260	3.2 (0.3)		8082A		5	08/15/19 21:28		CH91211
Aroclor 1262	ND (0.06)		8082A		1	08/13/19 17:56		CH91211
Aroclor 1268	ND (0.06)		8082A		1	08/13/19 17:56		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	38 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	34 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	44 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SVA-05N 2-3
 Date Sampled: 08/07/19 09:00
 Percent Solids: 88
 Initial Volume: 20.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
 ESS Laboratory Sample ID: 19H0202-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 18:15		CH91211
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 18:15		CH91211
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 18:15		CH91211
Aroclor 1242	0.6 (0.05)		8082A		1	08/13/19 18:15		CH91211
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 18:15		CH91211
Aroclor 1254	ND (0.05)		8082A		1	08/13/19 18:15		CH91211
Aroclor 1260 [2C]	P, LC 2.8 (0.3)		8082A		5	08/15/19 21:48		CH91211
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 18:15		CH91211
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 18:15		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	54 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	2640 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	49 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	55 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05N 3-5
Date Sampled: 08/07/19 09:05
Percent Solids: 83
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1221	ND (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1232	ND (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1242	ND (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1248	ND (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1254 [2C]	1.2 (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1260	1.0 (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1262	ND (0.06)		8082A		1	08/16/19 11:27		CH91550
Aroclor 1268	ND (0.06)		8082A		1	08/16/19 11:27		CH91550

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	69 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	32 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	32 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-06 0-1
Date Sampled: 08/07/19 08:00
Percent Solids: 96

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Chromium	67.8 (0.93)		6010C		1	KJK	08/21/19 15:04	2.23	100	CH92052



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-06 0-1
Date Sampled: 08/07/19 08:00
Percent Solids: 96

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-06
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	8.30 (N/A)		9045		1	CCP	08/07/19 22:03	S.U.	CH90743
Corrosivity (pH) Sample Temp	Soil pH measured in water at 21.7								
Eh (ORP)	WL 331 (N/A)		2580		1	CCP	08/07/19 22:03	mv	CH90766
Hexavalent Chromium	ND (0.5)		7196A		1	CCP	08/07/19 20:48	mg/kg dry	CH90746



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-06 1-2
Date Sampled: 08/07/19 08:05
Percent Solids: 91

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-07
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Chromium	40.7 (1.05)		6010C		1	KJK	08/21/19 15:20	2.1	100	CH92052



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-06 1-2
Date Sampled: 08/07/19 08:05
Percent Solids: 91

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-07
Sample Matrix: Soil

Classical Chemistry

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Corrosivity (pH)	7.71 (N/A)		9045		1	CCP	08/07/19 22:03	S.U.	CH90743
Corrosivity (pH) Sample Temp	Soil pH measured in water at 21.6								
Eh (ORP)	WL 330 (N/A)		2580		1	CCP	08/07/19 22:03	mv	CH90766
Hexavalent Chromium	ND (0.5)		7196A		1	CCP	08/07/19 20:48	mg/kg dry	CH90746



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP01-1 4-5
 Date Sampled: 08/07/19 08:05
 Percent Solids: 94
 Initial Volume: 20.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
 ESS Laboratory Sample ID: 19H0202-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 18:53		CH91211
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 18:53		CH91211
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 18:53		CH91211
Aroclor 1242	P, LC 0.1 (0.05)		8082A		1	08/13/19 18:53		CH91211
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 18:53		CH91211
Aroclor 1254	ND (0.05)		8082A		1	08/13/19 18:53		CH91211
Aroclor 1260	1.9 (0.3)		8082A		5	08/15/19 22:07		CH91211
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 18:53		CH91211
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 18:53		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	47 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	215 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	39 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP01-3 2-3
 Date Sampled: 08/07/19 08:35
 Percent Solids: 91
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
 ESS Laboratory Sample ID: 19H0202-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 19:12		CH91211
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 19:12		CH91211
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 19:12		CH91211
Aroclor 1242	8.3 (0.5)		8082A		10	08/16/19 15:16		CH91211
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 19:12		CH91211
Aroclor 1254	4.9 (0.5)		8082A		10	08/16/19 15:16		CH91211
Aroclor 1260	2.9 (0.5)		8082A		10	08/16/19 15:16		CH91211
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 19:12		CH91211
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 19:12		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	51 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	289 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	70 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	52 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SP01-2 3-4
 Date Sampled: 08/07/19 08:25
 Percent Solids: 95
 Initial Volume: 20.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
 ESS Laboratory Sample ID: 19H0202-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 19:32		CH91211
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 19:32		CH91211
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 19:32		CH91211
Aroclor 1242 [2C]	P, LC 0.4 (0.05)		8082A		1	08/13/19 19:32		CH91211
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 19:32		CH91211
Aroclor 1254 [2C]	2.8 (0.3)		8082A		5	08/16/19 9:13		CH91211
Aroclor 1260 [2C]	2.7 (0.3)		8082A		5	08/16/19 9:13		CH91211
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 19:32		CH91211
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 19:32		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	68 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	642 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	53 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	49 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-16
Date Sampled: 08/07/19 12:07
Percent Solids: 94
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/13/19 19:51		CH91211
Aroclor 1221	ND (0.05)		8082A		1	08/13/19 19:51		CH91211
Aroclor 1232	ND (0.05)		8082A		1	08/13/19 19:51		CH91211
Aroclor 1242	0.2 (0.05)		8082A		1	08/13/19 19:51		CH91211
Aroclor 1248	ND (0.05)		8082A		1	08/13/19 19:51		CH91211
Aroclor 1254 [2C]	2.4 (0.3)		8082A		5	08/16/19 9:32		CH91211
Aroclor 1260	2.5 (0.3)		8082A		5	08/16/19 9:32		CH91211
Aroclor 1262	ND (0.05)		8082A		1	08/13/19 19:51		CH91211
Aroclor 1268	ND (0.05)		8082A		1	08/13/19 19:51		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	55 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	300 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	47 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-15
Date Sampled: 08/07/19 12:03
Percent Solids: 68
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0202
ESS Laboratory Sample ID: 19H0202-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/12/19 16:20

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1221	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1232	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1242	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1248	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1254	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1260	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1262	ND (0.07)		8082A		1	08/13/19 20:10		CH91211
Aroclor 1268	ND (0.07)		8082A		1	08/13/19 20:10		CH91211

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	54 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	62 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	59 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Total Metals

Batch CH92052 - 3050B

Blank

Chromium	ND	1.00	mg/kg wet							
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LCS

Chromium	118	3.70	mg/kg wet	116.0		102	80-120			
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LCS Dup

Chromium	108	3.45	mg/kg wet	116.0		93	80-120	9	20	
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8082A Polychlorinated Biphenyls (PCB)

Batch CH91211 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0232		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0172		mg/kg wet	0.02500		69	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0186		mg/kg wet	0.02500		74	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			

Surrogate: Decachlorobiphenyl	0.0244		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0250		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0205		mg/kg wet	0.02500		82	30-150			

LCS Dup



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH91211 - 3540C										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140	0.2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	0.8	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	1	30	
<i>Surrogate: Decachlorobiphenyl</i>	<i>0.0244</i>		mg/kg wet	<i>0.02500</i>		<i>97</i>	<i>30-150</i>			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>0.0249</i>		mg/kg wet	<i>0.02500</i>		<i>100</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>0.0192</i>		mg/kg wet	<i>0.02500</i>		<i>77</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>0.0193</i>		mg/kg wet	<i>0.02500</i>		<i>77</i>	<i>30-150</i>			
Batch CH91550 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
<i>Surrogate: Decachlorobiphenyl</i>	<i>0.0215</i>		mg/kg wet	<i>0.02500</i>		<i>86</i>	<i>30-150</i>			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>0.0220</i>		mg/kg wet	<i>0.02500</i>		<i>88</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>0.0195</i>		mg/kg wet	<i>0.02500</i>		<i>78</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>0.0206</i>		mg/kg wet	<i>0.02500</i>		<i>82</i>	<i>30-150</i>			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140			
<i>Surrogate: Decachlorobiphenyl</i>	<i>0.0226</i>		mg/kg wet	<i>0.02500</i>		<i>91</i>	<i>30-150</i>			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>0.0224</i>		mg/kg wet	<i>0.02500</i>		<i>90</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>0.0195</i>		mg/kg wet	<i>0.02500</i>		<i>78</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>0.0201</i>		mg/kg wet	<i>0.02500</i>		<i>80</i>	<i>30-150</i>			
LCS Dup										



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH91550 - 3540C										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140	0.6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		93	40-140	2	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140	2	30	
<i>Surrogate: Decachlorobiphenyl</i>	<i>0.0230</i>		mg/kg wet	<i>0.02500</i>		<i>92</i>	<i>30-150</i>			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>0.0229</i>		mg/kg wet	<i>0.02500</i>		<i>91</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>0.0189</i>		mg/kg wet	<i>0.02500</i>		<i>76</i>	<i>30-150</i>			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>0.0191</i>		mg/kg wet	<i>0.02500</i>		<i>77</i>	<i>30-150</i>			

Classical Chemistry

Batch CH90746 - General Preparation

Blank										
Hexavalent Chromium	ND	0.7	mg/kg wet							
LCS										
Hexavalent Chromium	32.5	0.7	mg/kg wet	33.32		97	80-120			
LCS Dup										
Hexavalent Chromium	32.8	0.7	mg/kg wet	33.32		99	80-120	1	20	
Reference										
Hexavalent Chromium	77.0	2.0	mg/kg wet	71.00		108	20.3-222.5			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

Notes and Definitions

- Z-10a Soil pH measured in water at 21.7 °C.
- Z-10 Soil pH measured in water at 21.6 °C.
- WL Results obtained from a deionized water leach of the sample.
- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- P Percent difference between primary and confirmation results exceeds 40% (P).
- LC Lower value is used due to matrix interferences (LC).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0202

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0202
 Date Received: 8/7/2019
 Project Due Date: 8/14/2019
 Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 4.8 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

- 12. Were VOAs received? Yes / No
- a. Air bubbles in aqueous VOAs? Yes / No
- b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: 8/7/19 Time: 2015
 b. Low Level VOA vials frozen: Date: _____ Time: _____
 By: [Signature]
 By: _____

Sample Receiving Notes:
Only 1 jar recd for Au+Cr

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	374606	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	374605	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	374604	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	374603	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	374602	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	374601	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	374600	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	374599	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	374598	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	374597	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	374596	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	374595	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	374593	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
13	374594	Yes	NA	Yes	VOA Vial - Other	Other	


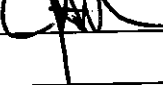
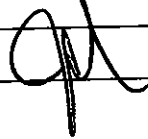
2nd Review
 Were all containers scanned into storage/lab?
 Are barcode labels on correct containers?
 Are all Flashpoint stickers attached/container ID # circled?
 Are all Hex Chrome stickers attached?
 Are all QC stickers attached?
 Are VOA stickers attached if bubbles noted?

Initials [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA


ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0202
Date Received: 8/7/2019

Completed		Date & Time:	<u>8/7/19</u>	<u>2003</u>
By:				
Reviewed		Date & Time:	<u>8/7/19</u>	<u>2017</u>
By:				
Delivered		Date & Time:	<u>8/7/19</u>	<u>2017</u>
By:				

19H0202


Chain-of-Custody Record				Laboratory: ESS				Laboratory Job # (Lab use only)																						
 GEI Consultants 400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073		Project Information						Project Location: Lawrence, MA				Page 1 of 3																		
		Project Name: Tombarello Site Investigation						Project Manager: L. Lombardo																						
		Project Number: 1802441						<table border="1"> <tr> <th colspan="7">Preservative</th> </tr> <tr> <td>None</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>None</td> <td>None</td> </tr> </table>				Preservative							None	None	None	None	None	None	None					
Preservative																														
None	None	None	None	None	None	None																								
					None	None																								
Send Report to: llombardo@geiconsultants.com, bfmurdoch@geiconsultants.com, csaedas@geiconsultants.com, blee@geiconsultants.com Send EDD to: EastRegionData@geiconsultants.com										Sample Handling Samples Field Filtered: YES NO NA Sampled Shipped With Ice: YES NO NA Sample Specific Remarks:																				
MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO BRL If Yes, Are MCP Analytical Methods Required? YES NO NA Are Drinking Water Samples Submitted? YES NO NA If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA																														
Lab Sample Number	GEI Sample ID	Collection Date	Time	Matrix	No. of Bottles	Sampler (s) Initials	PCBs (80B2)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 Hg/D)	PCBs (aqueous)	MS/MSD RCRA 8 metals	Cr VI	ORP/PH	Sample Specific Remarks																
1	1802441-SVA-05(3-5)	8/7/19	0930	SO	1	BRL	X																							
2	1802441-SVA-05N(0-0.5)	8/7/19	0850	SO	1	BRL	X																							
3	1802441-SVA-05N(1-2)	8/7/19	0855	SO	1	BRL	X																							
4	1802441-SVA-05N(2-3)	8/7/19	0900	SO	1	BRL	X																							
5	1802441-SVA-05N(3-5)	8/7/19	0905	SO	1	BRL	X																							
6	1802441-SVA-06(0-1)	8/7/19	0900	SO	1	BRL						X	X																	
7	1802441-SVA-06(1-2)	8/7/19	0805	SO	1	BRL						X	X																	
7	1802441-SVA-06(2-3)	8/7/19	0805	SO	1	CWS	X																							
8	1802441-SP01-1(4-5)	8/7/19	0905	SO	1	CWS	X																							
9	1802441-SP01-3(2-3)	8/7/19	0835	SO	1	CWS	X																							
10	1802441-SP01-2(3-4)	8/7/19	0825	SO	1	CWS																								
11	1802441-FD-16	8/7/19	1207	SO	1	BRL	X							Duplicate																
12	1802441-FD-15	8/7/19	1203	SO	1	CWS	X							Duplicate																
MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.							Turnaround Time (Business days): Normal <u>X</u> Other ___ 10-Day ___ 7-Day ___ 5-Day ___ 3-Day ___				Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.																			
Relinquished by: (signature)		Date:	Time:	Received by: (signature)						Additional Requirements/Comments/Remarks: Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.																				
1. [Signature]		08/07/19	1330	1. [Signature]																										
2. [Signature]		8/7/19	1235	2. [Signature]																										
3.				3.																										
4.				4.																										

BRL

Ice temp: 4.8


Sample moved to WO 19H0200 as sample -10

19H0200

Chain-of-Custody Record			Laboratory: ESS			Laboratory Job # (Lab use only)																																				
 <p>400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073</p>			Project Name: Tombarello Site Investigation			Project Location: Lawrence, MA			Page 3 of 3 BRL																																	
			Project Number: 1802441			Project Manager: L. Lombardo																																				
Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com			Send EDD to: EastRegionData@geiconsultants.com			Preservative			Sample Handling																																	
						None	None	None		None	None	DF	MEOH	Samples Field Filtered. YES NO <input checked="" type="radio"/> NA																												
MCP PRESUMPTIVE CERTAINTY REQUIRED - YES <input checked="" type="radio"/> NO <input checked="" type="radio"/> BRL			If Yes, Are MCP Analytical Methods Required? YES <input checked="" type="radio"/> NO <input type="radio"/> NA			PCBs (8082)			Sampled Shipped With Ice <input checked="" type="radio"/> YES <input type="radio"/> NO																																	
Are Drinking Water Samples Submitted? YES <input type="radio"/> NO <input checked="" type="radio"/> NA			If Yes, Have Drinking Water Sampling Requirements Been Met? YES <input type="radio"/> NO <input checked="" type="radio"/> NA			EPH with Target PAHs (MAEPH)				Sample Specific Remarks																																
						RCRA 8 Metals plus Zinc (6010, 7471 [Hg])			Trip Blank																																	
						PCBs (aqueous)																																				
						MS/MSD RCRA 8 metals																																				
						VOC (High/Low)																																				
Lab Sample Number	GEI Sample ID	Collection Date / Time		Matrix	No. of Bottles	Sampler (s) Initials																																				
13	1802441-TB-1	8/7/19	1209	Aqueous	2	BRL		X																																		
<p>MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.</p> <table border="1"> <tr> <td>Relinquished by sampler: (signature)</td> <td>Date:</td> <td>Time:</td> <td>Received by: (signature)</td> </tr> <tr> <td>1. <i>[Signature]</i></td> <td>08/07/19</td> <td>1330</td> <td>1. <i>[Signature]</i> BRL</td> </tr> <tr> <td>Relinquished by: (signature)</td> <td>Date:</td> <td>Time:</td> <td>Received by: (signature)</td> </tr> <tr> <td>2. <i>[Signature]</i></td> <td>8/7/19</td> <td>1815</td> <td>2. <i>[Signature]</i> 8/7/19 1935</td> </tr> <tr> <td>Relinquished by: (signature)</td> <td>Date:</td> <td>Time:</td> <td>Received by: (signature)</td> </tr> <tr> <td>3.</td> <td></td> <td></td> <td>3.</td> </tr> <tr> <td>Relinquished by: (signature)</td> <td>Date:</td> <td>Time:</td> <td>Received by: (signature)</td> </tr> <tr> <td>4.</td> <td></td> <td></td> <td>4.</td> </tr> </table>								Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)	1. <i>[Signature]</i>	08/07/19	1330	1. <i>[Signature]</i> BRL	Relinquished by: (signature)	Date:	Time:	Received by: (signature)	2. <i>[Signature]</i>	8/7/19	1815	2. <i>[Signature]</i> 8/7/19 1935	Relinquished by: (signature)	Date:	Time:	Received by: (signature)	3.			3.	Relinquished by: (signature)	Date:	Time:	Received by: (signature)	4.			4.	<p>Turnaround Time (Business days):</p> <p>Normal <input checked="" type="checkbox"/> Other _____</p> <p>10-Day _____ 7-Day _____</p> <p>5-Day _____ 3-Day _____</p>		<p>Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.</p>
Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)																																							
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<p>Additional Requirements/Comments/Remarks:</p> <p>Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.</p>																																										

icc temp 4-8

19H0202

Chain-of-Custody Record				Laboratory: ESS				Laboratory Job # (Lab use only)									
 GEI Consultants 400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073		Project Information						Project Location: Lawrence, MA Project Manager: L. Lombardo				Page 1 of 3					
		Project Name: Tombarello Site Investigation										Project Number: 1802441					
		Send Report to: lombardo@geiconsultants.com, bfmurdoch@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com						Send EDD to: EastRegionData@geiconsultants.com						Sample Handling Samples Field Filtered YES NO NA Sampled Shipped With Ice YES NO NA Sample Specific Remarks			
MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO BRL If Yes, Are MCP Analytical Methods Required? YES NO NA Are Drinking Water Samples Submitted? YES NO NA If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA												Preservative None None None None None None None					
Lab Sample Number	GEI Sample ID		Collection Date Time		Matrix	No. of Bottles	Sampler (s) Initials		PCBs (80B2)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 Hg/D)	PCBs (aqueous)	MS/MSD RCRA 8 metals	Cr VI	ORP/PH	Sample Specific Remarks	
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5	1802441-SVA-05N(3-5)		8/7/19	0905	SO	1	BRL	X									
6	1802441-SVA-06(0-1)		8/7/19	0900	SO	1	BRL							X	X		
7	1802441-SVA-06(1-2)		8/7/19	0805	SO	1	BRL							X	X		
1802441-SVA-06(2-3) 8/7/19 0805 SO 1 CWS																	
8	1802441-SP01-1(4-5)		8/7/19	0905	SO	1	CWS	X									
9	1802441-SP01-3(2-3)		8/7/19	0835	SO	1	CWS	X									
10	1802441-SP01-2(3-4)		8/7/19	0825	SO	1	CWS										
11	1802441-FD-16		8/7/19	1207	SO	1	BRL	X									Duplicate
12	1802441-FD-15		8/7/19	1203	SO	1	CWS	X									Duplicate
MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.												Turnaround Time (Business days): Normal <u>X</u> Other ___ 10-Day ___ 7-Day ___ 5-Day ___ 3-Day ___			Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.		
Relinquished by sampler: (signature)			Date:	Time:	Received by: (signature)												
1. <i>[Signature]</i>			08/07/19	1330	1. <i>[Signature]</i> BRL												
Relinquished by: (signature)			Date:	Time:	Received by: (signature)												
2. <i>[Signature]</i>			8/7/19	1235	2. <i>[Signature]</i> 8/19 1235												
Relinquished by: (signature)			Date:	Time:	Received by: (signature)												
3.					3.												
Relinquished by: (signature)			Date:	Time:	Received by: (signature)												
4.					4.												
Additional Requirements/Comments/Remarks: Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.																	

BRL

Ice temp: 4.8

19H0202

Chain-of-Custody Record Laboratory: **ESS** Laboratory Job # **(Lab use only)**

Project Information

Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**

Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

None	None	None	None	None	None	DF	MEOH
------	------	------	------	------	------	----	------

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO **BRL**

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)	MS/MSD RCRA 8 metals	VOC (High/Low)	Sample Handling		Sample Specific Remarks	
		Date	Time										YES	NO		
13	1802441-TB-1	8/7/19	1209	Aqueous	2	BRL						X		YES	NO	Trip Blank

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)
1. <i>[Signature]</i>	08/07/19	1330	1. <i>[Signature]</i> BRL
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
2. <i>[Signature]</i>	8/7/19	18157	2. <i>[Signature]</i> 8/7/19 1935
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
3.			3.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
4.			4.

Turnaround Time (Business days):
 Normal Other
 10-Day 7-Day
 5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

icc temp 4-8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0305

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 2:46 pm, Sep 05, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



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Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0305

SAMPLE RECEIPT

The following samples were received on August 26, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

These samples were originally received on hold on August 9, 2019.

Question I: All samples for Metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
19H0305-01	1802441-Mberm-18W(5-6)	Soil	6010C, 6020A, 7471B, 8082A



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ESS Laboratory Work Order: 19H0305

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

19H0305-01 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)

19H0305-01 [Surrogate recoverv\(ies\) diluted below the MRL \(SD\).](#)

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



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CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



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MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0305-01**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|--|---|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input checked="" type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input checked="" type="checkbox"/> 6010 Metals
CAM III A | <input checked="" type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 05, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Mberm-18W(5-6)
Date Sampled: 08/05/19 11:00
Percent Solids: 76

ESS Laboratory Work Order: 19H0305
ESS Laboratory Sample ID: 19H0305-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	16.3 (2.89)		6010C		1	KJK	08/30/19 22:00	2.27	100	CH92951
Barium	229 (2.89)		6010C		1	KJK	09/03/19 15:35	2.27	100	CH92951
Cadmium	79.7 (0.58)		6010C		1	KJK	08/30/19 22:00	2.27	100	CH92951
Chromium	123 (1.16)		6010C		1	KJK	08/30/19 22:00	2.27	100	CH92951
Lead	5410 (116)		6010C		20	KJK	09/03/19 15:28	2.27	100	CH92951
Mercury	4.87 (0.985)		7471B		25	MKS	08/30/19 13:42	0.66	40	CH92952
Selenium	ND (0.58)		6020A		1	NAR	09/03/19 23:44	2.27	100	CH92951
Silver	2.35 (0.58)		6010C		1	KJK	08/30/19 22:00	2.27	100	CH92951
Zinc	3220 (57.8)		6010C		20	KJK	09/03/19 15:28	2.27	100	CH92951



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Mberm-18W(5-6)
Date Sampled: 08/05/19 11:00
Percent Solids: 76
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0305
ESS Laboratory Sample ID: 19H0305-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 12:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1221	ND (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1232	ND (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1242	33.6 (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1248	ND (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1254 [2C]	23.4 (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1260	23.7 (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1262	ND (2.7)		8082A		40	08/29/19 11:02		CH92611
Aroclor 1268	ND (2.7)		8082A		40	08/29/19 11:02		CH92611

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0305

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CH92951 - 3050B										
Blank										
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Selenium	ND	0.50	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
Blank										
Selenium	ND	0.50	mg/kg wet							
LCS										
Arsenic	125	8.33	mg/kg wet	128.0		98	80-120			
Barium	599	8.33	mg/kg wet	536.0		112	80-120			
Cadmium	87.4	1.67	mg/kg wet	99.00		88	80-120			
Chromium	126	3.33	mg/kg wet	116.0		109	80-120			
Lead	283	16.7	mg/kg wet	277.0		102	80-120			
Silver	60.6	1.67	mg/kg wet	64.30		94	80-120			
Zinc	605	8.33	mg/kg wet	561.0		108	80-120			
LCS										
Selenium	292	9.43	mg/kg wet	216.0		135	80-120			
LCS										
Selenium	258	8.33	mg/kg wet	242.0		107	80-120			
LCS Dup										
Arsenic	129	9.09	mg/kg wet	128.0		101	80-120	3	20	
Barium	620	9.09	mg/kg wet	536.0		116	80-120	3	20	
Cadmium	87.5	1.82	mg/kg wet	99.00		88	80-120	0.04	20	
Chromium	124	3.64	mg/kg wet	116.0		107	80-120	2	20	
Lead	289	18.2	mg/kg wet	277.0		105	80-120	2	20	
Silver	58.8	1.82	mg/kg wet	64.30		91	80-120	3	20	
Zinc	594	9.09	mg/kg wet	561.0		106	80-120	2	20	
LCS Dup										
Selenium	204	7.58	mg/kg wet	216.0		94	80-120	36	30	
LCS Dup										
Selenium	245	9.09	mg/kg wet	242.0		101	80-120	5	30	
Batch CH92952 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	22.6	3.74	mg/kg wet	27.30		83	80-120			
LCS Dup										
Mercury	22.0	3.36	mg/kg wet	27.30		81	80-120	2	20	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0305

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH92611 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0201		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene	0.0160		mg/kg wet	0.02500		64	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0211		mg/kg wet	0.02500		85	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0228		mg/kg wet	0.02500		91	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		83	40-140	6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140	6	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140	7	30	

Surrogate: Decachlorobiphenyl	0.0191		mg/kg wet	0.02500		76	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0209		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0179		mg/kg wet	0.02500		71	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0207		mg/kg wet	0.02500		83	30-150			



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Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0305

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



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ESS Laboratory Work Order: 19H0305

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0305
 Date Received: 8/9/2019
 Project Due Date: 9/8/2019
 Days for Project: Hold

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 2.9 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

Sample on hold

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	375946	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials [Signature]
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/9/19 1844
 Reviewed By: [Signature] Date & Time: 8/9/19 2023
 Delivered By: [Signature] Date & Time: 8/9/19 2007

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # **19H0305**
(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com,
csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

None	None	None	None	None			
------	------	------	------	------	--	--	--

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, Hg10)	PCBs (aqueous)	MS/MSD RCRA 8 metals		
		Date	Time										
—	1802441-Mberm-18W(5-6)	8/5/19	1100	Soil	1	BMT		X					
1	1802441-Mberm-18W(5-6)	8/5/19	1100	soil	1	SMT	X		X				

~~Extract and hold Only~~
~~HOLD~~

Run Sample
BFM 8/26/2019

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature) 1.	Date: 8/5/19	Time: 1600	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 8/9/19	Time: 1100	Received by: (signature) 2.
Relinquished by: (signature) 3.	Date: 8/9/19	Time: 1100	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date: 8/9/19	Time: 1100	Received by: (signature) 4.

Turnaround Time (Business days):

Normal X Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relina: J. Alvarez 8/9/19 17:54 UJ st/19 1231
 icetemp: 2.2



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information
 Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com,
 bfongmurdock@geiconsultants.com,
 csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Preservative					
None	None	None	None	None	

Sample Handling

Samples Field Filtered
 YES NO NA
 Sampled Shipped With Ice
YES NO

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010, 7471 [Hg])	PCBs (aqueous)	MS/MSD RCRA 8 metals	Sample Specific Remarks
		Date	Time									
<u>1</u>	<u>1802441-Mberm-18W(5-6)</u>	<u>8/5/19</u>	<u>1100</u>	<u>Soil</u>	<u>1</u>	<u>BMT</u>		<u>X</u>				<u>Extract and hold Only</u>
<u>1</u>	<u>1802441-Mberm-18W(5-6)</u>	<u>8/5/19</u>	<u>1100</u>	<u>soil</u>	<u>1</u>	<u>SMT</u>	<u>X</u>		<u>X</u>			<u>HOLD</u>

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal X Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/5/19</u>	Time: <u>1600</u>	Received by: (signature) <u>[Signature]</u>
1. GEI Refrigerator			
Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/9/19</u>	Time: <u>1100</u>	Received by: (signature) <u>[Signature]</u>
2. GEI Refrigerator			
Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/9/19</u>	Time: <u>1100</u>	Received by: (signature) <u>[Signature]</u>
3. GEI Refrigerator			
Relinquished by: (signature) <u>[Signature]</u>	Date: <u>8/9/19</u>	Time: <u>1100</u>	Received by: (signature) <u>[Signature]</u>
4. GEI Refrigerator			

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relinquished by: [Signature] 8/9/19 17:47
 ice temp: 2.2 [Signature] 8/9/19 18:31



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0306

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 3:15 pm, Aug 16, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0306

SAMPLE RECEIPT

The following samples were received on August 09, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0306-01	1802441-EB-08	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0306

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0306

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0306

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0306-01**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air (X) Other: Equipment Blank

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---|--------------------------------|---|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (X) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes (X) No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes (X) No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes (X) No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes (X) No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes (X) No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes (X) No ()*

***All negative responses must be addressed in an attached laboratory narrative.**

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 15, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-08
Date Sampled: 08/08/19 07:40
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19H0306
ESS Laboratory Sample ID: 19H0306-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 8/10/19 10:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1221	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1232	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1242	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1248	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1254	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1260	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1262	ND (0.10)		8082A		1	08/12/19 17:10		CH90904
Aroclor 1268	ND (0.10)		8082A		1	08/12/19 17:10		CH90904

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	73 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	60 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	69 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0306

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH90904 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							
<hr/>										
Surrogate: Decachlorobiphenyl	0.0371		ug/L	0.05000		74	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0341		ug/L	0.05000		68	30-150			
Surrogate: Tetrachloro-m-xylene	0.0230		ug/L	0.05000		46	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0239		ug/L	0.05000		48	30-150			

LCS

Aroclor 1016	0.75	0.10	ug/L	1.000		75	40-140			
Aroclor 1016 [2C]	0.76	0.10	ug/L	1.000		76	40-140			
Aroclor 1260	0.90	0.10	ug/L	1.000		90	40-140			
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140			
<hr/>										
Surrogate: Decachlorobiphenyl	0.0502		ug/L	0.05000		100	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0468		ug/L	0.05000		94	30-150			
Surrogate: Tetrachloro-m-xylene	0.0276		ug/L	0.05000		55	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0292		ug/L	0.05000		58	30-150			

LCS Dup

Aroclor 1016	0.85	0.10	ug/L	1.000		85	40-140	12	20	
Aroclor 1016 [2C]	0.85	0.10	ug/L	1.000		85	40-140	10	20	
Aroclor 1260	0.95	0.10	ug/L	1.000		95	40-140	6	20	
Aroclor 1260 [2C]	1.02	0.10	ug/L	1.000		102	40-140	6	20	
<hr/>										
Surrogate: Decachlorobiphenyl	0.0497		ug/L	0.05000		99	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0466		ug/L	0.05000		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0297		ug/L	0.05000		59	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0315		ug/L	0.05000		63	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0306

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0306

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0306
 Date Received: 8/9/2019
 Project Due Date: 8/16/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: -2.9 Iced with: Ice
 ndm 8/14/19
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about **short holds & rushes**? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:


14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	375947	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials W
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/9/19 1843
 Reviewed By: [Signature] Date & Time: 8/9/19 2015
 Delivered By: [Signature] Date & Time: 8/9/19 2015

 400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073	Project Information		Project Name: Tombarello Site Investigation Project Number: 1802441	Project Location: Lawrence, MA	Project Manager: L. Lombardo	Page 1 of 3
	Send Report to:	llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com		Preservative None None None None		
	Send EDD to:	EastRegionData@geiconsultants.com				

MCP PRESUMPTIVE CERTAINTY REQUIRED YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 8 Metals plus Zinc (6010)	PCBs (aqueous)	Sample Handling		Sample Specific Remarks	
		Date	Time								YES	NO		
	1802441-EB-08	8/8/2019	0740	Aqueous	1	CWS				x		YES	NO	Equipment Blank
	1802441-FD-17	8/8/2019	1201	Concrete	1	CWS	x					YES	NO	Field Duplicate
	1802441-ECP-2A	8/8/2019	0750	Concrete	1	BRL	x					YES	NO	
	1802441-ECP-2B	8/8/2019	0755	Concrete	1	CWS		x	x			YES	NO	
	1802441-LGSP-1A	8/8/2019	0830	Concrete	1	CWS	x					YES	NO	
	1802441-LGSP-1B	8/8/2019	0835	Concrete	1	CWS		x	x			YES	NO	
	1802441-LGSP-2A	8/8/2019	0845	Concrete	1	CWS	x					YES	NO	
	1802441-LGSP-2B	8/8/2019	0850	Concrete	1	CWS		x	x			YES	NO	
	1802441-LGSP-3A	8/8/2019	0900	Concrete	1	CWS	x					YES	NO	
	1802441-LGSP-3B	8/8/2019	0905	Concrete	1	CWS		x	x			YES	NO	
	1802441-LGSP-4A	8/8/2019	0915	Concrete	1	CWS	x					YES	NO	
	1802441-LGSP-4B	8/8/2019	0920	Concrete	1	CWS		x	x			YES	NO	
	1802441-LGSP-5A	8/8/2019	0925	Concrete	1	CWS	x					YES	NO	

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)
1.	8/8/2019	1530	1. GEI Refrigerator
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
2.	8/9/19	1100	2.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
3.	8/9/19	1100	3.
Relinquished by: (signature)	Date:	Time:	Received by: (signature)
4.	8/9/19	17:47	4. 8/9/19 1830

Turnaround Time (Business days):
 Normal Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Additional Requirements/Comments/Remarks:
 Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Ice temp: 2.2



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0315

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 3:41 pm, Sep 04, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

SAMPLE RECEIPT

The following samples were received on August 09, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0315-01	1802441-Mberm-18W 5-6	Soil	EPH8270, MADEP-EPH



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

PROJECT NARRATIVE

MADEP-EPH Extractable Petroleum Hydrocarbons

19H0315-01 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
19H0315-01 [Surrogate recoverv\(ies\) diluted below the MRL \(SD\).](#)
1-Chlorooctadecane (% @ 40-140%)
C9H0292-CCV2 [Continuing Calibration %Diff/Drift is above control limit \(CD+\).](#)
Benzo(g,h,i)perylene (31% @ 20%), Indeno(1,2,3-cd)Pyrene (30% @ 20%)
C9H0292-CCV2 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)
2-Methylnaphthalene (23% @ 20%), Naphthalene (32% @ 20%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0315-01**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input checked="" type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

***All negative responses must be addressed in an attached laboratory narrative.**

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 04, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-Mberm-18W 5-6
Date Sampled: 08/05/19 11:00
Percent Solids: 76
Initial Volume: 24.1
Final Volume: 10
Extraction Method: 3546

ESS Laboratory Work Order: 19H0315
ESS Laboratory Sample ID: 19H0315-01
Sample Matrix: Soil
Units: mg/kg dry

Prepared: 8/12/19 14:30

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (204)		MADEP-EPH		1	CAD	08/13/19 20:18	C9H0241	CH91208
C19-C36 Aliphatics1	409 (204)		MADEP-EPH		1	CAD	08/13/19 20:18	C9H0241	CH91208
C11-C22 Unadjusted Aromatics1	719 (204)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
C11-C22 Aromatics1,2	549 (204)		EPH8270			VSC	08/17/19 16:48		[CALC]
2-Methylnaphthalene	ND (2.72)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Acenaphthene	ND (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Naphthalene	11.8 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Phenanthrene	21.8 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Acenaphthylene	ND (2.72)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Anthracene	ND (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Benzo(a)anthracene	13.7 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Benzo(a)pyrene	12.3 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Benzo(b)fluoranthene	17.1 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Benzo(g,h,i)perylene	7.01 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Benzo(k)fluoranthene	7.11 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Chrysene	14.6 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Dibenzo(a,h)Anthracene	2.82 (2.72)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Fluoranthene	28.7 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Fluorene	ND (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Indeno(1,2,3-cd)Pyrene	9.01 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208
Pyrene	24.3 (5.45)		EPH8270		1	VSC	08/17/19 16:48	C9H0361	CH91208

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	%	SD	40-140
<i>Surrogate: 2-Bromonaphthalene</i>	106 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	82 %		40-140
<i>Surrogate: O-Terphenyl</i>	71 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch CH91208 - 3546

Blank

C19-C36 Aliphatics1	ND	15.0	mg/kg wet							
C9-C18 Aliphatics1	ND	15.0	mg/kg wet							
Decane (C10)	ND	0.5	mg/kg wet							
Docosane (C22)	ND	0.5	mg/kg wet							
Dodecane (C12)	ND	0.5	mg/kg wet							
Eicosane (C20)	ND	0.5	mg/kg wet							
Hexacosane (C26)	ND	0.5	mg/kg wet							
Hexadecane (C16)	ND	0.5	mg/kg wet							
Hexatriacontane (C36)	ND	0.5	mg/kg wet							
Nonadecane (C19)	ND	0.5	mg/kg wet							
Nonane (C9)	ND	0.5	mg/kg wet							
Octacosane (C28)	ND	0.5	mg/kg wet							
Octadecane (C18)	ND	0.5	mg/kg wet							
Tetracosane (C24)	ND	0.5	mg/kg wet							
Tetradecane (C14)	ND	0.5	mg/kg wet							
Triacontane (C30)	ND	0.5	mg/kg wet							

<i>Surrogate: 1-Chlorooctadecane</i>	1.72		mg/kg wet	2.020		85	40-140			
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Blank

2-Methylnaphthalene	ND	0.20	mg/kg wet							
Acenaphthene	ND	0.40	mg/kg wet							
Acenaphthylene	ND	0.20	mg/kg wet							
Anthracene	ND	0.40	mg/kg wet							
Benzo(a)anthracene	ND	0.40	mg/kg wet							
Benzo(a)pyrene	ND	0.40	mg/kg wet							
Benzo(b)fluoranthene	ND	0.40	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.40	mg/kg wet							
Benzo(k)fluoranthene	ND	0.40	mg/kg wet							
C11-C22 Unadjusted Aromatics1	ND	15.0	mg/kg wet							
Chrysene	ND	0.40	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.20	mg/kg wet							
Fluoranthene	ND	0.40	mg/kg wet							
Fluorene	ND	0.40	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.40	mg/kg wet							
Naphthalene	ND	0.40	mg/kg wet							
Phenanthrene	ND	0.40	mg/kg wet							
Pyrene	ND	0.40	mg/kg wet							

<i>Surrogate: 2-Bromonaphthalene</i>	50.6		mg/L	50.00		101	40-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	49.3		mg/L	50.00		99	40-140			
<i>Surrogate: O-Terphenyl</i>	1.93		mg/kg wet	2.008		96	40-140			

LCS

C19-C36 Aliphatics1	15.3	15.0	mg/kg wet	16.00		96	40-140			
C9-C18 Aliphatics1	9.4	15.0	mg/kg wet	12.00		78	40-140			
Decane (C10)	1.1	0.5	mg/kg wet	2.000		57	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH91208 - 3546										
Docosane (C22)	1.8	0.5	mg/kg wet	2.000		88	40-140			
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		61	40-140			
Eicosane (C20)	1.7	0.5	mg/kg wet	2.000		86	40-140			
Hexacosane (C26)	1.7	0.5	mg/kg wet	2.000		87	40-140			
Hexadecane (C16)	1.5	0.5	mg/kg wet	2.000		77	40-140			
Hexatriacontane (C36)	1.6	0.5	mg/kg wet	2.000		79	40-140			
Nonadecane (C19)	1.7	0.5	mg/kg wet	2.000		85	40-140			
Nonane (C9)	0.9	0.5	mg/kg wet	2.000		47	30-140			
Octacosane (C28)	1.7	0.5	mg/kg wet	2.000		86	40-140			
Octadecane (C18)	1.7	0.5	mg/kg wet	2.000		85	40-140			
Tetracosane (C24)	1.8	0.5	mg/kg wet	2.000		88	40-140			
Tetradecane (C14)	1.3	0.5	mg/kg wet	2.000		67	40-140			
Triacontane (C30)	1.7	0.5	mg/kg wet	2.000		83	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.69</i>		mg/kg wet	<i>2.020</i>		<i>84</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene	1.49	0.20	mg/kg wet	2.000		74	40-140			
Acenaphthene	1.50	0.40	mg/kg wet	2.000		75	40-140			
Acenaphthylene	1.48	0.20	mg/kg wet	2.000		74	40-140			
Anthracene	1.66	0.40	mg/kg wet	2.000		83	40-140			
Benzo(a)anthracene	2.18	0.40	mg/kg wet	2.000		109	40-140			
Benzo(a)pyrene	1.83	0.40	mg/kg wet	2.000		92	40-140			
Benzo(b)fluoranthene	2.10	0.40	mg/kg wet	2.000		105	40-140			
Benzo(g,h,i)perylene	1.83	0.40	mg/kg wet	2.000		91	40-140			
Benzo(k)fluoranthene	2.07	0.40	mg/kg wet	2.000		104	40-140			
C11-C22 Unadjusted Aromatics1	31.3	15.0	mg/kg wet	34.00		92	40-140			
Chrysene	2.08	0.40	mg/kg wet	2.000		104	40-140			
Dibenzo(a,h)Anthracene	1.95	0.20	mg/kg wet	2.000		98	40-140			
Fluoranthene	1.83	0.40	mg/kg wet	2.000		91	40-140			
Fluorene	1.64	0.40	mg/kg wet	2.000		82	40-140			
Indeno(1,2,3-cd)Pyrene	1.92	0.40	mg/kg wet	2.000		96	40-140			
Naphthalene	1.18	0.40	mg/kg wet	2.000		59	40-140			
Phenanthrene	1.78	0.40	mg/kg wet	2.000		89	40-140			
Pyrene	1.86	0.40	mg/kg wet	2.000		93	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>50.1</i>		mg/L	<i>50.00</i>		<i>100</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>48.0</i>		mg/L	<i>50.00</i>		<i>96</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.95</i>		mg/kg wet	<i>2.008</i>		<i>97</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS Dup										
C19-C36 Aliphatics1	14.3	15.0	mg/kg wet	16.00		89	40-140	7	25	
C9-C18 Aliphatics1	8.9	15.0	mg/kg wet	12.00		74	40-140	5	25	
Decane (C10)	1.1	0.5	mg/kg wet	2.000		54	40-140	6	25	
Docosane (C22)	1.6	0.5	mg/kg wet	2.000		82	40-140	6	25	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch CH91208 - 3546										
Dodecane (C12)	1.2	0.5	mg/kg wet	2.000		58	40-140	5	25	
Eicosane (C20)	1.6	0.5	mg/kg wet	2.000		80	40-140	7	25	
Hexacosane (C26)	1.6	0.5	mg/kg wet	2.000		81	40-140	6	25	
Hexadecane (C16)	1.4	0.5	mg/kg wet	2.000		72	40-140	7	25	
Hexatriacontane (C36)	1.5	0.5	mg/kg wet	2.000		74	40-140	7	25	
Nonadecane (C19)	1.6	0.5	mg/kg wet	2.000		79	40-140	7	25	
Nonane (C9)	0.9	0.5	mg/kg wet	2.000		45	30-140	4	25	
Octacosane (C28)	1.6	0.5	mg/kg wet	2.000		80	40-140	7	25	
Octadecane (C18)	1.6	0.5	mg/kg wet	2.000		79	40-140	7	25	
Tetracosane (C24)	1.6	0.5	mg/kg wet	2.000		82	40-140	6	25	
Tetradecane (C14)	1.3	0.5	mg/kg wet	2.000		65	40-140	4	25	
Triacontane (C30)	1.6	0.5	mg/kg wet	2.000		78	40-140	7	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>1.59</i>		mg/kg wet	<i>2.020</i>		<i>79</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene	1.32	0.20	mg/kg wet	2.000		66	40-140	12	30	
Acenaphthene	1.36	0.40	mg/kg wet	2.000		68	40-140	10	30	
Acenaphthylene	1.32	0.20	mg/kg wet	2.000		66	40-140	11	30	
Anthracene	1.53	0.40	mg/kg wet	2.000		76	40-140	8	30	
Benzo(a)anthracene	1.93	0.40	mg/kg wet	2.000		97	40-140	12	30	
Benzo(a)pyrene	1.62	0.40	mg/kg wet	2.000		81	40-140	12	30	
Benzo(b)fluoranthene	1.83	0.40	mg/kg wet	2.000		91	40-140	14	30	
Benzo(g,h,i)perylene	1.61	0.40	mg/kg wet	2.000		81	40-140	13	30	
Benzo(k)fluoranthene	1.77	0.40	mg/kg wet	2.000		89	40-140	15	30	
C11-C22 Unadjusted Aromatics1	27.5	15.0	mg/kg wet	34.00		81	40-140	13	25	
Chrysene	1.83	0.40	mg/kg wet	2.000		91	40-140	13	30	
Dibenzo(a,h)Anthracene	1.64	0.20	mg/kg wet	2.000		82	40-140	18	30	
Fluoranthene	1.71	0.40	mg/kg wet	2.000		85	40-140	7	30	
Fluorene	1.48	0.40	mg/kg wet	2.000		74	40-140	10	30	
Indeno(1,2,3-cd)Pyrene	1.70	0.40	mg/kg wet	2.000		85	40-140	13	30	
Naphthalene	1.15	0.40	mg/kg wet	2.000		57	40-140	3	30	
Phenanthrene	1.53	0.40	mg/kg wet	2.000		77	40-140	15	30	
Pyrene	1.67	0.40	mg/kg wet	2.000		83	40-140	11	30	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>46.6</i>		mg/L	<i>50.00</i>		<i>93</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>43.3</i>		mg/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>1.72</i>		mg/kg wet	<i>2.008</i>		<i>86</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- CD+ Continuing Calibration %Diff/Drift is above control limit (CD+).
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0315

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0315
 Date Received: 8/9/2019
 Project Due Date: 8/16/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: -2.9 Iced with: Ice
hdm 8/14/19
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about **short holds & rushes**? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	375986	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials W
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/9/19 1841
 Reviewed By: [Signature] Date & Time: 8/9/19 2010
 Delivered By: [Signature] Date & Time: 8/9/19 2010

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job # **1940315**
(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: **Tombarello Site Investigation**

Project Number: **1802441**

Send Report to: **llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com**

Send EDD to: **EastRegionData@geiconsultants.com**

Project Location: **Lawrence, MA**

Project Manager: **L. Lombardo**

Page 1 of 1

Preservative

None	None	None	None	None			
------	------	------	------	------	--	--	--

Sample Handling

Samples Field Filtered

YES NO **NA**

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED **YES** NO

If Yes, Are MCP Analytical Methods Required?

YES NO NA

Are Drinking Water Samples Submitted?

YES **NO** NA

If Yes, Have Drinking Water Sampling Requirements Been Met?

YES NO **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (NAEPH)	RCRA 8 Metals plus Zinc (6010, 7471, Hg/D)	PCBs (aqueous)	MS/MSD RCRA 8 metals							
		Date	Time															
1	1802441-Mberm-18W(5-6)	8/5/19	1100	Soil	1	BMT		X										Extract and hold Only
—	1802441-Mberm-18W(5-6)	8/5/19	1100	soil	1	SMT	X		X									HOLD

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal **X** Other ___
10-Day ___ 7-Day ___
5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Changes made 9/3/19 - PRB

1. Reinquished by sampler: (signature)	Date: 8/5/19	Time: 1600	Received by: (signature)
2. GEI Refrigerator	Date: 8/9/19	Time: 1100	Received by: (signature)
3. Reinquished by: (signature)	Date: 8/9/19	Time: 1100	Received by: (signature)
4. Reinquished by: (signature)	Date: 8/9/19	Time: 1100	Received by: (signature)

Relina: J... 8/9/19 17147
10c temp: 2.2

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # 1940315
(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com,
csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

None	None	None	None	None			
------	------	------	------	------	--	--	--

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED -- YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	EPH with Target PAHs (MAEPH)	RCRA 9 Metals plus Zinc (6010, 7471, Hg)	PCBs (aqueous)	MS/MSD RCRA 8 metals							
		Date	Time															
1	1802441-Mberm-18W(5-6)	8/5/19	1100	Soil	1	BMT		X										Extract and hold Only
—	1802441-Mberm-18W(5-6)	8/5/19	1100	soil	1	SMT	X		X									HOLD

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature)	Date: 8/5/19	Time: 1600	Received by: (signature)
1. [Signature]			1. GEI Refrigerator
Relinquished by: (signature)	Date: 8/9/19	Time: 1100	Received by: (signature)
2. GEI Refrigerator			2. [Signature]
Relinquished by: (signature)	Date: 8/9/19	Time: 1100	Received by: (signature)
3. [Signature]			3. [Signature]
Relinquished by: (signature)	Date: 8/9/19	Time: 1100	Received by: (signature)
4. [Signature]			4. [Signature]

Turnaround Time (Business days):
 Normal X Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relinquished by: [Signature] 8/9/19 17147
ice temp: 2.2
[Signature] 8/9/19 1831



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0597

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 2:52 pm, Aug 26, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0597

SAMPLE RECEIPT

The following samples were received on August 19, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0597-01	1802441-WW-06 3-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0597

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0597

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0597

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0597-01**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
 b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
 Printed Name: Laurel Stoddard

Date: August 26, 2019
 Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-WW-06 3-5
Date Sampled: 08/02/19 13:05
Percent Solids: 74
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0597
ESS Laboratory Sample ID: 19H0597-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/20/19 10:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1221	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1232	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1242	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1248	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1254	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1260	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1262	ND (0.06)		8082A		1	08/21/19 11:30		CH91905
Aroclor 1268	ND (0.06)		8082A		1	08/21/19 11:30		CH91905

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	65 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	70 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	83 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0597

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CH91905 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0211		mg/kg wet	0.02500		84	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0194		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene	0.0170		mg/kg wet	0.02500		68	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0163		mg/kg wet	0.02500		65	30-150			

LCS

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		85	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		84	40-140			

Surrogate: Decachlorobiphenyl	0.0232		mg/kg wet	0.02500		93	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0188		mg/kg wet	0.02500		75	30-150			

LCS Dup

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		91	40-140	2	30	
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		83	40-140	2	30	
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		88	40-140	3	30	
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		82	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0224		mg/kg wet	0.02500		90	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0184		mg/kg wet	0.02500		74	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0597

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0597

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 19H0597
 Date Received: 8/19/2019
 Project Due Date: 8/26/2019
 Days for Project: 5 Day

- 1. Air bill manifest present? No
 Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
 Temp: 3.0 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	378646	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials W
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 8/19/19 1952
 Reviewed By: [Signature] Date & Time: 8/19/19 2012
 Delivered By: [Signature] Date & Time: 8/19/19 2012

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # 19H0397
(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation

Project Location: Lawrence, MA

Page 1 of 2

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com,
csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCB
		Date	Time				
1802441	WW-06W(5-7)	8/2/14	1245	Soil	1	BAL	} BFM 8/15/14
1802441	S06-N1E(5-7)	8/2/14	1005	Soil	1	BRL	
1802441	S06-N1S(3-5)	8/2/14	1045	Soil	1	BRL	
1802441	S06-N1W(2-3)	8/2/14	1045	Soil	1	BRL	
1	1802441-WW-06(3-5)	8/2/14	1305	Soil	1	BRL	X
1802441	S06-N1S(5-7)	8/2/14	1030	Soil	1	BRL	} BFM 8/15/14
1802441	S06-N1W(2-3)	8/2/14	1110	Soil	1	BRL	
1802441	S06-N1E(2-3)	8/2/14	0955	Soil	1	BRL	
1802441	S06-N1E(3-5)	8/2/14	1000	Soil	1	BRL	
1802441	WW-06(5-7)	8/2/14	1030	Soil	1	BRL	
1802441	WW-06(2-3)	8/2/14	1210	Soil	1	BRL	
1802441	S06-N1S(5-7)	8/2/14	0920	Soil	1	BRL	
1802441	WW-06S(3-5)	8/2/14	1205	Soil	1	BRL	

Hold @ GEI

Hold @ GEI

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal Other
10-Day 7-Day
5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relinquished by: (signature) 1. <i>Dan</i>	Date: 8/2/14	Time: 1545	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 8/19/14	Time: 1515	Received by: (signature) 2. <i>Dan</i>
Relinquished by: (signature) 3. <i>Dan</i>	Date: 8/19/14	Time: 1515	Received by: (signature) 3. <i>Dan</i>
Relinquished by: (signature) 4. <i>Dan</i>	Date: 8/19/14	Time: 18:29	Received by: (signature) 4. <i>Dan</i> 8/19/14 1948

100 temp. 3.0



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19H0796

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 2:34 pm, Sep 03, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

SAMPLE RECEIPT

The following samples were received on August 26, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19H0796-01	1802441-MBerm-19W 5-6	Soil	8082A
19H0796-02	1802441-TBerm-17 0-1	Soil	8082A
19H0796-03	1802441-TBerm-18 0-1	Soil	8082A
19H0796-04	1802441-MBerm-17W 5-6	Soil	8082A
19H0796-05	1802441-TBerm-18 3-4	Soil	8082A
19H0796-06	1802441-BBerm-18W 0-1	Soil	8082A
19H0796-07	1802441-TBerm-17 3-4	Soil	8082A
19H0796-08	1802441-TBerm-16 3-4	Soil	8082A
19H0796-09	1802441-TBerm-19 0-1	Soil	8082A
19H0796-10	1802441-BBerm-19W 0-1	Soil	8082A
19H0796-11	1802441-BBerm17W 0-1	Soil	8082A
19H0796-12	1802441-TBerm-16 0-1	Soil	8082A
19H0796-13	1802441-TBerm-19 3-4	Soil	8082A
19H0796-14	1802441-FD-19	Soil	8082A
19H0796-15	1802441-FD-20	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19H0796-03 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0796-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0796-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0796-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0796-07 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0796-08 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0796-09 [Surrogate recovery\(ies\) below lower control limit \(S-\).](#)
Tetrachloro-m-xylene (26% @ 30-150%)
- 19H0796-10 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-10 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19H0796-11 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19H0796-11 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19H0796-01 through 19H0796-15**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 03, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-19W 5-6
Date Sampled: 08/05/19 10:40
Percent Solids: 96
Initial Volume: 20.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 12:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1221	ND (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1232	ND (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1242	ND (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1248	ND (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1254	ND (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1260	0.3 (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1262	ND (0.05)		8082A		1	08/28/19 9:56		CH92611
Aroclor 1268	ND (0.05)		8082A		1	08/28/19 9:56		CH92611

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	49 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	58 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	46 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	46 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-17 0-1
Date Sampled: 08/05/19 11:45
Percent Solids: 97
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 12:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1221	ND (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1232	ND (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1242 [2C]	0.1 (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1248	ND (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1254 [2C]	0.6 (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1260	0.8 (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1262	ND (0.05)		8082A		1	08/28/19 10:15		CH92611
Aroclor 1268	ND (0.05)		8082A		1	08/28/19 10:15		CH92611

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	58 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	58 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	62 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-18 0-1
Date Sampled: 08/05/19 11:35
Percent Solids: 92
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 12:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1221	ND (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1232	ND (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1242 [2C]	ND (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1248	ND (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1254 [2C]	13.5 (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1260	19.7 (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1262	ND (1.1)		8082A		20	08/28/19 12:11		CH92611
Aroclor 1268	ND (1.1)		8082A		20	08/28/19 12:11		CH92611

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-17W 5-6
Date Sampled: 08/05/19 12:05
Percent Solids: 90
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 12:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1221	ND (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1232	ND (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1242	15.3 (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1248	ND (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1254 [2C]	14.6 (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1260	10.9 (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1262	ND (1.1)		8082A		20	08/28/19 12:30		CH92611
Aroclor 1268	ND (1.1)		8082A		20	08/28/19 12:30		CH92611

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-18 3-4
Date Sampled: 08/05/19 11:40
Percent Solids: 92
Initial Volume: 19
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 12:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1221	ND (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1232	ND (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1242	2.3 (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1248	ND (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1254 [2C]	13.4 (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1260	15.0 (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1262	ND (1.1)		8082A		20	08/28/19 12:49		CH92611
Aroclor 1268	ND (1.1)		8082A		20	08/28/19 12:49		CH92611

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-18W 0-1
 Date Sampled: 08/05/19 11:10
 Percent Solids: 93
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
 ESS Laboratory Sample ID: 19H0796-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/27/19 12:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1221	ND (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1232	ND (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1242	2.3 (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1248	ND (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1254 [2C]	15.3 (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1260	18.9 (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1262	ND (1.1)		8082A		20	08/28/19 13:08		CH92611
Aroclor 1268	ND (1.1)		8082A		20	08/28/19 13:08		CH92611

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-17 3-4
Date Sampled: 08/05/19 11:50
Percent Solids: 94
Initial Volume: 19
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1221	ND (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1232	ND (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1242	ND (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1248	ND (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1254 [2C]	24.5 (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1260	31.4 (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1262	ND (2.3)		8082A		40	08/28/19 19:13		CH92704
Aroclor 1268	ND (2.3)		8082A		40	08/28/19 19:13		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-16 3-4
Date Sampled: 08/05/19 12:00
Percent Solids: 94
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1221	ND (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1232	ND (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1242	4.4 (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1248	ND (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1254 [2C]	20.3 (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1260	25.0 (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1262	ND (2.1)		8082A		40	08/29/19 10:58		CH92704
Aroclor 1268	ND (2.1)		8082A		40	08/29/19 10:58		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-TBerm-19 0-1
 Date Sampled: 08/05/19 11:00
 Percent Solids: 96
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
 ESS Laboratory Sample ID: 19H0796-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1221	ND (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1232	ND (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1242	ND (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1248	ND (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1254	ND (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1260	0.2 (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1262	ND (0.05)		8082A		1	08/28/19 11:13		CH92704
Aroclor 1268	ND (0.05)		8082A		1	08/28/19 11:13		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	33 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	33 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	26 %	S-	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	36 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-19W 0-1
 Date Sampled: 08/05/19 11:20
 Percent Solids: 89
 Initial Volume: 20.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
 ESS Laboratory Sample ID: 19H0796-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1221	ND (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1232	ND (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1242	ND (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1248	ND (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1254	ND (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1260	14.3 (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1262	ND (1.1)		8082A		20	08/28/19 19:52		CH92704
Aroclor 1268	ND (1.1)		8082A		20	08/28/19 19:52		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm17W 0-1
 Date Sampled: 08/05/19 12:15
 Percent Solids: 86
 Initial Volume: 20.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
 ESS Laboratory Sample ID: 19H0796-11
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1221	ND (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1232	ND (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1242	1.5 (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1248	ND (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1254 [2C]	9.6 (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1260	9.1 (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1262	ND (1.1)		8082A		20	08/28/19 20:11		CH92704
Aroclor 1268	ND (1.1)		8082A		20	08/28/19 20:11		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-16 0-1
Date Sampled: 08/05/19 11:55
Percent Solids: 96
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/28/19 12:11		CH92704
Aroclor 1221	ND (0.05)		8082A		1	08/28/19 12:11		CH92704
Aroclor 1232	ND (0.05)		8082A		1	08/28/19 12:11		CH92704
Aroclor 1242 [2C]	2.8 (0.5)		8082A		10	08/28/19 20:30		CH92704
Aroclor 1248	ND (0.05)		8082A		1	08/28/19 12:11		CH92704
Aroclor 1254 [2C]	7.2 (0.5)		8082A		10	08/28/19 20:30		CH92704
Aroclor 1260	0.9 (0.05)		8082A		1	08/28/19 12:11		CH92704
Aroclor 1262	ND (0.05)		8082A		1	08/28/19 12:11		CH92704
Aroclor 1268	ND (0.05)		8082A		1	08/28/19 12:11		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	42 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	51 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	44 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-TBerm-19 3-4
Date Sampled: 08/05/19 11:05
Percent Solids: 88
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1221	ND (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1232	ND (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1242	ND (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1248	ND (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1254	ND (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1260	0.2 (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1262	ND (0.06)		8082A		1	08/28/19 12:30		CH92704
Aroclor 1268	ND (0.06)		8082A		1	08/28/19 12:30		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	46 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	34 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	48 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-19
Date Sampled: 08/05/19 12:01
Percent Solids: 94
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
ESS Laboratory Sample ID: 19H0796-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1221	ND (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1232	ND (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1242 [2C]	0.09 (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1248	ND (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1254	ND (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1260	0.4 (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1262	ND (0.05)		8082A		1	08/28/19 12:49		CH92704
Aroclor 1268	ND (0.05)		8082A		1	08/28/19 12:49		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	42 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	56 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	34 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	43 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-FD-20
 Date Sampled: 08/05/19 12:02
 Percent Solids: 96
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19H0796
 ESS Laboratory Sample ID: 19H0796-15
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 8/27/19 15:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1221	ND (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1232	ND (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1242	0.07 (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1248	ND (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1254 [2C]	0.9 (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1260 [2C]	1.0 (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1262	ND (0.05)		8082A		1	08/28/19 13:09		CH92704
Aroclor 1268	ND (0.05)		8082A		1	08/28/19 13:09		CH92704

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	53 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH92611 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0201		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene	0.0160		mg/kg wet	0.02500		64	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0211		mg/kg wet	0.02500		85	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0228		mg/kg wet	0.02500		91	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		83	40-140	6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140	6	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140	7	30	

Surrogate: Decachlorobiphenyl	0.0191		mg/kg wet	0.02500		76	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0209		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0179		mg/kg wet	0.02500		71	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0207		mg/kg wet	0.02500		83	30-150			

Batch CH92704 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH92704 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0249		mg/kg wet	0.02500		100	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0236		mg/kg wet	0.02500		95	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0254		mg/kg wet	0.02500		102	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140			

Surrogate: Decachlorobiphenyl	0.0209		mg/kg wet	0.02500		84	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0228		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0200		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0231		mg/kg wet	0.02500		92	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		90	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140	0.6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0212		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0228		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0199		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0230		mg/kg wet	0.02500		92	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- S- Surrogate recovery(ies) below lower control limit (S-).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19H0796

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0796

Date Received: 8/26/2019

Project Due Date: 9/3/2019

Days for Project: 5 Day

Shipped/Delivered Via: ESS Courier

1. Air bill manifest present? No
Air No.: NA

2. Were custody seals present? No

3. Is radiation count <100 CPM? Yes

4. Is a Cooler Present? Yes
Temp: 0.8 Iced with: Ice

5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes

7. Is COC complete and correct? Yes

8. Were samples received intact? Yes

9. Were labs informed about short holds & rushes? Yes / No NA

10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	381149	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	381148	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	381147	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	381146	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	381145	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	381144	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	381143	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	381142	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	381141	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	381140	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	381139	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	381138	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	381137	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	381136	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	381135	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
 Were all containers scanned into storage/lab? Initials JA
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 19H0796
Date Received: 8/26/2019

Are VOA stickers attached if bubbles noted?

Yes / No NA

Completed By:	<u>[Signature]</u>	Date & Time:	<u>8/26/19</u>	<u>2017</u>	
Reviewed By:	<u>[Signature]</u>	Date & Time:	<u>8/26/19</u>	<u>2019</u>	<u>2053</u>
Delivered By:	<u>[Signature]</u>	Date & Time:	<u>8/26/19</u>	<u>2053</u>	

1940796

Chain-of-Custody Record Laboratory: **ESS** Laboratory Job #: **(Lab use only)**



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information
Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**
Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: **llombardo@geiconsultants.com, bfgongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com**
Send EDD to: **EastRegionData@geiconsultants.com**

Preservative					
None					

Sample Handling
Samples Field Filtered: YES NO NA
Sample Shipped With Ice: YES NO
Sample Specific Remarks:

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO
If Yes, Are MCP Analytical Methods Required? YES NO NA
Are Drinking Water Samples Submitted? YES NO NA
If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCB 8082
		Date	Time				
1	1802441-MBerm-19W(5-6)	8/5/19	1040	Soil	1	SMT	X
2	1802441-TBerm-17(0-1)	8/5/19	1145	Soil	1	BRL	X
3	1802441-TBerm-18(0-1)	8/5/19	1135	Soil	1	BAL	X
4	1802441-MBerm-19W(5-6)	8/5/19	1205	Soil	1	SMT	X
5	1802441-TBerm-18(3-4)	8/5/19	1140	Soil	1	BRL	X
6	1802441-BBerm-18W(0-1)	8/5/19	1110	Soil	1	SMT	X
7	1802441-TBerm-17(3-4)	8/5/19	1150	Soil	1	BAL	X
8	1802441-TBerm-16(3-4)	8/5/19	1200	Soil	1	BRL	X
9	1802441-TBerm-19(0-1)	8/5/19	1100	Soil	1	BAL	X
10	1802441-RBerm-19W(0-1)	8/5/19	1120	Soil	1	SMT	X
11	1802441-BBerm-17W(0-1)	8/5/19	1215	Soil	1	SMT	X
12	1802441-TBerm-16(0-1)	8/5/19	1155	Soil	1	BRL	X
13	1802441-TBerm-19(3-4)	8/5/19	1105	Soil	1	BAL	X

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
Normal Other
10-Day 7-Day
5-Day 3-Day
Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature)	Date	Time	Received by: (signature)
1. [Signature]	8/5/19	1545	1. GEI Refrigerator
2. GEI Refrigerator	8/26/19	1158	2. [Signature]
3. [Signature]	8/26/19	1158	3. [Signature]
4. [Signature]	8/26/19	1155	4. [Signature]

Additional Requirements/Comments/Remarks:
Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Temp - 0.8 Ice

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job # **19H0796**
(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: **Tombarello Site Investigation**

Project Number: **1802441**

Project Location: **Lawrence, MA**

Project Manager: **L. Lombardo**

Page 2 of 2

Send Report to: lombardo@geiconsultants.com,
bfongmurdock@geiconsultants.com,
csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com

Preservative

None							
------	--	--	--	--	--	--	--

Sample Handling

Samples Field Filtered

YES NO **NA**

Sampled Shipped With Ice

YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - **YES** NO

If Yes, Are MCP Analytical Methods Required?

YES NO NA

Are Drinking Water Samples Submitted?

YES **NO** NA

If Yes, Have Drinking Water Sampling Requirements Been Met?

YES NO **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBS (8082)												
		Date	Time																
14	1802441-FD-19	8/5/2019	12:01	Soil	1	BRL	X												
15	1802441-FD-20	8/5/2019	12:02	Soil	1	BRL	X												

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature) <i>[Signature]</i>	Date: 8/5/2019	Time: 1545	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 8/26/19	Time: 1158	Received by: (signature) <i>[Signature]</i>
Relinquished by: (signature) <i>[Signature]</i>	Date: 8/26/19	Time: 1158	Received by: (signature) <i>[Signature]</i>
Relinquished by: (signature) <i>[Signature]</i>	Date: 8/26/19	Time: 18:29	Received by: (signature) <i>[Signature]</i>

Turnaround Time (Business days):
Normal **X** Other _____
10-Day _____ 7-Day _____
5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Temp - 0.8 Ice



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0346

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 2:52 pm, Sep 20, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

SAMPLE RECEIPT

The following samples were received on September 12, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0346-01	1802441-BBerm-06S 0-1	Soil	8082A
19I0346-02	1802441-BBerm-07S 0-1	Soil	8082A
19I0346-03	1802441-BBerm-08S 0-1	Soil	8082A
19I0346-04	1802441-BBerm-09S 0-1	Soil	8082A
19I0346-05	1802441-BBerm-10E 0-1	Soil	8082A
19I0346-06	1802441-MBerm-06S 5-6	Soil	8082A
19I0346-07	1802441-MBerm-07S 5-6	Soil	8082A
19I0346-08	1802441-MBerm-08S 5-6	Soil	8082A
19I0346-09	1802441-MBerm-09S 5-6	Soil	8082A
19I0346-10	1802441-MBerm-10E 5-6	Soil	8082A
19I0346-11	1802441-MBerm-15WN 5-6	Soil	8082A
19I0346-12	1802441-MBerm-15WS 5-6	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19I0346-01 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (218% @ 30-150%), Decachlorobiphenyl [2C] (234% @ 30-150%)
- 19I0346-02 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (454% @ 30-150%), Decachlorobiphenyl [2C] (511% @ 30-150%)
- 19I0346-03 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (199% @ 30-150%), Decachlorobiphenyl [2C] (212% @ 30-150%)
- 19I0346-04 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19I0346-04 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19I0346-04 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (276% @ 30-150%), Decachlorobiphenyl [2C] (294% @ 30-150%)
- 19I0346-05 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (334% @ 30-150%), Decachlorobiphenyl [2C] (343% @ 30-150%)
- 19I0346-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19I0346-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0346-07 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (350% @ 30-150%), Decachlorobiphenyl [2C] (371% @ 30-150%)
- 19I0346-08 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (328% @ 30-150%), Decachlorobiphenyl [2C] (349% @ 30-150%)
- 19I0346-09 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19I0346-09 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19I0346-09 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (349% @ 30-150%), Decachlorobiphenyl [2C] (374% @ 30-150%)
- 19I0346-10 [Lower value is used due to matrix interferences \(LC\).](#)
Aroclor 1242 [2C]
- 19I0346-10 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
Aroclor 1242 [2C]
- 19I0346-10 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (465% @ 30-150%), Decachlorobiphenyl [2C] (508% @ 30-150%)
- 19I0346-11 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19I0346-11 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0346-12 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (269% @ 30-150%), Decachlorobiphenyl [2C] (286% @ 30-150%)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19I0346-01 through 19I0346-12**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 20, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-06S 0-1
Date Sampled: 09/11/19 08:00
Percent Solids: 94
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 14:31

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1221	ND (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1232	ND (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1242	ND (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1248	ND (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1254	ND (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1260	0.2 (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1262	ND (0.06)		8082A		1	09/18/19 18:21		CI91307
Aroclor 1268 [2C]	0.1 (0.06)		8082A		1	09/18/19 18:21		CI91307

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	218 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	234 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	67 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	75 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-07S 0-1
Date Sampled: 09/11/19 08:25
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 14:31

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1221	ND (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1232	ND (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1242	ND (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1248	ND (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1254	ND (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1260	0.3 (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1262	ND (0.06)		8082A		1	09/18/19 18:40		CI91307
Aroclor 1268 [2C]	0.3 (0.06)		8082A		1	09/18/19 18:40		CI91307

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	454 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	511 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	56 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-08S 0-1
Date Sampled: 09/11/19 09:05
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 14:31

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1221	ND (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1232	ND (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1242	ND (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1248	ND (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1254	ND (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1260	0.6 (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1262	ND (0.06)		8082A		1	09/18/19 18:59		CI91307
Aroclor 1268 [2C]	0.2 (0.06)		8082A		1	09/18/19 18:59		CI91307

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	199 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	212 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	56 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-09S 0-1
Date Sampled: 09/11/19 10:35
Percent Solids: 95
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 13:12		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 13:12		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 13:12		CI91308
Aroclor 1242 [2C]	P, LC 1.3 (0.3)		8082A		5	09/18/19 20:54		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 13:12		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 13:12		CI91308
Aroclor 1260 [2C]	0.8 (0.05)		8082A		1	09/17/19 13:12		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 13:12		CI91308
Aroclor 1268 [2C]	0.3 (0.05)		8082A		1	09/17/19 13:12		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	276 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	294 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	53 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	59 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-10E 0-1
Date Sampled: 09/11/19 10:10
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/17/19 13:31		CI91308
Aroclor 1221	ND (0.06)		8082A		1	09/17/19 13:31		CI91308
Aroclor 1232	ND (0.06)		8082A		1	09/17/19 13:31		CI91308
Aroclor 1242	0.2 (0.06)		8082A		1	09/17/19 13:31		CI91308
Aroclor 1248	ND (0.06)		8082A		1	09/17/19 13:31		CI91308
Aroclor 1254	ND (0.06)		8082A		1	09/17/19 13:31		CI91308
Aroclor 1260	5.3 (0.3)		8082A		5	09/18/19 21:13		CI91308
Aroclor 1262	ND (0.06)		8082A		1	09/17/19 13:31		CI91308
Aroclor 1268 [2C]	1.0 (0.06)		8082A		1	09/17/19 13:31		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	334 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	343 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-06S 5-6
Date Sampled: 09/11/19 07:50
Percent Solids: 96
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1221	ND (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1232	ND (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1242	ND (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1248	ND (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1254 [2C]	11.2 (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1260	12.4 (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1262	ND (1.0)		8082A		20	09/18/19 21:32		CI91308
Aroclor 1268	2.3 (1.0)		8082A		20	09/18/19 21:32		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-07S 5-6
Date Sampled: 09/11/19 08:15
Percent Solids: 94
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1242 [2C]	0.1 (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1260	0.7 (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 14:10		CI91308
Aroclor 1268 [2C]	0.3 (0.05)		8082A		1	09/17/19 14:10		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	350 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	371 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	61 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-08S 5-6
Date Sampled: 09/11/19 08:55
Percent Solids: 94
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1242	ND (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1260 [2C]	0.6 (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 14:29		CI91308
Aroclor 1268 [2C]	0.3 (0.05)		8082A		1	09/17/19 14:29		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	328 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	349 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	56 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	65 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-09S 5-6
Date Sampled: 09/11/19 10:25
Percent Solids: 93
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1242 [2C]	P, LC 0.1 (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1260 [2C]	0.8 (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 14:48		CI91308
Aroclor 1268 [2C]	0.3 (0.05)		8082A		1	09/17/19 14:48		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	349 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	374 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	51 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-10E 5-6
Date Sampled: 09/11/19 10:00
Percent Solids: 85
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1221	ND (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1232	ND (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1242 [2C]	P, LC 0.2 (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1248	ND (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1254	ND (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1260 [2C]	0.4 (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1262	ND (0.06)		8082A		1	09/17/19 15:07		CI91308
Aroclor 1268 [2C]	0.5 (0.06)		8082A		1	09/17/19 15:07		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	465 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	508 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	37 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	44 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-15WN 5-6
Date Sampled: 09/11/19 13:10
Percent Solids: 84
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1221	ND (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1232	ND (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1242	ND (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1248	ND (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1254 [2C]	94.2 (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1260 [2C]	145 (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1262	ND (12.2)		8082A		200	09/19/19 14:52		CI91308
Aroclor 1268	ND (12.2)		8082A		200	09/19/19 14:52		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-15WS 5-6
Date Sampled: 09/11/19 13:45
Percent Solids: 89
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0346
ESS Laboratory Sample ID: 19I0346-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/17/19 15:46		CI91308
Aroclor 1221	ND (0.06)		8082A		1	09/17/19 15:46		CI91308
Aroclor 1232	ND (0.06)		8082A		1	09/17/19 15:46		CI91308
Aroclor 1242	ND (0.06)		8082A		1	09/17/19 15:46		CI91308
Aroclor 1248	ND (0.06)		8082A		1	09/17/19 15:46		CI91308
Aroclor 1254 [2C]	2.7 (0.3)		8082A		5	09/18/19 22:10		CI91308
Aroclor 1260	2.8 (0.3)		8082A		5	09/18/19 22:10		CI91308
Aroclor 1262	ND (0.06)		8082A		1	09/17/19 15:46		CI91308
Aroclor 1268 [2C]	0.5 (0.06)		8082A		1	09/17/19 15:46		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	269 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	286 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	41 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	49 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CI91307 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0204		mg/kg wet	0.02500		82	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0156		mg/kg wet	0.02500		63	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0196		mg/kg wet	0.02500		79	30-150			

LCS

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.6	0.02	mg/kg wet	0.5000		112	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		107	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		104	40-140			

Surrogate: Decachlorobiphenyl	0.0243		mg/kg wet	0.02500		97	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0228		mg/kg wet	0.02500		91	30-150			

LCS Dup

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		91	40-140	3	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		109	40-140	3	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		105	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		102	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0239		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0248		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0185		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0222		mg/kg wet	0.02500		89	30-150			

Batch CI91308 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch C191308 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0182		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0186		mg/kg wet	0.02500		74	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0181		mg/kg wet	0.02500		72	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		90	40-140	6	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	5	30	

Surrogate: Decachlorobiphenyl	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0219		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0183		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0174		mg/kg wet	0.02500		70	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- P Percent difference between primary and confirmation results exceeds 40% (P).
- LC Lower value is used due to matrix interferences (LC).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0346

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 1910346
 Date Received: 9/12/2019
 Project Due Date: 9/19/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 2.9 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

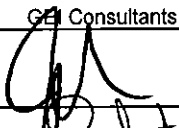
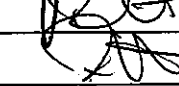

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	387429	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	387428	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	387427	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	387426	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	387425	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	387424	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	387423	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	387422	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	387421	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	387420	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	387419	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	387418	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

- 2nd Review**
- Were all containers scanned into storage/lab?
 Are barcode labels on correct containers?
 Are all Flashpoint stickers attached/container ID # circled?
 Are all Hex Chrome stickers attached?
 Are all QC stickers attached?
 Are VOA stickers attached if bubbles noted?

Initials: [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client:	<u>GEI Consultants, Inc. - TB/MM</u>	ESS Project ID:	<u>1910346</u>
		Date Received:	<u>9/12/2019</u>
Completed By:		Date & Time:	<u>9/12/19</u> <u>2:00</u>
Reviewed By:		Date & Time:	<u>9/12/19</u> <u>2:58</u>
Delivered By:		Date & Time:	<u>9/12/19</u> <u>2:58</u>



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information
 Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Page 1 of 1

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Preservative					
None					

Sample Handling:
 Samples Field Filtered
 YES NO NA
 Sampled Shipped With Ice
YES NO
Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)							
		Date	Time											
1	1802441-BBerm-06S(0-1)	9/11/2019	0800	Soil	1	CWS	x							
2	1802441-BBerm-07S(0-1)	9/11/2019	0825	Soil	1	CWS	x							
3	1802441-BBerm-08S(0-1)	9/11/2019	0905	Soil	1	CWS	x							
4	1802441-BBerm-09S(0-1)	9/11/2019	1035	Soil	1	CWS	x							
5	1802441-BBerm-10E(0-1)	9/11/2019	1010	Soil	1	CWS	x							
6	1802441-MBerm-06S(5-6)	9/11/2019	0750	Soil	1	CWS	x							
7	1802441-MBerm-07S(5-6)	9/11/2019	0815	Soil	1	CWS	x							
8	1802441-MBerm-08S(5-6)	9/11/2019	0855	Soil	1	CWS	x							
9	1802441-MBerm-09S(5-6)	9/11/2019	1025	Soil	1	CWS	x							
10	1802441-MBerm-10E(5-6)	9/11/2019	1000	Soil	1	CWS	x							
11	1802441-MBerm-15WN(5-6)	9/11/2019	1310	Soil	1	CWS	x							
12	1802441-MBerm-15WS(5-6)	9/11/2019	1345	Soil	1	CWS	x							

Turnaround Time (Business days):
 Normal X Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relinquished by (signature): <u>[Signature]</u>	Date: <u>9/11/2019</u>	Time: <u>1530</u>	Received by (signature): <u>[Signature]</u>
1. <u>[Signature]</u>			1. GEI Refrigerator
Relinquished by (signature): <u>[Signature]</u>	Date: <u>9/12/19</u>	Time: <u>1126</u>	Received by (signature): <u>[Signature]</u>
2. <u>[Signature]</u>			2. <u>[Signature]</u>
Relinquished by (signature): <u>[Signature]</u>	Date: <u>9/12/2019</u>	Time: <u>1142</u>	Received by (signature): <u>[Signature]</u>
3. <u>[Signature]</u>			3. <u>[Signature]</u>
Relinquished by (signature): <u>[Signature]</u>	Date: <u>9/12/19</u>	Time: <u>19:03</u>	Received by (signature): <u>[Signature]</u>
4. <u>[Signature]</u>			4. <u>[Signature]</u>

ice temp: 2.9



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0347

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 2:25 pm, Sep 18, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0347

SAMPLE RECEIPT

The following samples were received on September 12, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0347-01	1802441-EB-10	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910347

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0347

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910347

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1910347-01**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air (X) Other: Equip Blank

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---|--------------------------------|---|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (X) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes (X) No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes (X) No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes (X) No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes (X) No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes (X) No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes (X) No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 17, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-10
Date Sampled: 09/11/19 07:55
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19I0347
ESS Laboratory Sample ID: 19I0347-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 9/13/19 9:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1221	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1232	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1242	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1248	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1254	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1260	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1262	ND (0.09)		8082A		1	09/14/19 6:15		CI91203
Aroclor 1268	ND (0.09)		8082A		1	09/14/19 6:15		CI91203

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	<i>80 %</i>		<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>89 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>65 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>81 %</i>		<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910347

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CI91203 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

Surrogate: Decachlorobiphenyl	0.0332		ug/L	0.05000	66	30-150				
Surrogate: Decachlorobiphenyl [2C]	0.0292		ug/L	0.05000	58	30-150				
Surrogate: Tetrachloro-m-xylene	0.0223		ug/L	0.05000	45	30-150				
Surrogate: Tetrachloro-m-xylene [2C]	0.0250		ug/L	0.05000	50	30-150				

LCS

Aroclor 1016	0.91	0.10	ug/L	1.000	91	40-140				
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000	93	40-140				
Aroclor 1260	0.94	0.10	ug/L	1.000	94	40-140				
Aroclor 1260 [2C]	0.97	0.10	ug/L	1.000	97	40-140				

Surrogate: Decachlorobiphenyl	0.0489		ug/L	0.05000	98	30-150				
Surrogate: Decachlorobiphenyl [2C]	0.0431		ug/L	0.05000	86	30-150				
Surrogate: Tetrachloro-m-xylene	0.0303		ug/L	0.05000	61	30-150				
Surrogate: Tetrachloro-m-xylene [2C]	0.0325		ug/L	0.05000	65	30-150				

LCS Dup

Aroclor 1016	0.88	0.10	ug/L	1.000	88	40-140	4	20		
Aroclor 1016 [2C]	0.91	0.10	ug/L	1.000	91	40-140	3	20		
Aroclor 1260	0.93	0.10	ug/L	1.000	93	40-140	1	20		
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000	96	40-140	1	20		

Surrogate: Decachlorobiphenyl	0.0415		ug/L	0.05000	83	30-150				
Surrogate: Decachlorobiphenyl [2C]	0.0429		ug/L	0.05000	86	30-150				
Surrogate: Tetrachloro-m-xylene	0.0286		ug/L	0.05000	57	30-150				
Surrogate: Tetrachloro-m-xylene [2C]	0.0299		ug/L	0.05000	60	30-150				



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0347

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910347

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910347

Date Received: 9/12/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 9/19/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 2.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	387430	Yes	NA	Yes	1L Amber - Unpres	NP	

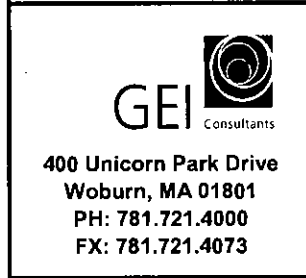
2nd Review

Were all containers scanned into storage/lab?

Initials: [Signature]

- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 9/12/19 2007
 Reviewed By: [Signature] Date & Time: 9/12/19 2205
 Delivered By: [Signature] Date & Time: 9/12/19 2205



Project Information

Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**

Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: **llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com**

Send EDD to: **EastRegionData@geiconsultants.com**

Page 1 of 1

MCP PRESUMPTIVE CERTAINTY REQUIRED: YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative						
None						

Sample Handling

Samples Field Filtered YES NO NA

Sampled Shipped With Ice YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)
		Date	Time				
	1802441-EB-10	9/11/2019	0755	Aqueous	1	CWS	X

PCBs (8082)									
X									

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by (signature): <i>[Signature]</i>	Date: 9/11/2019	Time: 1530	Received by (signature):
1. <i>[Signature]</i>			1. GEI Refrigerator
Relinquished by (signature): <i>[Signature]</i>	Date: 9/12/2019	Time: 1142	Received by (signature): <i>[Signature]</i>
2. GEI Refrigerator			2. <i>[Signature]</i>
Relinquished by (signature): <i>[Signature]</i>	Date: 9/12/2019	Time: 1142	Received by (signature): <i>[Signature]</i>
3. <i>[Signature]</i>			3. <i>[Signature]</i>
Relinquished by (signature): <i>[Signature]</i>	Date: 9/12/19	Time: 19:03	Received by (signature): <i>[Signature]</i>
4. <i>[Signature]</i>			4. <i>[Signature]</i>

Turnaround Time (Business days):

Normal Other

10-Day 7-Day

5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

5/19/9/12/2019



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0348

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 4:40 pm, Sep 20, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

SAMPLE RECEIPT

The following samples were received on September 12, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0348-01	1802441-BBerm-01S 0-1	Soil	8082A
19I0348-02	1802441-BBerm-02S 0-1	Soil	8082A
19I0348-03	1802441-BBerm-03S 0-1	Soil	8082A
19I0348-04	1802441-BBerm-04S 0-1	Soil	8082A
19I0348-05	1802441-BBerm-05S 0-1	Soil	8082A
19I0348-06	1802441-MBerm-01S 5-6	Soil	8082A
19I0348-07	1802441-MBerm-02S 5-6	Soil	8082A
19I0348-08	1802441-MBerm-03S 5-6	Soil	8082A
19I0348-09	1802441-MBerm-04S 5-6	Soil	8082A
19I0348-10	1802441-MBerm-05S 5-6	Soil	8082A
19I0348-11	1802441-SVA-05 0-0.5	Soil	8082A
19I0348-12	1802441-SVA-05 1-2	Soil	8082A
19I0348-13	1802441-SVA-05 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19I0348-01 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (256% @ 30-150%), Decachlorobiphenyl [2C] (262% @ 30-150%)
- 19I0348-06 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19I0348-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0348-07 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (219% @ 30-150%), Decachlorobiphenyl [2C] (231% @ 30-150%)
- 19I0348-08 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (153% @ 30-150%)
- 19I0348-09 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (169% @ 30-150%), Decachlorobiphenyl [2C] (184% @ 30-150%)
- 19I0348-10 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (410% @ 30-150%), Decachlorobiphenyl [2C] (440% @ 30-150%)
- 19I0348-11 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (190% @ 30-150%)
- 19I0348-13 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (161% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19I0348-01 through 19I0348-13**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

*All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 20, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-01S 0-1
Date Sampled: 09/10/19 09:45
Percent Solids: 94
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1242	ND (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1260	0.2 (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 16:05		CI91308
Aroclor 1268 [2C]	0.1 (0.05)		8082A		1	09/17/19 16:05		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	256 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	262 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	67 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	75 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-02S 0-1
Date Sampled: 09/10/19 10:45
Percent Solids: 93
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/18/19 16:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1221	ND (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1232	ND (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1242	ND (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1248	ND (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1254	ND (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1260 [2C]	0.06 (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1262	ND (0.06)		8082A		1	09/20/19 3:34		CI91807
Aroclor 1268	ND (0.06)		8082A		1	09/20/19 3:34		CI91807

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	94 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	100 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	51 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	64 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-03S 0-1
Date Sampled: 09/10/19 11:25
Percent Solids: 95
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1221	ND (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1232	ND (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1242	ND (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1248	ND (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1254	ND (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1260	0.3 (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1262	ND (0.06)		8082A		1	09/17/19 16:43		CI91308
Aroclor 1268	ND (0.06)		8082A		1	09/17/19 16:43		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	111 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	117 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	72 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-04S 0-1
Date Sampled: 09/10/19 12:05
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1242	ND (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1260	0.3 (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 17:02		CI91308
Aroclor 1268 [2C]	0.1 (0.05)		8082A		1	09/17/19 17:02		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	137 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	142 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-05S 0-1
Date Sampled: 09/10/19 13:05
Percent Solids: 94
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1242	ND (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1260	0.5 (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 17:21		CI91308
Aroclor 1268 [2C]	0.1 (0.05)		8082A		1	09/17/19 17:21		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	133 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	139 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	65 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-01S 5-6
Date Sampled: 09/10/19 10:00
Percent Solids: 88
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1221	ND (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1232	ND (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1242	ND (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1248	ND (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1254 [2C]	11.4 (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1260	14.8 (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1262	ND (1.1)		8082A		20	09/18/19 22:29		CI91308
Aroclor 1268	2.6 (1.1)		8082A		20	09/18/19 22:29		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-MBerm-02S 5-6
 Date Sampled: 09/10/19 10:35
 Percent Solids: 94
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
 ESS Laboratory Sample ID: 19I0348-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1221	ND (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1232	ND (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1242	ND (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1248	ND (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1254	ND (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1260	0.4 (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1262	ND (0.05)		8082A		1	09/17/19 18:00		CI91308
Aroclor 1268 [2C]	0.2 (0.05)		8082A		1	09/17/19 18:00		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	219 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	231 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	40 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	52 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-MBerm-03S 5-6
 Date Sampled: 09/10/19 11:10
 Percent Solids: 92
 Initial Volume: 19.8
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
 ESS Laboratory Sample ID: 19I0348-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1221	ND (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1232	ND (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1242	ND (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1248	ND (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1254	ND (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1260	0.1 (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1262	ND (0.06)		8082A		1	09/17/19 18:19		CI91308
Aroclor 1268 [2C]	0.09 (0.06)		8082A		1	09/17/19 18:19		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	147 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	153 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	34 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	45 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-04S 5-6
Date Sampled: 09/10/19 11:55
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/17/19 21:11		CI91308
Aroclor 1221	ND (0.06)		8082A		1	09/17/19 21:11		CI91308
Aroclor 1232	ND (0.06)		8082A		1	09/17/19 21:11		CI91308
Aroclor 1242	ND (0.06)		8082A		1	09/17/19 21:11		CI91308
Aroclor 1248	ND (0.06)		8082A		1	09/17/19 21:11		CI91308
Aroclor 1254 [2C]	1.9 (0.3)		8082A		5	09/18/19 22:48		CI91308
Aroclor 1260 [2C]	2.3 (0.3)		8082A		5	09/18/19 22:48		CI91308
Aroclor 1262	ND (0.06)		8082A		1	09/17/19 21:11		CI91308
Aroclor 1268 [2C]	0.5 (0.06)		8082A		1	09/17/19 21:11		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	169 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	184 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	41 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	39 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-05S 5-6
Date Sampled: 09/10/19 12:50
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 15:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1221	ND (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1232	ND (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1242	ND (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1248	ND (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1254	ND (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1260	0.6 (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1262	ND (0.06)		8082A		1	09/17/19 21:30		CI91308
Aroclor 1268 [2C]	0.4 (0.06)		8082A		1	09/17/19 21:30		CI91308

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	410 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	440 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SVA-05 0-0.5
 Date Sampled: 09/10/19 14:30
 Percent Solids: 88
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
 ESS Laboratory Sample ID: 19I0348-11
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/18/19 16:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/20/19 3:53		CI91807
Aroclor 1221	ND (0.06)		8082A		1	09/20/19 3:53		CI91807
Aroclor 1232	ND (0.06)		8082A		1	09/20/19 3:53		CI91807
Aroclor 1242	2.3 (0.3)		8082A		5	09/20/19 9:35		CI91807
Aroclor 1248	ND (0.06)		8082A		1	09/20/19 3:53		CI91807
Aroclor 1254	ND (0.06)		8082A		1	09/20/19 3:53		CI91807
Aroclor 1260 [2C]	2.9 (0.3)		8082A		5	09/20/19 9:35		CI91807
Aroclor 1262	ND (0.06)		8082A		1	09/20/19 3:53		CI91807
Aroclor 1268	ND (0.06)		8082A		1	09/20/19 3:53		CI91807

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	83 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	190 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	57 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 1-2
Date Sampled: 09/10/19 14:35
Percent Solids: 85
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 16:02

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/16/19 16:18		CI91309
Aroclor 1221	ND (0.06)		8082A		1	09/16/19 16:18		CI91309
Aroclor 1232	ND (0.06)		8082A		1	09/16/19 16:18		CI91309
Aroclor 1242	ND (0.06)		8082A		1	09/16/19 16:18		CI91309
Aroclor 1248	3.2 (0.6)		8082A		10	09/18/19 19:18		CI91309
Aroclor 1254	ND (0.06)		8082A		1	09/16/19 16:18		CI91309
Aroclor 1260	5.0 (0.6)		8082A		10	09/18/19 19:18		CI91309
Aroclor 1262	ND (0.06)		8082A		1	09/16/19 16:18		CI91309
Aroclor 1268	ND (0.06)		8082A		1	09/16/19 16:18		CI91309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	70 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	128 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	57 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	53 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-05 2-3
Date Sampled: 09/10/19 14:40
Percent Solids: 83
Initial Volume: 4.99
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0348
ESS Laboratory Sample ID: 19I0348-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/13/19 16:02

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	09/16/19 16:37		CI91309
Aroclor 1221	ND (0.1)		8082A		1	09/16/19 16:37		CI91309
Aroclor 1232	ND (0.1)		8082A		1	09/16/19 16:37		CI91309
Aroclor 1242	ND (0.1)		8082A		1	09/16/19 16:37		CI91309
Aroclor 1248 [2C]	15.4 (1.2)		8082A		10	09/18/19 19:37		CI91309
Aroclor 1254	ND (0.1)		8082A		1	09/16/19 16:37		CI91309
Aroclor 1260	15.9 (1.2)		8082A		10	09/18/19 19:37		CI91309
Aroclor 1262	ND (0.1)		8082A		1	09/16/19 16:37		CI91309
Aroclor 1268	ND (0.1)		8082A		1	09/16/19 16:37		CI91309

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	81 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	161 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	61 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CI91308 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0182		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0186		mg/kg wet	0.02500		74	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0181		mg/kg wet	0.02500		72	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		90	40-140	6	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	5	30	

Surrogate: Decachlorobiphenyl	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0219		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0183		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0174		mg/kg wet	0.02500		70	30-150			

Batch CI91309 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch C191309 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0270		mg/kg wet	0.02500		108	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0269		mg/kg wet	0.02500		108	30-150			
Surrogate: Tetrachloro-m-xylene	0.0175		mg/kg wet	0.02500		70	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0227		mg/kg wet	0.02500		91	30-150			

LCS

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		96	40-140			
Aroclor 1016 [2C]	0.6	0.02	mg/kg wet	0.5000		111	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		110	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		104	40-140			

Surrogate: Decachlorobiphenyl	0.0250		mg/kg wet	0.02500		100	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0268		mg/kg wet	0.02500		107	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0230		mg/kg wet	0.02500		92	30-150			

LCS Dup

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		92	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		107	40-140	3	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		103	40-140	6	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		101	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0261		mg/kg wet	0.02500		104	30-150			
Surrogate: Tetrachloro-m-xylene	0.0180		mg/kg wet	0.02500		72	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			

Batch C191807 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch C191807 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0209		mg/kg wet	0.02500		84	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0211		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0185		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0182		mg/kg wet	0.02500		73	30-150			

LCS

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		94	40-140			

Surrogate: Decachlorobiphenyl	0.0230		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0230		mg/kg wet	0.02500		92	30-150			
Surrogate: Tetrachloro-m-xylene	0.0191		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0187		mg/kg wet	0.02500		75	30-150			

LCS Dup

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		93	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		95	40-140	2	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		94	40-140	0.7	30	

Surrogate: Decachlorobiphenyl	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0228		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0186		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0181		mg/kg wet	0.02500		73	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0348

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 1910348
 Date Received: 9/12/2019
 Project Due Date: 9/19/2019
 Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 2.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about **short holds & rushes**? Yes / No NA
- 10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

COC = BBerm-01S(0-1) collected 945 ; Label = collected 1000
COC = BBerm-01S(5-6) collected 1000 ; Label = collected 945

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? leslie lombardo Date: 9/13/19 Time: _____ By: hdm

email notification sent to client

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	387443	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	387442	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	387441	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	387440	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	387439	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	387438	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	387437	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	387436	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	387435	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	387434	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	387433	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	387432	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	387431	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

Initials: [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910348

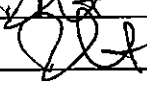
Date Received: 9/12/2019

Completed By: 

Date & Time: 9/12/19 2019

Reviewed By: 

Date & Time: 9/12/19 2003

Delivered By: 

Date & Time: 9/12/19 2003

Chain-of-Custody Record Laboratory: ESS Laboratory Job # 92018
(Lab use only)

Project Information

Project Name: Tombarello Site Investigation Project Location: Lawrence, MA

Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Preservative: None

Sample Handling: Samples Field Filtered YES NO NA

Sample Shipped With Ice YES NO

Sample Specific Remarks

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	PCBs (8082)							Sample Specific Remarks
		Date	Time											
1	1802441-BBerm-01S(0-1)	9/10/19	0945	Soil	1	CWS	x							
2	1802441-BBerm-02S(0-1)	9/10/19	1045	Soil	1	CWS	x							
3	1802441-BBerm-03S(0-1)	9/10/19	1125	Soil	1	CWS	x							
4	1802441-BBerm-04S(0-1)	9/10/19	1205	Soil	1	CWS	x							
5	1802441-BBerm-05S(0-1)	9/10/19	1305	Soil	1	CWS	x							
6	1802441-MBerm-01S(5-6)	9/10/19	1000	Soil	1	CWS	x							
7	1802441-MBerm-02S(5-6)	9/10/19	1035	Soil	1	CWS	x							
8	1802441-MBerm-03S(5-6)	9/10/19	1110	Soil	1	CWS	x							
9	1802441-MBerm-04S(5-6)	9/10/19	1155	Soil	1	CWS	x							
10	1802441-MBerm-05S(5-6)	9/10/19	1250	Soil	1	CWS	x							
11	1802441-SVA-05(0-0.5)	9/10/19	1430	Soil	1	CWS	x							
12	1802441-SVA-05(1-2)	9/10/19	1435	Soil	1	CWS	x							
13	1802441-SVA-05(2-3)	9/10/19	1440	Soil	1	CWS	x							

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days): Normal X Other ___
10-Day ___ 7-Day ___
5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Relinquished by: (signature) 1. <u>[Signature]</u>	Date: <u>9/10/19</u>	Time: <u>1600</u>	Received by: (signature) 1. <u>GEI Refrigerator</u>
Relinquished by: (signature) 2. <u>GEI Refrigerator</u>	Date: <u>9/12/2019</u>	Time: <u>1139</u>	Received by: (signature) 2. <u>[Signature]</u>
Relinquished by: (signature) 3. <u>[Signature]</u>	Date: <u>9/12/2019</u>	Time: <u>1139</u>	Received by: (signature) 3. <u>[Signature]</u>
Relinquished by: (signature) 4. <u>[Signature]</u>	Date: <u>9/10/19</u>	Time: <u>14:03</u>	Received by: (signature) 4. <u>[Signature]</u>

ice temp: 2.9



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Page 1 of 1

Sample Handling

Samples Field Filtered
 YES NO **NA**

Sampled Shipped With Ice
YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - **YES** NO

If Yes, Are MCP Analytical Methods Required? **YES** NO NA
 Are Drinking Water Samples Submitted? YES **NO** NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	PCBs (8082)	Preservative							
		Date	Time												
1	1802441-BBerm-01S(0-1)	9/10/19	0945	Soil	1	CWS	x								
2	1802441-BBerm-02S(0-1)	9/10/19	1045	Soil	1	CWS	x								
3	1802441-BBerm-03S(0-1)	9/10/19	1125	Soil	1	CWS	x								
4	1802441-BBerm-04S(0-1)	9/10/19	1205	Soil	1	CWS	x								
5	1802441-BBerm-05S(0-1)	9/10/19	1305	Soil	1	CWS	x								
6	1802441-MBerm-01S(5-6)	9/10/19	1000	Soil	1	CWS	x								
7	1802441-MBerm-02S(5-6)	9/10/19	1035	Soil	1	CWS	x								
8	1802441-MBerm-03S(5-6)	9/10/19	1110	Soil	1	CWS	x								
9	1802441-MBerm-04S(5-6)	9/10/19	1155	Soil	1	CWS	x								
10	1802441-MBerm-05S(5-6)	9/10/19	1250	Soil	1	CWS	x								
11	1802441-SVA-05(0-0.5)	9/10/19	1430	Soil	1	CWS	x								
12	1802441-SVA-05(1-2)	9/10/19	1435	Soil	1	CWS	x								
13	1802441-SVA-05(2-3)	9/10/19	1440	Soil	1	CWS	x								

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature) 1. <i>[Signature]</i>	Date: 9/10/19	Time: 1600	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 9/12/2019	Time: 1139	Received by: (signature) 2. <i>[Signature]</i>
Relinquished by: (signature) 3. <i>[Signature]</i>	Date: 9/12/2019	Time: 1139	Received by: (signature) 3. <i>[Signature]</i>
Relinquished by: (signature) 4. <i>[Signature]</i>	Date: 9/10/19	Time: 14:03	Received by: (signature) 4. <i>[Signature]</i>

Turnaround Time (Business days):

Normal X Other
 10-Day 7-Day
 5-Day 3-Day

Before submitting rush turnaround samples, you must **notify the laboratory to confirm that the TAT can be achieved.**

Additional Requirements/Comments/Remarks:

Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

ice temp: 2.9



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0349

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 2:29 pm, Sep 18, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0349

SAMPLE RECEIPT

The following samples were received on September 12, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0349-01	1802441-EB-09	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910349

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0349

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910349

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1910349-01**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air (X) Other: Equip Blank

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---|--------------------------------|---|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (X) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes (X) No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes (X) No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes (X) No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes (X) No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes (X) No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes (X) No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 17, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-09
Date Sampled: 09/10/19 09:50
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19I0349
ESS Laboratory Sample ID: 19I0349-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 9/13/19 9:45

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1221	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1232	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1242	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1248	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1254	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1260	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1262	ND (0.09)		8082A		1	09/14/19 6:34		CI91203
Aroclor 1268	ND (0.09)		8082A		1	09/14/19 6:34		CI91203

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	<i>84 %</i>		<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>92 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>58 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>74 %</i>		<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910349

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CI91203 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							
<hr/>										
Surrogate: Decachlorobiphenyl	0.0332		ug/L	0.05000		66	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0292		ug/L	0.05000		58	30-150			
Surrogate: Tetrachloro-m-xylene	0.0223		ug/L	0.05000		45	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0250		ug/L	0.05000		50	30-150			

LCS

Aroclor 1016	0.91	0.10	ug/L	1.000		91	40-140			
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000		93	40-140			
Aroclor 1260	0.94	0.10	ug/L	1.000		94	40-140			
Aroclor 1260 [2C]	0.97	0.10	ug/L	1.000		97	40-140			
<hr/>										
Surrogate: Decachlorobiphenyl	0.0489		ug/L	0.05000		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0431		ug/L	0.05000		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0303		ug/L	0.05000		61	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0325		ug/L	0.05000		65	30-150			

LCS Dup

Aroclor 1016	0.88	0.10	ug/L	1.000		88	40-140	4	20	
Aroclor 1016 [2C]	0.91	0.10	ug/L	1.000		91	40-140	3	20	
Aroclor 1260	0.93	0.10	ug/L	1.000		93	40-140	1	20	
Aroclor 1260 [2C]	0.96	0.10	ug/L	1.000		96	40-140	1	20	
<hr/>										
Surrogate: Decachlorobiphenyl	0.0415		ug/L	0.05000		83	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0429		ug/L	0.05000		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0286		ug/L	0.05000		57	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0299		ug/L	0.05000		60	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0349

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0349

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910349

Date Received: 9/12/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 9/19/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 2.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	387444	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review


Were all containers scanned into storage/lab?

Initials: [Signature]

- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?
- Are VOA stickers attached if bubbles noted?

Yes / No
Yes / No / NA
Yes / No / NA
Yes / No / NA
Yes / No / NA

Completed By: [Signature] Date & Time: 9/12/19 2028
Reviewed By: [Signature] Date & Time: 9/12/19 2206
Delivered By: [Signature] Date & Time: 9/12/19 2206

 400 Unicorn Park Drive Woburn, MA 01801 PH: 781.721.4000 FX: 781.721.4073	Project Information		Page 1 of 1	
	Project Name: Tombarello Site Investigation			Project Location: Lawrence, MA
	Project Number: 1802441		Project Manager: L. Lombardo	
	Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com		Preservative None	
Send EDD to: EastRegionData@geiconsultants.com				

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	Sample Handling						Sample Specific Remarks				
		Date	Time					None										
	1802441-EB-09	9/10/19	0950	Aqueous	1	CWS	x											

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature) 1. <i>[Signature]</i>	Date: 9/10/19	Time: 1600	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 9/12/2019	Time: 1140	Received by: (signature) 2. <i>[Signature]</i>
Relinquished by: (signature) 3. <i>[Signature]</i>	Date: 9/12/2019	Time: 1140	Received by: (signature) 3. <i>[Signature]</i>
Relinquished by: (signature) 4. <i>[Signature]</i>	Date: 9/12/19	Time: 19:03	Received by: (signature) 4. <i>[Signature]</i> 9/19 9/12/19 2008

100 temp: 2.9

Turnaround Time (Business days):
 Normal Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0425

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 12:18 pm, Sep 20, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0425

SAMPLE RECEIPT

The following samples were received on September 13, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0425-01	1802441-EB-11	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0425

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0425

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0425

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19I0425-01**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air (X) Other: Equipment Blank

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---|--------------------------------|---|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (X) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes (X) No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes (X) No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes (X) No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes (X) No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes (X) No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes (X) No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 20, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-11
Date Sampled: 09/12/19 11:55
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19I0425
ESS Laboratory Sample ID: 19I0425-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 9/17/19 10:36

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1221	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1232	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1242	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1248	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1254	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1260	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1262	ND (0.10)		8082A		1	09/17/19 16:11		CI91703
Aroclor 1268	ND (0.10)		8082A		1	09/17/19 16:11		CI91703

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	74 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	71 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0425

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch C191703 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							

Surrogate: Decachlorobiphenyl	0.0378		ug/L	0.05000		76	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0409		ug/L	0.05000		82	30-150			
Surrogate: Tetrachloro-m-xylene	0.0223		ug/L	0.05000		45	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0310		ug/L	0.05000		62	30-150			

LCS

Aroclor 1016	0.63	0.10	ug/L	1.000		63	40-140			
Aroclor 1016 [2C]	0.88	0.10	ug/L	1.000		88	40-140			
Aroclor 1260	0.86	0.10	ug/L	1.000		86	40-140			
Aroclor 1260 [2C]	0.87	0.10	ug/L	1.000		87	40-140			

Surrogate: Decachlorobiphenyl	0.0441		ug/L	0.05000		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0467		ug/L	0.05000		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0255		ug/L	0.05000		51	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0313		ug/L	0.05000		63	30-150			

LCS Dup

Aroclor 1016	0.68	0.10	ug/L	1.000		68	40-140	9	20	
Aroclor 1016 [2C]	0.83	0.10	ug/L	1.000		83	40-140	6	20	
Aroclor 1260	0.89	0.10	ug/L	1.000		89	40-140	3	20	
Aroclor 1260 [2C]	0.90	0.10	ug/L	1.000		90	40-140	3	20	

Surrogate: Decachlorobiphenyl	0.0435		ug/L	0.05000		87	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0459		ug/L	0.05000		92	30-150			
Surrogate: Tetrachloro-m-xylene	0.0263		ug/L	0.05000		53	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0320		ug/L	0.05000		64	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0425

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0425

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910425

Date Received: 9/13/2019

Project Due Date: 9/20/2019

Days for Project: 5 Day

Shipped/Delivered Via: ESS Courier

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	388066	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials [Signature]

- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 9/13/19 16:14
Reviewed By: [Signature] Date & Time: 9/13/19 1650
Delivered By: [Signature] Date & Time: 9/13/19 1650



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0427

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 2:07 pm, Sep 24, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0427

SAMPLE RECEIPT

The following samples were received on September 13, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0427-01	1802441-W-07N 0-0.5	Soil	8082A
19I0427-02	1802441-W-07N 1-2	Soil	8082A
19I0427-03	1802441-W-07N 2-3	Soil	8082A
19I0427-04	1802441-W-07E 0-0.5	Soil	8082A
19I0427-05	1802441-W-07E 1-2	Soil	8082A
19I0427-06	1802441-W-07E 2-3	Soil	8082A
19I0427-07	1802441-W-07S 0-0.5	Soil	8082A
19I0427-08	1802441-W-07S 1-2	Soil	8082A
19I0427-09	1802441-W-07S 2-3	Soil	8082A
19I0427-10	1802441-W-07W 0-0.5	Soil	8082A
19I0427-11	1802441-W-07W 1-2	Soil	8082A
19I0427-12	1802441-W-07W 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0427

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19I0427-04 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19I0427-04 [Surrogate recoverv\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0427-05 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19I0427-05 [Surrogate recoverv\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0427-07 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
 Aroclor 1242
- 19I0427-08 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19I0427-08 [Surrogate recoverv\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0427-09 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)
- 19I0427-09 [Percent difference between primary and confirmation results exceeds 40% \(P\).](#)
 Aroclor 1242
- 19I0427-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0427

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0427

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19I0427-01 through 19I0427-12**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 24, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-W-07N 0-0.5
 Date Sampled: 09/12/19 11:40
 Percent Solids: 91
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
 ESS Laboratory Sample ID: 19I0427-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/19/19 18:30		CI91706
Aroclor 1221	ND (0.06)		8082A		1	09/19/19 18:30		CI91706
Aroclor 1232	ND (0.06)		8082A		1	09/19/19 18:30		CI91706
Aroclor 1242	2.9 (0.3)		8082A		5	09/21/19 11:47		CI91706
Aroclor 1248	ND (0.06)		8082A		1	09/19/19 18:30		CI91706
Aroclor 1254	ND (0.06)		8082A		1	09/19/19 18:30		CI91706
Aroclor 1260 [2C]	1.0 (0.06)		8082A		1	09/19/19 18:30		CI91706
Aroclor 1262	ND (0.06)		8082A		1	09/19/19 18:30		CI91706
Aroclor 1268	ND (0.06)		8082A		1	09/19/19 18:30		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	68 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	66 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07N 1-2
Date Sampled: 09/12/19 11:45
Percent Solids: 88
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1221	ND (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1232	ND (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1242	0.2 (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1248	ND (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1254	ND (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1260	ND (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1262	ND (0.06)		8082A		1	09/19/19 18:49		CI91706
Aroclor 1268	ND (0.06)		8082A		1	09/19/19 18:49		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	62 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	62 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	52 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	62 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07N 2-3
Date Sampled: 09/12/19 11:50
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1221	ND (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1232	ND (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1242	0.6 (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1248	ND (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1254	ND (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1260 [2C]	0.1 (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1262	ND (0.06)		8082A		1	09/19/19 19:08		CI91706
Aroclor 1268	ND (0.06)		8082A		1	09/19/19 19:08		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	63 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	62 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	49 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	63 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07E 0-0.5
Date Sampled: 09/12/19 12:55
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1221	ND (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1232	ND (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1242	7020 (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1248	ND (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1254	ND (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1260	ND (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1262	ND (579)		8082A		10000	09/23/19 12:44		CI91706
Aroclor 1268	ND (579)		8082A		10000	09/23/19 12:44		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07E 1-2
Date Sampled: 09/12/19 13:00
Percent Solids: 91
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1221	ND (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1232	ND (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1242	28.0 (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1248	ND (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1254	ND (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1260	ND (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1262	ND (2.3)		8082A		40	09/23/19 13:22		CI91706
Aroclor 1268	ND (2.3)		8082A		40	09/23/19 13:22		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07E 2-3
Date Sampled: 09/12/19 13:05
Percent Solids: 90
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/19/19 20:06		CI91706
Aroclor 1221	ND (0.06)		8082A		1	09/19/19 20:06		CI91706
Aroclor 1232	ND (0.06)		8082A		1	09/19/19 20:06		CI91706
Aroclor 1242	10.8 (0.6)		8082A		10	09/21/19 12:44		CI91706
Aroclor 1248	ND (0.06)		8082A		1	09/19/19 20:06		CI91706
Aroclor 1254	ND (0.06)		8082A		1	09/19/19 20:06		CI91706
Aroclor 1260 [2C]	0.3 (0.06)		8082A		1	09/19/19 20:06		CI91706
Aroclor 1262	ND (0.06)		8082A		1	09/19/19 20:06		CI91706
Aroclor 1268	ND (0.06)		8082A		1	09/19/19 20:06		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	44 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	43 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	40 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	41 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07S 0-0.5
Date Sampled: 09/12/19 14:00
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/19/19 20:25		CI91706
Aroclor 1221	ND (0.06)		8082A		1	09/19/19 20:25		CI91706
Aroclor 1232	ND (0.06)		8082A		1	09/19/19 20:25		CI91706
Aroclor 1242	P 5.3 (0.6)		8082A		10	09/21/19 13:04		CI91706
Aroclor 1248	ND (0.06)		8082A		1	09/19/19 20:25		CI91706
Aroclor 1254	ND (0.06)		8082A		1	09/19/19 20:25		CI91706
Aroclor 1260	4.5 (0.6)		8082A		10	09/21/19 13:04		CI91706
Aroclor 1262	ND (0.06)		8082A		1	09/19/19 20:25		CI91706
Aroclor 1268	ND (0.06)		8082A		1	09/19/19 20:25		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	75 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	68 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	66 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-W-07S 1-2
 Date Sampled: 09/12/19 14:05
 Percent Solids: 89
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
 ESS Laboratory Sample ID: 19I0427-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1221	ND (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1232	ND (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1242	3650 (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1248	ND (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1254	ND (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1260	ND (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1262	ND (579)		8082A		10000	09/23/19 13:03		CI91706
Aroclor 1268	ND (579)		8082A		10000	09/23/19 13:03		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07S 2-3
Date Sampled: 09/12/19 14:10
Percent Solids: 86
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1221	ND (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1232	ND (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1242	P 15.8 (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1248	ND (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1254	ND (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1260 [2C]	1.9 (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1262	ND (1.2)		8082A		20	09/21/19 13:42		CI91706
Aroclor 1268	ND (1.2)		8082A		20	09/21/19 13:42		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07W 0-0.5
Date Sampled: 09/12/19 14:20
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/19/19 21:22		CI91706
Aroclor 1221	ND (0.05)		8082A		1	09/19/19 21:22		CI91706
Aroclor 1232	ND (0.05)		8082A		1	09/19/19 21:22		CI91706
Aroclor 1242	4.8 (0.3)		8082A		5	09/23/19 8:37		CI91706
Aroclor 1248	ND (0.05)		8082A		1	09/19/19 21:22		CI91706
Aroclor 1254	ND (0.05)		8082A		1	09/19/19 21:22		CI91706
Aroclor 1260 [2C]	0.6 (0.05)		8082A		1	09/19/19 21:22		CI91706
Aroclor 1262	ND (0.05)		8082A		1	09/19/19 21:22		CI91706
Aroclor 1268	ND (0.05)		8082A		1	09/19/19 21:22		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	75 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07W 1-2
Date Sampled: 09/12/19 14:25
Percent Solids: 83
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/19/19 21:42		CI91706
Aroclor 1221	ND (0.06)		8082A		1	09/19/19 21:42		CI91706
Aroclor 1232	ND (0.06)		8082A		1	09/19/19 21:42		CI91706
Aroclor 1242	3.8 (0.3)		8082A		5	09/23/19 14:00		CI91706
Aroclor 1248	ND (0.06)		8082A		1	09/19/19 21:42		CI91706
Aroclor 1254	ND (0.06)		8082A		1	09/19/19 21:42		CI91706
Aroclor 1260 [2C]	0.4 (0.06)		8082A		1	09/19/19 21:42		CI91706
Aroclor 1262	ND (0.06)		8082A		1	09/19/19 21:42		CI91706
Aroclor 1268	ND (0.06)		8082A		1	09/19/19 21:42		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	81 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	78 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07W 2-3
Date Sampled: 09/12/19 14:30
Percent Solids: 89
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0427
ESS Laboratory Sample ID: 19I0427-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/17/19 15:26

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1221	ND (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1232	ND (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1242 [2C]	0.8 (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1248	ND (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1254	ND (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1260 [2C]	0.1 (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1262	ND (0.06)		8082A		1	09/19/19 22:01		CI91706
Aroclor 1268	ND (0.06)		8082A		1	09/19/19 22:01		CI91706

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	67 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	60 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	74 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0427

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch C191706 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0230		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0229		mg/kg wet	0.02500		92	30-150			
Surrogate: Tetrachloro-m-xylene	0.0186		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0197		mg/kg wet	0.02500		79	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		80	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		84	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			

Surrogate: Decachlorobiphenyl	0.0206		mg/kg wet	0.02500		82	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0205		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene	0.0172		mg/kg wet	0.02500		69	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0172		mg/kg wet	0.02500		69	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140	9	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	7	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		94	40-140	12	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		108	40-140	12	30	

Surrogate: Decachlorobiphenyl	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0232		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0185		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0185		mg/kg wet	0.02500		74	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0427

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- P Percent difference between primary and confirmation results exceeds 40% (P).
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0427

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910427

Date Received: 9/13/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 9/20/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	388082	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	388081	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	388080	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	388079	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	388078	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	388077	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	388076	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	388075	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	388074	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	388073	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	388072	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	388071	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM ESS Project ID: 1910427
Date Received: 9/13/2019

Completed By: [Signature] Date & Time: 9/13/19 16:04
Reviewed By: [Signature] Date & Time: 9/13/19 1654
Delivered By: [Signature] 9/13/19 1654

Chain-of-Custody Record

Laboratory: **ESS**

Laboratory Job # **1410422**



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Name: **Tombarello Site Investigation**

Project Number: **1802441**

Project Information

Project Location: **Lawrence, MA**

Project Manager: **L. Lombardo**

Preservative:

None

Sample Handling:

Samples Field Filtered
YES NO NA

Sampled Shipped With Ice
YES NO

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required?

Are Drinking Water Samples Submitted?

If Yes, Have Drinking Water Sampling Requirements Been Met?

YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials
		Date	Time			
1	1802441-W-07N(0-0.5)	9/12/2019	1140	Soil	1	CWS
2	1802441-W-07N(1-2)	9/12/2019	1145	Soil	1	CWS
3	1802441-W-07N(2-3)	9/12/2019	1150	Soil	1	CWS
4	1802441-W-07E(0-0.5)	9/12/2019	1255	Soil	1	CWS
5	1802441-W-07E(1-2)	9/12/2019	1300	Soil	1	CWS
6	1802441-W-07E(2-3)	9/12/2019	1305	Soil	1	CWS
7	1802441-W-07S(0-0.5)	9/12/2019	1400	Soil	1	CWS
8	1802441-W-07S(1-2)	9/12/2019	1405	Soil	1	CWS
9	1802441-W-07S(2-3)	9/12/2019	1410	Soil	1	CWS
10	1802441-W-07W(0-0.5)	9/12/2019	1420	Soil	1	CWS
11	1802441-W-07W(1-2)	9/12/2019	1425	Soil	1	CWS
12	1802441-W-07W(2-3)	9/12/2019	1430	Soil	1	CWS

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes, whenever possible.

Relinquished by (signature)	Date	Time	Received by (signature)	Date	Time
1. <i>[Signature]</i>	9/12/19	1545	1. GEI Refrigerator		
2. GEI Refrigerator	9/13/19	1202	2. <i>[Signature]</i>	9/13/19	1152
3. <i>[Signature]</i>	9/13/19	1202	3. <i>[Signature]</i>	9/13/19	1152
4. <i>[Signature]</i>	9/13/19	1410	4. <i>[Signature]</i>	9/13/19	1456

Turnaround Time (Business days):
Normal 5-Day 7-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields CAPP.



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0662

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 3:04 pm, Sep 27, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0662

SAMPLE RECEIPT

The following samples were received on September 20, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0662-01	1802441-MBerm-11E 5-6	Soil	8082A
19I0662-02	1802441-BBerm-11E 0-1	Soil	8082A
19I0662-03	1802441-MBerm-12E 5-6	Soil	8082A
19I0662-04	1802441-BBerm-12E 0-1	Soil	8082A
19I0662-05	1802441-MBerm-13E 5-6	Soil	8082A
19I0662-06	1802441-BBerm-13E 0-1	Soil	8082A
19I0662-07	1802441-EW-07SW 0-0.5	Soil	8082A
19I0662-08	1802441-EW-07SW 1-2	Soil	8082A
19I0662-09	1802441-FD-23	Soil	8082A
19I0662-10	1802441-FD-24	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0662

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19I0662-01 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (330% @ 30-150%), Decachlorobiphenyl [2C] (403% @ 30-150%)
- 19I0662-02 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (322% @ 30-150%), Decachlorobiphenyl [2C] (402% @ 30-150%)
- 19I0662-03 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (310% @ 30-150%), Decachlorobiphenyl [2C] (385% @ 30-150%)
- 19I0662-04 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (154% @ 30-150%)
- 19I0662-05 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (683% @ 30-150%), Decachlorobiphenyl [2C] (852% @ 30-150%)
- 19I0662-06 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl [2C] (159% @ 30-150%)
- 19I0662-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0662-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0662

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0662

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19I0662-01 through 19I0662-10**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 27, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-11E 5-6
Date Sampled: 09/16/19 07:40
Percent Solids: 87
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1254	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1260	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 15:30		CI92045
Aroclor 1268 [2C]	0.2 (0.06)		8082A		1	09/24/19 15:30		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	330 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	403 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	83 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-11E 0-1
Date Sampled: 09/16/19 07:50
Percent Solids: 83
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1254	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1260	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 15:49		CI92045
Aroclor 1268 [2C]	0.3 (0.06)		8082A		1	09/24/19 15:49		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	322 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	402 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	67 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-12E 5-6
Date Sampled: 09/16/19 08:05
Percent Solids: 81
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1254	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1260	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 16:08		CI92045
Aroclor 1268 [2C]	0.2 (0.06)		8082A		1	09/24/19 16:08		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	310 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	385 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	78 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-12E 0-1
Date Sampled: 09/16/19 08:20
Percent Solids: 95
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1221	ND (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1232	ND (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1242	ND (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1248	ND (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1254	ND (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1260	0.1 (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1262	ND (0.05)		8082A		1	09/24/19 16:27		CI92045
Aroclor 1268	0.07 (0.05)		8082A		1	09/24/19 16:27		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	122 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	154 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-13E 5-6
Date Sampled: 09/16/19 08:30
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1254	ND (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1260 [2C]	0.2 (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 16:46		CI92045
Aroclor 1268 [2C]	0.3 (0.06)		8082A		1	09/24/19 16:46		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	683 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	852 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	60 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	90 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-13E 0-1
Date Sampled: 09/16/19 08:45
Percent Solids: 95
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1221	ND (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1232	ND (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1242	ND (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1248	ND (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1254	ND (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1260 [2C]	0.3 (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1262	ND (0.05)		8082A		1	09/24/19 17:05		CI92045
Aroclor 1268	0.1 (0.05)		8082A		1	09/24/19 17:05		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	131 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	159 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	92 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-EW-07SW 0-0.5
 Date Sampled: 09/16/19 10:40
 Percent Solids: 94
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
 ESS Laboratory Sample ID: 19I0662-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1221	ND (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1232	ND (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1242	ND (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1248	ND (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1254 [2C]	12.5 (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1260	19.2 (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1262	ND (1.1)		8082A		20	09/24/19 17:44		CI92045
Aroclor 1268	ND (1.1)		8082A		20	09/24/19 17:44		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SW 1-2
Date Sampled: 09/16/19 10:45
Percent Solids: 78
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1221	ND (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1232	ND (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1242 [2C]	ND (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1248	ND (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1254	ND (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1260	0.7 (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1262	ND (0.07)		8082A		1	09/23/19 19:34		CI92045
Aroclor 1268	ND (0.07)		8082A		1	09/23/19 19:34		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	56 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	59 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	83 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-23
Date Sampled: 09/16/19 12:01
Percent Solids: 95
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1221	ND (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1232	ND (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1242	ND (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1248	ND (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1254 [2C]	12.2 (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1260 [2C]	19.4 (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1262	ND (1.0)		8082A		20	09/24/19 18:03		CI92045
Aroclor 1268	ND (1.0)		8082A		20	09/24/19 18:03		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-24
Date Sampled: 09/16/19 12:02
Percent Solids: 72
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0662
ESS Laboratory Sample ID: 19I0662-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1221	ND (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1232	ND (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1242	ND (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1248	ND (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1254	ND (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1260	0.7 (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1262	ND (0.07)		8082A		1	09/23/19 20:13		CI92045
Aroclor 1268	ND (0.07)		8082A		1	09/23/19 20:13		CI92045

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	47 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	65 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	52 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	73 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0662

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch C192045 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0193		mg/kg wet	0.02500		77	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0210		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0123		mg/kg wet	0.02500		49	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0177		mg/kg wet	0.02500		71	30-150			

LCS

Aroclor 1016	0.3	0.05	mg/kg wet	0.5000		67	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		79	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		80	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		81	40-140			

Surrogate: Decachlorobiphenyl	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0211		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0150		mg/kg wet	0.02500		60	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0180		mg/kg wet	0.02500		72	30-150			

LCS Dup

Aroclor 1016	0.3	0.05	mg/kg wet	0.5000		70	40-140	4	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		83	40-140	5	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		80	40-140	0.3	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		82	40-140	0.5	30	

Surrogate: Decachlorobiphenyl	0.0193		mg/kg wet	0.02500		77	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene	0.0156		mg/kg wet	0.02500		62	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0187		mg/kg wet	0.02500		75	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0662

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0662

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910662

Shipped/Delivered Via: ESS Courier

Date Received: 9/20/2019

Project Due Date: 9/27/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 2.8 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about **short holds & rushes**? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	390225	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	390224	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	390223	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	390222	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	390221	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	390220	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	390219	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	390218	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	390217	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	390216	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Initials W
- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 9/20/19 1820

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM ESS Project ID: 1910662
Date Received: 9/20/2019
Reviewed By: [Signature] Date & Time: 9/20/19 1850
Delivered By: [Signature] 9/20/19 1850



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Tombarello Site Investigation **Project Location:** Lawrence, MA
Project Number: 1802441 **Project Manager:** L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaedas@geiconsultants.com, blee@geiconsultants.com
Send EDD to: EastRegionData@geiconsultants.com

Page 1 of 1

MCP PRESUMPTIVE CERTAINTY REQUIRED. - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

None	Preservative					
PCBs (8082)						

Sample Handling

Samples Field Filtered
 YES NO NA

Sampled Shipped With Ice
 YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials
		Date	Time			
1	1802441-MBerm-11E(5-6)	9/16/2019	0740	Soil	1	CWS
2	1802441-BBerm-11E(0-1)	9/16/2019	0750	Soil	1	CWS
3	1802441-MBerm-12E(5-6)	9/16/2019	0805	Soil	1	CWS
4	1802441-BBerm-12E(0-1)	9/16/2019	0820	Soil	1	CWS
5	1802441-MBerm-13E(5-6)	9/16/2019	0830	Soil	1	CWS
6	1802441-BBerm-13E(0-1)	9/16/2019	0845	Soil	1	CWS
7	1802441-EW-07SW(0-0.5)	9/16/2019	1040	Soil	1	CWS
8	1802441-EW-07SW(1-2)	9/16/2019	1045	Soil	1	CWS
9	1802441-FD-23	9/16/19	1201	Soil	1	CWS
10	1802441-FD-24	9/16/19	1202	Soil	1	CWS

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):
 Normal X Other _____
 10-Day _____ 7-Day _____
 5-Day _____ 3-Day _____

Before submitting rush turnaround samples, you must **notify the laboratory to confirm that the TAT can be achieved.**

Relinquished by: (signature)	Date	Time	Received by: (signature)
1. <i>[Signature]</i>	9/16/2019	1400	1. GEI Refrigerator
2. GEI Refrigerator	9/20/19	1135	2. <i>[Signature]</i>
3. <i>[Signature]</i>	9/20/19	1135	3. <i>[Signature]</i>
4. <i>[Signature]</i>	9/20/19	1736	4. <i>[Signature]</i> 9/20/19 1736

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

Ice temp: 2.8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0663

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 2:26 pm, Sep 26, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0663

SAMPLE RECEIPT

The following samples were received on September 20, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0663-01	1802441-EB-13	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0663

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0663

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910663

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1910663-01**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air (X) Other: Equipment Blank

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---|--------------------------------|---|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (X) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes (X) No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes (X) No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes (X) No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes (X) No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes (X) No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes (X) No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard

Printed Name: Laurel Stoddard

Date: September 25, 2019

Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-13
Date Sampled: 09/16/19 08:00
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19I0663
ESS Laboratory Sample ID: 19I0663-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 9/24/19 12:35

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1221	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1232	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1242	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1248	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1254	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1260	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1262	ND (0.09)		8082A		1	09/24/19 15:02		CI92411
Aroclor 1268	ND (0.09)		8082A		1	09/24/19 15:02		CI92411

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	70 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	65 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	47 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	50 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910663

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CI92411 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							
<hr/>										
Surrogate: Decachlorobiphenyl	0.0392		ug/L	0.05000		78	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0378		ug/L	0.05000		76	30-150			
Surrogate: Tetrachloro-m-xylene	0.0261		ug/L	0.05000		52	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0268		ug/L	0.05000		54	30-150			

LCS

Aroclor 1016	0.69	0.10	ug/L	1.000		69	40-140			
Aroclor 1016 [2C]	0.74	0.10	ug/L	1.000		74	40-140			
Aroclor 1260	0.83	0.10	ug/L	1.000		83	40-140			
Aroclor 1260 [2C]	0.87	0.10	ug/L	1.000		87	40-140			
<hr/>										
Surrogate: Decachlorobiphenyl	0.0443		ug/L	0.05000		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0431		ug/L	0.05000		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0280		ug/L	0.05000		56	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0280		ug/L	0.05000		56	30-150			

LCS Dup

Aroclor 1016	0.70	0.10	ug/L	1.000		70	40-140	1	20	
Aroclor 1016 [2C]	0.77	0.10	ug/L	1.000		77	40-140	5	20	
Aroclor 1260	0.87	0.10	ug/L	1.000		87	40-140	4	20	
Aroclor 1260 [2C]	0.91	0.10	ug/L	1.000		91	40-140	4	20	
<hr/>										
Surrogate: Decachlorobiphenyl	0.0454		ug/L	0.05000		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0442		ug/L	0.05000		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0280		ug/L	0.05000		56	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0282		ug/L	0.05000		56	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0663

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0663

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 1910663
 Date Received: 9/20/2019
 Project Due Date: 9/27/2019
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / NO

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	390226	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials W

- Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 9/20/19 1759
 Reviewed By: [Signature] Date & Time: 9/20/19 1857
 Delivered By: [Signature] Date & Time: 9/20/19 1857



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0664

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 2:29 pm, Sep 26, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0664

SAMPLE RECEIPT

The following samples were received on September 20, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0664-01	1802441-EB-12	Aqueous	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0664

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0664

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910664

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1910664-01**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air () Other: Equipment Blank

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---|---|---|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV C | () 8081 Pesticides
CAM V B | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 25, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EB-12
Date Sampled: 09/13/19 08:05
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 19I0664
ESS Laboratory Sample ID: 19I0664-01
Sample Matrix: Aqueous
Units: ug/L
Analyst: MJV
Prepared: 9/24/19 12:35

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1221	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1232	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1242	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1248	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1254	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1260	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1262	ND (0.09)		8082A		1	09/24/19 15:22		CI92411
Aroclor 1268	ND (0.09)		8082A		1	09/24/19 15:22		CI92411

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	68 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	64 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	48 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	51 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 1910664

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch CI92411 - 3510C

Blank

Aroclor 1016	ND	0.05	ug/L							
Aroclor 1016 [2C]	ND	0.05	ug/L							
Aroclor 1221	ND	0.05	ug/L							
Aroclor 1221 [2C]	ND	0.05	ug/L							
Aroclor 1232	ND	0.05	ug/L							
Aroclor 1232 [2C]	ND	0.05	ug/L							
Aroclor 1242	ND	0.05	ug/L							
Aroclor 1242 [2C]	ND	0.05	ug/L							
Aroclor 1248	ND	0.05	ug/L							
Aroclor 1248 [2C]	ND	0.05	ug/L							
Aroclor 1254	ND	0.05	ug/L							
Aroclor 1254 [2C]	ND	0.05	ug/L							
Aroclor 1260	ND	0.05	ug/L							
Aroclor 1260 [2C]	ND	0.05	ug/L							
Aroclor 1262	ND	0.05	ug/L							
Aroclor 1262 [2C]	ND	0.05	ug/L							
Aroclor 1268	ND	0.05	ug/L							
Aroclor 1268 [2C]	ND	0.05	ug/L							
<hr/>										
Surrogate: Decachlorobiphenyl	0.0392		ug/L	0.05000		78	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0378		ug/L	0.05000		76	30-150			
Surrogate: Tetrachloro-m-xylene	0.0261		ug/L	0.05000		52	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0268		ug/L	0.05000		54	30-150			

LCS

Aroclor 1016	0.69	0.10	ug/L	1.000		69	40-140			
Aroclor 1016 [2C]	0.74	0.10	ug/L	1.000		74	40-140			
Aroclor 1260	0.83	0.10	ug/L	1.000		83	40-140			
Aroclor 1260 [2C]	0.87	0.10	ug/L	1.000		87	40-140			
<hr/>										
Surrogate: Decachlorobiphenyl	0.0443		ug/L	0.05000		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0431		ug/L	0.05000		86	30-150			
Surrogate: Tetrachloro-m-xylene	0.0280		ug/L	0.05000		56	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0280		ug/L	0.05000		56	30-150			

LCS Dup

Aroclor 1016	0.70	0.10	ug/L	1.000		70	40-140	1	20	
Aroclor 1016 [2C]	0.77	0.10	ug/L	1.000		77	40-140	5	20	
Aroclor 1260	0.87	0.10	ug/L	1.000		87	40-140	4	20	
Aroclor 1260 [2C]	0.91	0.10	ug/L	1.000		91	40-140	4	20	
<hr/>										
Surrogate: Decachlorobiphenyl	0.0454		ug/L	0.05000		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0442		ug/L	0.05000		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0280		ug/L	0.05000		56	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0282		ug/L	0.05000		56	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0664

Notes and Definitions

- U Analyte included in the analysis, but not detected
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0664

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 1910664
 Date Received: 9/20/2019
 Project Due Date: 9/27/2019
 Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 2.8 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	390227	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials: ds
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 9/20/19 1759
 Reviewed By: [Signature] Date & Time: 9/20/19 1851
 Delivered By: [Signature] Date & Time: 9/20/19 1859



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information
 Project Name: Tombarello Site Investigation Project Location: Lawrence, MA
 Project Number: 1802441 Project Manager: L. Lombardo

Page 1 of 1

Send Report to: llombardo@geiconsultants.com,
 bfongmurdock@geiconsultants.com,
 csaledas@geiconsultants.com, blee@geiconsultants.com
 Send EDD to: EastRegionData@geiconsultants.com

Preservative							
None							

Sample Handling
 Samples Field Filtered
 YES NO **NA**
 Sampled Shipped With Ice
YES NO
 Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED — **YES** NO
 If Yes, Are MCP Analytical Methods Required? YES NO NA
 Are Drinking Water Samples Submitted? YES **NO** NA
 If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO **NA**

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)
		Date	Time				
1	1802441-EB-12	9/13/2019	0805	Aqueous	1	CWS	x

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature) 1. <i>[Signature]</i>	Date: 9/13/2019	Time: 1545	Received by: (signature) 1. GEI Refrigerator
Relinquished by: (signature) 2. GEI Refrigerator	Date: 9/20/19	Time: 1135	Received by: (signature) 2. James Gomez
Relinquished by: (signature) 3. James Gomez	Date: 9/20/19	Time: 1135	Received by: (signature) 3. <i>[Signature]</i>
Relinquished by: (signature) 4. <i>[Signature]</i>	Date: 9/20/19	Time: 17:36	Received by: (signature) 4. <i>[Signature]</i> 9/20/19 1736

Turnaround Time (Business days):
 Normal X Other
 10-Day 7-Day
 5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

ice temp: 2.8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0666

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 3:12 pm, Sep 27, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0666

SAMPLE RECEIPT

The following samples were received on September 20, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0666-01	1802441-EW-07SS 1-2	Soil	8082A
19I0666-02	1802441-EW-07SE 0-0.5	Soil	8082A
19I0666-03	1802441-EW-07SE 1-2	Soil	8082A
19I0666-04	1802441-FD-22	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0666

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19I0666-01 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0666-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 19I0666-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0666

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0666

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19I0666-01 through 19I0666-04**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 27, 2019
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SS 1-2
Date Sampled: 09/13/19 12:10
Percent Solids: 92
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0666
ESS Laboratory Sample ID: 19I0666-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/23/19 16:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1221	ND (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1232	ND (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1242	7.5 (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1248	ND (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1254 [2C]	16.4 (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1260 [2C]	21.8 (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1262	ND (1.1)		8082A		20	09/25/19 16:51		CI92304
Aroclor 1268	ND (1.1)		8082A		20	09/25/19 16:51		CI92304

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SE 0-0.5
Date Sampled: 09/13/19 14:10
Percent Solids: 92
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0666
ESS Laboratory Sample ID: 19I0666-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/23/19 16:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1221	ND (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1232	ND (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1242	11.9 (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1248	ND (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1254 [2C]	57.9 (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1260 [2C]	90.8 (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1262	ND (5.3)		8082A		100	09/25/19 17:10		CI92304
Aroclor 1268	ND (5.3)		8082A		100	09/25/19 17:10		CI92304

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-EW-07SE 1-2
 Date Sampled: 09/13/19 14:15
 Percent Solids: 89
 Initial Volume: 20.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0666
 ESS Laboratory Sample ID: 19I0666-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/23/19 16:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1221	ND (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1232	ND (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1242 [2C]	ND (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1248	ND (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1254 [2C]	161 (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1260 [2C]	264 (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1262	ND (21.5)		8082A		400	09/26/19 10:46		CI92304
Aroclor 1268	ND (21.5)		8082A		400	09/26/19 10:46		CI92304

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-FD-22
 Date Sampled: 09/13/19 12:01
 Percent Solids: 95
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0666
 ESS Laboratory Sample ID: 19I0666-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/23/19 16:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1221	ND (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1232	ND (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1242 [2C]	0.1 (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1248	ND (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1254	0.3 (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1260 [2C]	0.5 (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1262	ND (0.05)		8082A		1	09/24/19 14:10		CI92304
Aroclor 1268	ND (0.05)		8082A		1	09/24/19 14:10		CI92304

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	71 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	54 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0666

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch C192304 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0198		mg/kg wet	0.02500		79	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene	0.0176		mg/kg wet	0.02500		70	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0174		mg/kg wet	0.02500		69	30-150			

LCS

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		91	40-140			
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		88	40-140			
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		90	40-140			
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		89	40-140			

Surrogate: Decachlorobiphenyl	0.0206		mg/kg wet	0.02500		82	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0192		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0176		mg/kg wet	0.02500		70	30-150			

LCS Dup

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		95	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		92	40-140	5	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		94	40-140	5	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		94	40-140	5	30	

Surrogate: Decachlorobiphenyl	0.0214		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0204		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene	0.0193		mg/kg wet	0.02500		77	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0183		mg/kg wet	0.02500		73	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0666

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0666

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910666

Date Received: 9/20/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 9/27/2019

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 2.8 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	390251	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	390250	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	390249	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	390248	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials W

- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 9/20/19 1823
 Reviewed By: [Signature] Date & Time: 9/20/19 1840
 Delivered By: [Signature] Date & Time: 9/20/19 1840

Project Information

Project Name: Tombarello Site Investigation Project Location: Lawrence, MA

Project Number: 1802441 Project Manager: L. Lombardo

Send Report to: llombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaledas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	Preservative						Sample Handling	
		Date	Time					None							
1	1802441-EW-07SS(1-2)	9/13/2019	1210	Soil	1	CWS	x								Samples Field Filtered YES NO <u>NA</u>
2	1802441-EW-07SE(0-0.5)	9/13/2019	1410	Soil	1	CWS	x								
3	1802441-EW-07SE(0-0.5)	9/13/2019	1415	Soil	1	CWS	x								Sampled Shipped With Ice <u>YES</u> NO
4	1802441-FD-22	9/19/19	1201	Soil	1	CWS	x								

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	Preservative						Sample Specific Remarks
		Date	Time					None						
1	1802441-EW-07SS(1-2)	9/13/2019	1210	Soil	1	CWS	x							
2	1802441-EW-07SE(0-0.5)	9/13/2019	1410	Soil	1	CWS	x							
3	1802441-EW-07SE(0-0.5)	9/13/2019	1415	Soil	1	CWS	x							
4	1802441-FD-22	9/19/19	1201	Soil	1	CWS	x							

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by (signature)	Date	Time	Received by (signature)
1. <u>[Signature]</u>	9/13/2019	1545	1. GEI Refrigerator
2. GEI Refrigerator	9/20/19	1135	2. <u>James Cornaris</u>
3. <u>James Cornaris</u>	9/20/19	1135	3. <u>[Signature]</u>
4. <u>[Signature]</u>	9/20/19	1736	4. <u>[Signature]</u> 9/20/19 1736

Turnaround Time (Business days):
 Normal X Other ___
 10-Day ___ 7-Day ___
 5-Day ___ 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 Manual soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

ice temp: 12.8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 19I0667

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 3:19 pm, Sep 27, 2019

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0667

SAMPLE RECEIPT

The following samples were received on September 20, 2019 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
19I0667-01	1802441-MBerm-19E 5-6	Soil	8082A
19I0667-02	1802441-BBerm-19E 0-1	Soil	8082A
19I0667-03	1802441-MBerm-18E 5-6	Soil	8082A
19I0667-04	1802441-BBerm-18E 0-1	Soil	8082A
19I0667-05	1802441-MBerm-17E 5-6	Soil	8082A
19I0667-06	1802441-BBerm-17E 0-1	Soil	8082A
19I0667-07	1802441-MBerm-16E 5-6	Soil	8082A
19I0667-08	1802441-BBerm-16E 0-1	Soil	8082A
19I0667-09	1802441-MBerm-15E 5-6	Soil	8082A
19I0667-10	1802441-BBerm-15E 0-1	Soil	8082A
19I0667-11	1802441-MBerm-14E 5-6	Soil	8082A
19I0667-12	1802441-BBerm-14E 0-1	Soil	8082A
19I0667-13	1802441-EW-07SS 0-0.5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0667

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 19I0667-03 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
 Decachlorobiphenyl (180% @ 30-150%), Decachlorobiphenyl [2C] (230% @ 30-150%)
- 19I0667-05 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
 Decachlorobiphenyl (169% @ 30-150%), Decachlorobiphenyl [2C] (198% @ 30-150%)
- 19I0667-09 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
 Decachlorobiphenyl (202% @ 30-150%), Decachlorobiphenyl [2C] (237% @ 30-150%)
- 19I0667-12 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
 Decachlorobiphenyl [2C] (184% @ 30-150%)
- 19I0667-13 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0667

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0667

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **19I0667-01 through 19I0667-13**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes No
 b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes No
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No *
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No *

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
 Printed Name: Laurel Stoddard

Date: September 27, 2019
 Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-19E 5-6
Date Sampled: 09/13/19 08:00
Percent Solids: 96
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1221	ND (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1232	ND (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1242	ND (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1248	ND (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1254 [2C]	0.3 (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1260 [2C]	0.3 (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1262	ND (0.05)		8082A		1	09/24/19 12:01		CI92017
Aroclor 1268	ND (0.05)		8082A		1	09/24/19 12:01		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	60 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	52 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-19E 0-1
Date Sampled: 09/13/19 08:15
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1254 [2C]	0.5 (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1260 [2C]	0.4 (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 12:19		CI92017
Aroclor 1268	ND (0.06)		8082A		1	09/24/19 12:19		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	66 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	82 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	58 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-18E 5-6
Date Sampled: 09/13/19 08:30
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 12:38		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 12:38		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 12:38		CI92017
Aroclor 1242 [2C]	0.3 (0.06)		8082A		1	09/24/19 12:38		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 12:38		CI92017
Aroclor 1254 [2C]	2.7 (0.3)		8082A		5	09/25/19 16:12		CI92017
Aroclor 1260	0.7 (0.06)		8082A		1	09/24/19 12:38		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 12:38		CI92017
Aroclor 1268 [2C]	0.2 (0.06)		8082A		1	09/24/19 12:38		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	180 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	230 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	69 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	90 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-18E 0-1
Date Sampled: 09/13/19 08:40
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1254	ND (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1260 [2C]	0.3 (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 12:57		CI92017
Aroclor 1268	ND (0.06)		8082A		1	09/24/19 12:57		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	80 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	90 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	63 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	82 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-17E 5-6
Date Sampled: 09/13/19 09:15
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 13:16		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 13:16		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 13:16		CI92017
Aroclor 1242 [2C]	0.3 (0.06)		8082A		1	09/24/19 13:16		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 13:16		CI92017
Aroclor 1254 [2C]	1.3 (0.3)		8082A		5	09/25/19 16:32		CI92017
Aroclor 1260 [2C]	0.7 (0.06)		8082A		1	09/24/19 13:16		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 13:16		CI92017
Aroclor 1268 [2C]	0.3 (0.06)		8082A		1	09/24/19 13:16		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	169 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	198 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	64 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	92 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-BBerm-17E 0-1
 Date Sampled: 09/13/19 09:20
 Percent Solids: 97
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
 ESS Laboratory Sample ID: 19I0667-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1221	ND (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1232	ND (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1242	ND (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1248	ND (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1254	ND (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1260	0.08 (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1262	ND (0.05)		8082A		1	09/23/19 22:05		CI92017
Aroclor 1268	ND (0.05)		8082A		1	09/23/19 22:05		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	80 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	60 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-16E 5-6
Date Sampled: 09/13/19 09:50
Percent Solids: 93
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1221	ND (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1232	ND (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1242	0.08 (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1248	ND (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1254	0.2 (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1260	0.2 (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1262	ND (0.05)		8082A		1	09/23/19 22:25		CI92017
Aroclor 1268	ND (0.05)		8082A		1	09/23/19 22:25		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	95 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	50 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	60 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-16E 0-1
Date Sampled: 09/13/19 10:00
Percent Solids: 86
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1242	0.5 (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1254 [2C]	0.3 (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1260 [2C]	0.7 (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 13:35		CI92017
Aroclor 1268	ND (0.06)		8082A		1	09/24/19 13:35		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	73 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	61 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	79 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-15E 5-6
Date Sampled: 09/13/19 10:30
Percent Solids: 88
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1254 [2C]	0.3 (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1260 [2C]	0.3 (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 13:54		CI92017
Aroclor 1268 [2C]	0.2 (0.06)		8082A		1	09/24/19 13:54		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	202 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	237 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	55 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-15E 0-1
Date Sampled: 09/13/19 10:35
Percent Solids: 77
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1221	ND (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1232	ND (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1242	ND (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1248	ND (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1254	ND (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1260	0.7 (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1262	ND (0.07)		8082A		1	09/24/19 14:13		CI92017
Aroclor 1268	ND (0.07)		8082A		1	09/24/19 14:13		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	84 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	102 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	56 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	76 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-MBerm-14E 5-6
Date Sampled: 09/13/19 13:40
Percent Solids: 90
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1242	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1254	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1260 [2C]	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 14:32		CI92017
Aroclor 1268	ND (0.06)		8082A		1	09/24/19 14:32		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	<i>113 %</i>		<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>149 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>71 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>94 %</i>		<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-BBerm-14E 0-1
Date Sampled: 09/13/19 13:45
Percent Solids: 83
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
ESS Laboratory Sample ID: 19I0667-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1221	ND (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1232	ND (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1242 [2C]	0.2 (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1248	ND (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1254 [2C]	0.6 (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1260	0.9 (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1262	ND (0.06)		8082A		1	09/24/19 14:51		CI92017
Aroclor 1268	0.3 (0.06)		8082A		1	09/24/19 14:51		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	148 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	184 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	61 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-EW-07SS 0-0.5
 Date Sampled: 09/13/19 12:05
 Percent Solids: 94
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 19I0667
 ESS Laboratory Sample ID: 19I0667-13
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MJV
 Prepared: 9/20/19 19:37

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1221	ND (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1232	ND (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1242	ND (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1248	ND (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1254 [2C]	42.5 (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1260	72.9 (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1262	ND (5.4)		8082A		100	09/24/19 17:24		CI92017
Aroclor 1268	ND (5.4)		8082A		100	09/24/19 17:24		CI92017

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0667

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch C192017 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0219		mg/kg wet	0.02500		88	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0209		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0182		mg/kg wet	0.02500		73	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0192		mg/kg wet	0.02500		77	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		83	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140			

Surrogate: Decachlorobiphenyl	0.0213		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0205		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene	0.0188		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0189		mg/kg wet	0.02500		75	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		84	40-140	0.7	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140	0.5	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		87	40-140	1	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140	1	30	

Surrogate: Decachlorobiphenyl	0.0213		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0206		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene	0.0187		mg/kg wet	0.02500		75	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0187		mg/kg wet	0.02500		75	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0667

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 19I0667

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910667

Date Received: 9/20/2019

Shipped/Delivered Via: ESS Courier

Project Due Date: 9/27/2019

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
Temp: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	390264	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	390263	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	390262	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	390261	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	390260	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	390259	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	390258	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	390257	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	390256	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	390255	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	390254	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	390253	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	390252	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

- Were all containers scanned into storage/lab? Initials u
- Are barcode labels on correct containers? Yes / No
- Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
- Are all Hex Chrome stickers attached? Yes / No / NA
- Are all QC stickers attached? Yes / No / NA
- Are VOA stickers attached if bubbles noted? Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB/MM

ESS Project ID: 1910667

Date Received: 9/20/2019

Completed By:  Date & Time: 9/20/19 1817

Reviewed By:  Date & Time: 9/20/19 1855

Delivered By:  Date & Time: 9/20/19 1855

Project Information

Project Name: **Tombarello Site Investigation** Project Location: **Lawrence, MA**

Project Number: **1802441** Project Manager: **L. Lombardo**

Send Report to: lombardo@geiconsultants.com, bfongmurdock@geiconsultants.com, csaedas@geiconsultants.com, blee@geiconsultants.com

Send EDD to: EastRegionData@geiconsultants.com



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

MCP PRESUMPTIVE CERTAINTY REQUIRED - YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have Drinking Water Sampling Requirements Been Met? YES NO NA

None	Preservative					
PCBs (8082)						

Sample Handling

Samples Field Filtered YES NO NA

Sampled Shipped With Ice YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler (s) Initials	PCBs (8082)	Sample Specific Remarks										
		Date	Time															
1	1802441-MBerm-19E(5-6)	9/13/2019	0800	Soil	1	CWS	x											
2	1802441-BBerm-19E(0-1)	9/13/2019	0815	Soil	1	CWS	x											
3	1802441-MBerm-18E(5-6)	9/13/2019	0830	Soil	1	CWS	x											
4	1802441-BBerm-18E(0-1)	9/13/2019	0840	Soil	1	CWS	x											
5	1802441-MBerm-17E(5-6)	9/13/2019	0915	Soil	1	CWS	x											
6	1802441-BBerm-17E(0-1)	9/13/2019	0920	Soil	1	CWS	x											
7	1802441-MBerm-16E(5-6)	9/13/2019	0950	Soil	1	CWS	x											
8	1802441-BBerm-16E(0-1)	9/13/2019	1000	Soil	1	CWS	x											
9	1802441-MBerm-15E(5-6)	9/13/2019	1030	Soil	1	CWS	x											
10	1802441-BBerm-15E(0-1)	9/13/2019	1035	Soil	1	CWS	x											
11	1802441-MBerm-14E(5-6)	9/13/2019	1340	Soil	1	CWS	x											
12	1802441-BBerm-14E(0-1)	9/13/2019	1345	Soil	1	CWS	x											
13	1802441-EW-07SS(0-0.5)	9/13/2019	1205	Soil	1	CWS	X											

MCP Level Needed: GEI requires that, within the specified method, the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by (signature)	Date	Time	Received by (signature)
1. <i>[Signature]</i>	9/13/2019	1545	1. GEI Refrigerator
2. GEI Refrigerator	9/20/19	1135	2. <i>[Signature]</i>
3. <i>[Signature]</i>	9/20/19	1135	3. <i>[Signature]</i>
4. <i>[Signature]</i>	9/20/19	17:36	4. <i>[Signature]</i> 9/20/19 1736

Turnaround Time (Business days):

Normal X Other

10-Day 7-Day

5-Day 3-Day

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Manual Soxhlet extraction for PCBs. Analysis must be performed in accordance with GEI's Generic Brownfields QAPP.

100 temp: 2.8



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 20C0469

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 6:25 pm, Mar 20, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

SAMPLE RECEIPT

The following samples were received on March 13, 2020 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20C0469-01	1802441-SVA-01-GEI 0-0.5	Soil	8082A
20C0469-02	1802441-SVA-01-GEI 1-2	Soil	8082A
20C0469-03	1802441-SVA-01-GEI 2-3	Soil	8082A
20C0469-04	1802441-SVA-01E 0-0.5	Soil	8082A
20C0469-05	1802441-SVA-01E 1-2	Soil	8082A
20C0469-06	1802441-SVA-01E 2-3	Soil	8082A
20C0469-07	1802441-FD-30	Soil	8082A
20C0469-08	1802441-EW-07ER 0-0.5	Soil	8082A
20C0469-09	1802441-EW-07ER 1-2	Soil	8082A
20C0469-10	1802441-EW-07ER 2-3	Soil	8082A
20C0469-11	1802441-FD-31	Soil	8082A
20C0469-12	1802441-EW-07SEE 0-0.5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 20C0469-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0469-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0469-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0469-12 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **20C0469-01 through 20C0469-12**

Matrices: Ground Water/Surface Water Soil/Sediment Drinking Water Air Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- | | | |
|---|---|----------------|
| A | Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? | Yes (X) No () |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | Yes (X) No () |
| C | Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? | Yes (X) No () |
| D | Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? | Yes (X) No () |
| E | VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). | Yes () No () |
| | b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? | Yes () No () |
| F | Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? | Yes (X) No () |

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- | | | |
|---|---|-----------------|
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?
<i>Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.</i> | Yes (X) No ()* |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | Yes () No (X)* |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | Yes (X) No ()* |

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: March 20, 2020
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-01-GEI 0-0.5
Date Sampled: 03/12/20 12:00
Percent Solids: 95
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1221	ND (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1232	ND (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1242	ND (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1248	ND (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1254	ND (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1260 [2C]	0.4 (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1262	ND (0.05)		8082A		1	03/17/20 13:53		DC01603
Aroclor 1268	ND (0.05)		8082A		1	03/17/20 13:53		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	67 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	66 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SVA-01-GEI 1-2
 Date Sampled: 03/12/20 12:02
 Percent Solids: 91
 Initial Volume: 20.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
 ESS Laboratory Sample ID: 20C0469-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: DMC
 Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1221	ND (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1232	ND (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1242	ND (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1248	ND (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1254	ND (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1260 [2C]	27.4 (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1262	ND (2.7)		8082A		50	03/19/20 11:36		DC01603
Aroclor 1268	ND (2.7)		8082A		50	03/19/20 11:36		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-01-GEI 2-3
Date Sampled: 03/12/20 12:04
Percent Solids: 78
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1242	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1260	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 14:32		DC01603
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 14:32		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	83 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	81 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	90 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-01E 0-0.5
Date Sampled: 03/12/20 12:38
Percent Solids: 96
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1221	ND (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1232	ND (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1242 [2C]	0.2 (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1248	ND (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1254	ND (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1260 [2C]	0.1 (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1262	ND (0.05)		8082A		1	03/17/20 14:51		DC01603
Aroclor 1268	ND (0.05)		8082A		1	03/17/20 14:51		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	73 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	81 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-01E 1-2
Date Sampled: 03/12/20 12:40
Percent Solids: 91
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	03/17/20 15:11		DC01603
Aroclor 1221	ND (0.05)		8082A		1	03/17/20 15:11		DC01603
Aroclor 1232	ND (0.05)		8082A		1	03/17/20 15:11		DC01603
Aroclor 1242	ND (0.05)		8082A		1	03/17/20 15:11		DC01603
Aroclor 1248	ND (0.05)		8082A		1	03/17/20 15:11		DC01603
Aroclor 1254	ND (0.05)		8082A		1	03/17/20 15:11		DC01603
Aroclor 1260 [2C]	1.5 (0.1)		8082A		2	03/19/20 11:55		DC01603
Aroclor 1262	ND (0.05)		8082A		1	03/17/20 15:11		DC01603
Aroclor 1268	ND (0.05)		8082A		1	03/17/20 15:11		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	76 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	82 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SVA-01E 2-3
Date Sampled: 03/12/20 12:42
Percent Solids: 83
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1242 [2C]	0.2 (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1260	ND (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 15:30		DC01603
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 15:30		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	86 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	93 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	94 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-30
Date Sampled: 03/12/20 07:00
Percent Solids: 83
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1242	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1260	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 15:49		DC01603
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 15:49		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	85 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	91 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	87 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07ER 0-0.5
Date Sampled: 03/12/20 13:30
Percent Solids: 89
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1221	ND (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1232	ND (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1242 [2C]	39.0 (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1248	ND (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1254	ND (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1260	96.3 (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1262	ND (5.6)		8082A		100	03/19/20 12:14		DC01603
Aroclor 1268	ND (5.6)		8082A		100	03/19/20 12:14		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07ER 1-2
Date Sampled: 03/12/20 13:32
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1221	ND (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1232	ND (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1242	4.6 (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1248	ND (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1254	ND (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1260	9.4 (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1262	ND (1.1)		8082A		20	03/19/20 12:33		DC01603
Aroclor 1268	ND (1.1)		8082A		20	03/19/20 12:33		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07ER 2-3
Date Sampled: 03/12/20 13:34
Percent Solids: 78
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1221	ND (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1232	ND (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1242	ND (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1248	ND (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1254	ND (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1260 [2C]	0.2 (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1262	ND (0.06)		8082A		1	03/19/20 15:43		DC01924
Aroclor 1268	ND (0.06)		8082A		1	03/19/20 15:43		DC01924

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	100 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	102 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	115 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-FD-31
Date Sampled: 03/12/20 07:05
Percent Solids: 77
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
ESS Laboratory Sample ID: 20C0469-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1221	ND (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1232	ND (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1242	ND (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1248	ND (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1254	ND (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1260 [2C]	0.1 (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1262	ND (0.06)		8082A		1	03/19/20 16:02		DC01924
Aroclor 1268	ND (0.06)		8082A		1	03/19/20 16:02		DC01924

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	100 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	100 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	106 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-EW-07SEE 0-0.5
 Date Sampled: 03/12/20 13:50
 Percent Solids: 84
 Initial Volume: 20.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 20C0469
 ESS Laboratory Sample ID: 20C0469-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: DMC
 Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1221	ND (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1232	ND (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1242 [2C]	6.6 (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1248	ND (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1254	ND (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1260	42.6 (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1262	ND (2.9)		8082A		50	03/19/20 12:52		DC01603
Aroclor 1268	ND (2.9)		8082A		50	03/19/20 12:52		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch DC01603 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0216		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0249		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0209		mg/kg wet	0.02500		83	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		77	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		75	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140			

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0269		mg/kg wet	0.02500		108	30-150			
Surrogate: Tetrachloro-m-xylene	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		78	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	2	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		75	40-140	0.7	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500		94	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0273		mg/kg wet	0.02500		109	30-150			
Surrogate: Tetrachloro-m-xylene	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0228		mg/kg wet	0.02500		91	30-150			

Batch DC01924 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch DC01924 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0242		mg/kg wet	0.02500		97	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0259		mg/kg wet	0.02500		104	30-150			
Surrogate: Tetrachloro-m-xylene	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0277		mg/kg wet	0.02500		111	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		85	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		90	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140			

Surrogate: Decachlorobiphenyl	0.0256		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0269		mg/kg wet	0.02500		108	30-150			
Surrogate: Tetrachloro-m-xylene	0.0221		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0272		mg/kg wet	0.02500		109	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		87	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		94	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0258		mg/kg wet	0.02500		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0269		mg/kg wet	0.02500		107	30-150			
Surrogate: Tetrachloro-m-xylene	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0270		mg/kg wet	0.02500		108	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0469

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 20C0469

Shipped/Delivered Via: ESS Courier

Date Received: 3/13/2020

Project Due Date: 3/20/2020

Days for Project: 5 Day

- 1. Air bill manifest present? No
- Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.6 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No NA

13. Are the samples properly preserved? Yes No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____


Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No No
 a. Was there a need to contact the client? Yes / No No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	23749	Yes	N/A	Yes	4 oz. Jar	NP	
2	23750	Yes	N/A	Yes	4 oz. Jar	NP	
3	23751	Yes	N/A	Yes	4 oz. Jar	NP	
4	23752	Yes	N/A	Yes	4 oz. Jar	NP	
5	23753	Yes	N/A	Yes	4 oz. Jar	NP	
6	23754	Yes	N/A	Yes	4 oz. Jar	NP	
7	23755	Yes	N/A	Yes	4 oz. Jar	NP	
8	23756	Yes	N/A	Yes	4 oz. Jar	NP	
9	23757	Yes	N/A	Yes	4 oz. Jar	NP	
10	23758	Yes	N/A	Yes	4 oz. Jar	NP	
11	23759	Yes	N/A	Yes	4 oz. Jar	NP	
12	23760	Yes	N/A	Yes	4 oz. Jar	NP	

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?

Initials: 
 Yes / No
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 20C0469

Date Received: 3/13/2020

Are all QC stickers attached?

Yes / No / NA

Are VOA stickers attached if bubbles noted?

Yes / No / NA

Completed

By: 

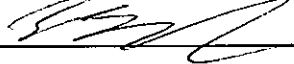
Date & Time: 3/15/20 1041

Reviewed

By: 

Date & Time: 3/16/20 8:00

Delivered

By: 

Date & Time: 3/16/20 8:00



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: **Former Tombarello** Project Location: **Lawrence MA**

Project Number: **1802441** Project Manager: **L. Lombardo**
339.221.3551

Send Report to: **Elise Farrington**

Send EDD to: **labdata@geiconsultants.com**

MCP PRESUMPTIVE CERTAINTY REQUIRED: YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA

If Yes, Are Drinking Water Samples Submitted? YES NO NA

If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Preservative

None									
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Analysis

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample Handling

Samples Field Filtered
 YES NO **NA**

Sampled Shipped With Ice
YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	PCBs*											Sample Specific Remarks		
		Date	Time																	
1	1802441-SVA-01-GEI(0-0.5)	3/12/2020	12:00	SO	1	BRL	x													
2	1802441-SVA-01-GEI(1-2)	3/12/2020	12:02	SO	1	BRL	x													
3	1802441-SVA-01-GEI(2-3)	3/12/2020	12:04	SO	1	BRL	x													
4	1802441-SVA-01E (0-0.5)	3/12/2020	12:38	SO	1	BRL	x													
5	1802441 - SVA-01E (1-2)	3/12/2020	12:40	SO	1	BRL	x													
6	1802441 - SVA-01E (2-3)	3/12/2020	12:42	SO	1	BRL	x													
7	1802441-FD-30	3/12/2020	7:00	SO	1	BRL	x													
8	1802441-EW-07ER (0-0.5)	3/12/2020	13:30	SO	1	BRL	x													
9	1802441-EW-07ER (1-2)	3/12/2020	13:32	SO	1	BRL	x													
10	1802441- EW-07ER(2-3)	3/12/2020	13:34	SO	1	BRL	x													
11	1802441-FD-31	3/12/2020	7:05	SO	1	BRL	x													
12	1802441-EW-07SEE(0-0.5)	3/12/2020	13:50	SO	1	BRL	x													

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal ___ Other ___

10-Day ___ 7-Day ___

5-Day X 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) 1. <i>[Signature]</i>	Date: 3/13/20	Time: 1400	Received by: (signature) <i>[Signature]</i>
Relinquished by: (signature) 2. <i>[Signature]</i>	Date: 3/13/20	Time: 1950	Received by: (signature) <i>[Signature]</i>
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Additional Requirements/Comments/Remarks:

* Manual Soxhlet Extraction for PCBs. Analysis must be performed in accordance with GEI's Site Specific QAPP.



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 20C0470

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
By ESS Laboratory at 2:19 pm, Mar 23, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

SAMPLE RECEIPT

The following samples were received on March 13, 2020 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20C0470-01	1802441-W-07SS 0-0.5	Soil	8082A
20C0470-02	1802441-W-07SS 1-2	Soil	8082A
20C0470-03	1802441-W-07SS 2-3	Soil	8082A
20C0470-04	1802441-W-07SE 0-0.5	Soil	8082A
20C0470-05	1802441-W-07SE 1-2	Soil	8082A
20C0470-06	1802441-W-07SE 2-3	Soil	8082A
20C0470-07	1802441-W-07EE 0-0.5	Soil	8082A
20C0470-08	1802441-W-07EE 1-2	Soil	8082A
20C0470-09	1802441-W-07EE 2-3	Soil	8082A
20C0470-10	1802441-W-07SW 0-0.5	Soil	8082A
20C0470-11	1802441-W-07SW 1-2	Soil	8082A
20C0470-12	1802441-W-07SW 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 20C0470-01 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0470-02 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (1330% @ 30-150%), Decachlorobiphenyl [2C] (1310% @ 30-150%)
- 20C0470-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0470-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0470-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0470-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0470-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0470-11 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (617% @ 30-150%), Decachlorobiphenyl [2C] (521% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **20C0470-01 through 20C0470-12**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

***All negative responses must be addressed in an attached laboratory narrative.**

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: March 20, 2020
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SS 0-0.5
Date Sampled: 03/12/20 07:52
Percent Solids: 51
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1221	ND (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1232	ND (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1242	26.8 (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1248	ND (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1254	ND (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1260 [2C]	12.5 (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1262	ND (2.4)		8082A		25	03/20/20 8:49		DC01603
Aroclor 1268	ND (2.4)		8082A		25	03/20/20 8:49		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SS 1-2
Date Sampled: 03/12/20 07:54
Percent Solids: 78
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/19/20 13:30		DC01603
Aroclor 1221	ND (0.06)		8082A		1	03/19/20 13:30		DC01603
Aroclor 1232	ND (0.06)		8082A		1	03/19/20 13:30		DC01603
Aroclor 1242	7.3 (0.6)		8082A		10	03/19/20 13:49		DC01603
Aroclor 1248	ND (0.06)		8082A		1	03/19/20 13:30		DC01603
Aroclor 1254	ND (0.06)		8082A		1	03/19/20 13:30		DC01603
Aroclor 1260 [2C]	0.5 (0.06)		8082A		1	03/19/20 13:30		DC01603
Aroclor 1262	ND (0.06)		8082A		1	03/19/20 13:30		DC01603
Aroclor 1268	ND (0.06)		8082A		1	03/19/20 13:30		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	1330 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	1310 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	101 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SS 2-3
Date Sampled: 03/12/20 07:56
Percent Solids: 83
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1242 [2C]	0.4 (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1260	ND (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 18:23		DC01603
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 18:23		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	85 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	97 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	96 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	92 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-W-07SE 0-0.5
 Date Sampled: 03/12/20 08:06
 Percent Solids: 80
 Initial Volume: 20
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
 ESS Laboratory Sample ID: 20C0470-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: DMC
 Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1221	ND (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1232	ND (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1242	19.8 (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1248	ND (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1254	ND (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1260	6.1 (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1262	ND (3.1)		8082A		50	03/19/20 14:08		DC01603
Aroclor 1268	ND (3.1)		8082A		50	03/19/20 14:08		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SE 1-2
Date Sampled: 03/12/20 08:08
Percent Solids: 90
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.3)		8082A		5	03/19/20 14:27		DC01603
Aroclor 1221	ND (0.3)		8082A		5	03/19/20 14:27		DC01603
Aroclor 1232	ND (0.3)		8082A		5	03/19/20 14:27		DC01603
Aroclor 1242 [2C]	11200 (2790)		8082A		50000	03/20/20 9:07		DC01603
Aroclor 1248	ND (0.3)		8082A		5	03/19/20 14:27		DC01603
Aroclor 1254	ND (0.3)		8082A		5	03/19/20 14:27		DC01603
Aroclor 1260	0.6 (0.3)		8082A		5	03/19/20 14:27		DC01603
Aroclor 1262	ND (0.3)		8082A		5	03/19/20 14:27		DC01603
Aroclor 1268	ND (0.3)		8082A		5	03/19/20 14:27		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SE 2-3
Date Sampled: 03/12/20 08:10
Percent Solids: 83
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.6)		8082A		10	03/19/20 14:46		DC01603
Aroclor 1221	ND (0.6)		8082A		10	03/19/20 14:46		DC01603
Aroclor 1232	ND (0.6)		8082A		10	03/19/20 14:46		DC01603
Aroclor 1242 [2C]	124000 (11900)		8082A		200000	03/20/20 9:26		DC01603
Aroclor 1248	ND (0.6)		8082A		10	03/19/20 14:46		DC01603
Aroclor 1254	ND (0.6)		8082A		10	03/19/20 14:46		DC01603
Aroclor 1260	6.7 (0.6)		8082A		10	03/19/20 14:46		DC01603
Aroclor 1262	ND (0.6)		8082A		10	03/19/20 14:46		DC01603
Aroclor 1268	ND (0.6)		8082A		10	03/19/20 14:46		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07EE 0-0.5
Date Sampled: 03/12/20 08:30
Percent Solids: 80
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1221	ND (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1232	ND (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1242 [2C]	180 (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1248	ND (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1254	ND (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1260	28.9 (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1262	ND (12.5)		8082A		200	03/19/20 15:05		DC01603
Aroclor 1268	ND (12.5)		8082A		200	03/19/20 15:05		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07EE 1-2
Date Sampled: 03/12/20 08:32
Percent Solids: 81
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1221	ND (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1232	ND (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1242 [2C]	23.5 (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1248	ND (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1254	ND (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1260	ND (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1262	ND (3.1)		8082A		50	03/19/20 15:24		DC01603
Aroclor 1268	ND (3.1)		8082A		50	03/19/20 15:24		DC01603

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07EE 2-3
Date Sampled: 03/12/20 08:34
Percent Solids: 88
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 16:20		DC01604
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 16:20		DC01604
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 16:20		DC01604
Aroclor 1242 [2C]	2.8 (0.3)		8082A		5	03/19/20 18:53		DC01604
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 16:20		DC01604
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 16:20		DC01604
Aroclor 1260	0.1 (0.06)		8082A		1	03/17/20 16:20		DC01604
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 16:20		DC01604
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 16:20		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	90 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	94 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SW 0-0.5
Date Sampled: 03/12/20 09:00
Percent Solids: 82
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1242	1.0 (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1260	1.2 (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 16:40		DC01604
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 16:40		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	92 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	112 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	92 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SW 1-2
Date Sampled: 03/12/20 09:02
Percent Solids: 87
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 16:59		DC01604
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 16:59		DC01604
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 16:59		DC01604
Aroclor 1242 [2C]	3.2 (0.6)		8082A		10	03/19/20 19:12		DC01604
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 16:59		DC01604
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 16:59		DC01604
Aroclor 1260	5.3 (0.6)		8082A		10	03/19/20 19:12		DC01604
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 16:59		DC01604
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 16:59		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	617 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	521 %	SM	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SW 2-3
Date Sampled: 03/12/20 09:04
Percent Solids: 86
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0470
ESS Laboratory Sample ID: 20C0470-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1242	0.3 (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1260	0.08 (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 17:18		DC01604
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 17:18		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	100 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	75 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	90 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch DC01603 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0216		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0249		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0209		mg/kg wet	0.02500		83	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		77	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		75	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140			

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0269		mg/kg wet	0.02500		108	30-150			
Surrogate: Tetrachloro-m-xylene	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		78	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	2	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		75	40-140	0.7	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500		94	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0273		mg/kg wet	0.02500		109	30-150			
Surrogate: Tetrachloro-m-xylene	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0228		mg/kg wet	0.02500		91	30-150			

Batch DC01604 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch DC01604 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0248		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0211		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		104	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			

Surrogate: Decachlorobiphenyl	0.0267		mg/kg wet	0.02500		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0266		mg/kg wet	0.02500		107	30-150			
Surrogate: Tetrachloro-m-xylene	0.0226		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		105	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140	0.6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	0.5	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140	5	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.0226		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		104	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0470

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 20C0470
 Date Received: 3/13/2020
 Project Due Date: 3/20/2020
 Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No No

11. Any Subcontracting needed? Yes No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes No
 a. Was there a need to contact the client? Yes No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	23761	Yes	N/A	Yes	4 oz. Jar	NP	
2	23762	Yes	N/A	Yes	4 oz. Jar	NP	
3	23763	Yes	N/A	Yes	4 oz. Jar	NP	
4	23764	Yes	N/A	Yes	4 oz. Jar	NP	
5	23765	Yes	N/A	Yes	4 oz. Jar	NP	
6	23766	Yes	N/A	Yes	4 oz. Jar	NP	
7	23767	Yes	N/A	Yes	4 oz. Jar	NP	
8	23768	Yes	N/A	Yes	4 oz. Jar	NP	
9	23769	Yes	N/A	Yes	4 oz. Jar	NP	
10	23770	Yes	N/A	Yes	4 oz. Jar	NP	
11	23771	Yes	N/A	Yes	4 oz. Jar	NP	
12	23772	Yes	N/A	Yes	4 oz. Jar	NP	

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Initials: [Signature]
 Yes / No
 Yes / No (NA)
 Yes / No (NA)

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 20C0470

Date Received: 3/13/2020

Are all QC stickers attached?

Yes / No / NA

Are VOA stickers attached if bubbles noted?

Yes / No / NA

Completed
By:



Date & Time:

3/15/20 10:46

Reviewed
By:



Date & Time:

3/16/20 8:00

Delivered
By:



Date & Time:

3/16/20 8:00



400 Unicorn Park Drive
 Woburn, MA 01801
 PH: 781.721.4000
 FX: 781.721.4073

Project Information

Project Name: Former Tombarello Project Location: Lawrence MA
 Project Number: 1802441 Project Manager: L. Lombardo
 339.221.3551

Send Report to: Elise Farrington
 Send EDD to: labdata@geiconsultants.com

Page 7 of 8

MCP PRESUMPTIVE CERTAINTY REQUIRED: YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 If Yes, Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Preservative

None									
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Analysis

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Sample Handling

Samples Field Filtered
 YES NO NA

Sampled Shipped With Ice
 YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	PCBs*											Sample Specific Remarks		
		Date	Time																	
1	1802441-W-07SS(0-0.5)	3/13/2020	7:52	SO	1	BRL	x													
2	1802441-W-07SS(1-2)	3/13/2020	7:54	SO	1	BRL	x													
3	1802441-W-07SS(2-3)	3/13/2020	7:56	SO	1	BRL	x													
4	1802441-W-07SE(0-0.5)	3/13/2020	8:06	SO	1	BRL	x													
5	1802441-W-07SE(1-2)	3/13/2020	8:08	SO	1	BRL	x													
6	1802441-W-07SE(2-3)	3/13/2020	8:10	SO	1	BRL	x													
7	1802441-W-07EE(0-0.5)	3/13/2020	8:30	SO	1	BRL	x													
8	1802441-W-07EE(1-2)	3/13/2020	8:32	SO	1	BRL	x													
9	1802441-W-07EE(2-3)	3/13/2020	8:34	SO	1	BRL	x													
10	1802441-W-07SW(0-0.5)	3/13/2020	9:00	SO	1	BRL	x													
11	1802441-W-07SW(1-2)	3/13/2020	9:02	SO	1	BRL	x													
12	1802441W-07SW(2-3)	3/13/2020	9:04	SO	1	BRL	x													

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal ___ Other ___
 10-Day ___ 7-Day ___
 5-Day X 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by sampler: (signature) 1. <i>[Signature]</i>	Date: 3/13/20	Time: 1402	Received by: (signature) <i>[Signature]</i>
Relinquished by: (signature) 2. <i>[Signature]</i>	Date: 3/13/20	Time: 1903	Received by: (signature) <i>[Signature]</i>
Relinquished by: (signature) 3.	Date:	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date:	Time:	Received by: (signature) 4.

Additional Requirements/Comments/Remarks:

* Manual Soxhlet Extraction for PCBs. Analysis must be performed in accordance with GEI's Site Specific QAPP.



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 20C0471

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED

By ESS Laboratory at 2:23 pm, Mar 23, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0471

SAMPLE RECEIPT

The following samples were received on March 13, 2020 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20C0471-01	1802441-EW-07SEE 1-2	Soil	8082A
20C0471-02	1802441-EW-07SEE 2-3	Soil	8082A
20C0471-03	1802441-EW-07SSE 0-0.5	Soil	8082A
20C0471-04	1802441-EW-07SSE 1-2	Soil	8082A
20C0471-05	1802441-EW-07SSE 2-3	Soil	8082A
20C0471-06	1802441-EW-07SSS 0-0.5	Soil	8082A
20C0471-07	1802441-EW-07SSS 1-2	Soil	8082A
20C0471-08	1802441-EW-07SSS 2-3	Soil	8082A
20C0471-09	1802441-EW-07SSW 0-0.5	Soil	8082A
20C0471-10	1802441-EW-07SSW 1-2	Soil	8082A
20C0471-11	1802441-EW-07SSW 2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0471

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 20C0471-01 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0471-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0471-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0471-04 [Surrogate recovery\(ies\) outside of criteria due to matrix \(UCM/coelution/matrix is present\) \(SM\).](#)
Decachlorobiphenyl (192% @ 30-150%)
- 20C0471-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0471-07 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0471-09 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0471

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0471

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **20C0471-01 through 20C0471-11**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: March 20, 2020
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SEE 1-2
Date Sampled: 03/12/20 13:52
Percent Solids: 73
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1221	ND (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1232	ND (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1242	ND (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1248	ND (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1254	ND (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1260 [2C]	14.9 (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1262	ND (1.7)		8082A		25	03/20/20 9:45		DC01604
Aroclor 1268	ND (1.7)		8082A		25	03/20/20 9:45		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-EW-07SEE 2-3
 Date Sampled: 03/12/20 13:54
 Percent Solids: 68
 Initial Volume: 20.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
 ESS Laboratory Sample ID: 20C0471-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: DMC
 Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1221	ND (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1232	ND (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1242	ND (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1248	ND (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1254	ND (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1260 [2C]	87.6 (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1262	ND (7.2)		8082A		100	03/20/20 10:04		DC01604
Aroclor 1268	ND (7.2)		8082A		100	03/20/20 10:04		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSE 0-0.5
Date Sampled: 03/12/20 14:38
Percent Solids: 88
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1221	ND (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1232	ND (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1242	4.1 (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1248	ND (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1254	ND (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1260	17.4 (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1262	ND (1.1)		8082A		20	03/19/20 20:09		DC01604
Aroclor 1268	ND (1.1)		8082A		20	03/19/20 20:09		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	<i>SD</i>	<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	<i>SD</i>	<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	%	<i>SD</i>	<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	<i>SD</i>	<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSE 1-2
Date Sampled: 03/12/20 14:40
Percent Solids: 87
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 18:34		DC01604
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 18:34		DC01604
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 18:34		DC01604
Aroclor 1242	ND (0.06)		8082A		1	03/17/20 18:34		DC01604
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 18:34		DC01604
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 18:34		DC01604
Aroclor 1260 [2C]	2.4 (0.3)		8082A		5	03/19/20 20:28		DC01604
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 18:34		DC01604
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 18:34		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	192 %	SM	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	109 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	73 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSE 2-3
Date Sampled: 03/12/20 14:42
Percent Solids: 69
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1221	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1232	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1242	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1248	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1254	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1260	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1262	ND (0.07)		8082A		1	03/19/20 18:34		DC01604
Aroclor 1268	ND (0.07)		8082A		1	03/19/20 18:34		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	<i>95 %</i>		<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>96 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>81 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>100 %</i>		<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSS 0-0.5
Date Sampled: 03/12/20 14:50
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1221	ND (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1232	ND (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1242 [2C]	4.4 (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1248	ND (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1254	ND (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1260	9.4 (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1262	ND (1.1)		8082A		20	03/19/20 20:47		DC01604
Aroclor 1268	ND (1.1)		8082A		20	03/19/20 20:47		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSS 1-2
Date Sampled: 03/12/20 14:52
Percent Solids: 84
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1221	ND (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1232	ND (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1242 [2C]	61.4 (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1248	ND (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1254	ND (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1260	7.1 (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1262	ND (6.0)		8082A		100	03/19/20 21:06		DC01604
Aroclor 1268	ND (6.0)		8082A		100	03/19/20 21:06		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSS 2-3
Date Sampled: 03/12/20 14:54
Percent Solids: 67
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1221	ND (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1232	ND (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1242	0.09 (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1248	ND (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1254	ND (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1260	ND (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1262	ND (0.07)		8082A		1	03/17/20 19:50		DC01604
Aroclor 1268	ND (0.07)		8082A		1	03/17/20 19:50		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	96 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	74 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	87 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	93 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSW 0-0.5
Date Sampled: 03/12/20 15:00
Percent Solids: 93
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1221	ND (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1232	ND (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1242 [2C]	8.0 (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1248	ND (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1254	ND (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1260	56.0 (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1262	ND (5.3)		8082A		100	03/19/20 21:25		DC01604
Aroclor 1268	ND (5.3)		8082A		100	03/19/20 21:25		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSW 1-2
Date Sampled: 03/12/20 15:02
Percent Solids: 76
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1221	ND (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1232	ND (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1242	0.1 (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1248	ND (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1254	ND (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1260	ND (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1262	ND (0.07)		8082A		1	03/17/20 20:28		DC01604
Aroclor 1268	ND (0.07)		8082A		1	03/17/20 20:28		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	143 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	76 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	79 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	88 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SSW 2-3
Date Sampled: 03/12/20 15:04
Percent Solids: 78
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0471
ESS Laboratory Sample ID: 20C0471-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1242	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1260	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 20:47		DC01604
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 20:47		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	<i>85 %</i>		<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	<i>79 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	<i>88 %</i>		<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	<i>99 %</i>		<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0471

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8082A Polychlorinated Biphenyls (PCB)

Batch DC01604 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0248		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0211		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		104	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			

Surrogate: Decachlorobiphenyl	0.0267		mg/kg wet	0.02500		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0266		mg/kg wet	0.02500		107	30-150			
Surrogate: Tetrachloro-m-xylene	0.0226		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		105	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140	0.6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	0.5	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140	5	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.0226		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		104	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0471

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0471

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 20C0471

Date Received: 3/13/2020

Shipped/Delivered Via: ESS Courier

Project Due Date: 3/20/2020

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	23773	Yes	N/A	Yes	4 oz. Jar	NP	
2	23774	Yes	N/A	Yes	4 oz. Jar	NP	
3	23775	Yes	N/A	Yes	4 oz. Jar	NP	
4	23776	Yes	N/A	Yes	4 oz. Jar	NP	
5	23777	Yes	N/A	Yes	4 oz. Jar	NP	
6	23778	Yes	N/A	Yes	4 oz. Jar	NP	
7	23779	Yes	N/A	Yes	4 oz. Jar	NP	
8	23780	Yes	N/A	Yes	4 oz. Jar	NP	
9	23781	Yes	N/A	Yes	4 oz. Jar	NP	
10	23782	Yes	N/A	Yes	4 oz. Jar	NP	
11	23783	Yes	N/A	Yes	4 oz. Jar	NP	

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?

Initials [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 20C0471

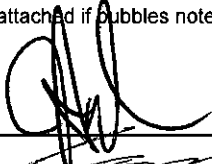
Date Received: 3/13/2020

Are VOA stickers attached if bubbles noted?

Yes / No / (NA)

Completed

By:



Date & Time:

3/15/20 1037

Reviewed

By:

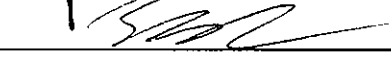


Date & Time:

3/16/20 8:00

Delivered

By:



Date & Time:

3/16/20 8:00

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # **2000471**



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Former Tombarello

Project Location: Lawrence MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: Elise Farrington

Send EDD to: labdata@geiconsultants.com

Page 6 of 8

Sample Handling

Samples Field Filtered

YES NO **NA**

Sampled Shipped With Ice

YES **NO**

Sample Specific Remarks

MCP PRESUMPTIVE CERTAINTY REQUIRED:

If Yes, Are MCP Analytical Methods Required? YES **NO** NA

If Yes, Are Drinking Water Samples Submitted? YES **NO** NA

If Yes, Have You Met Minimum Field QC Requirements? YES **NO** NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initiates
		Date	Time			
1	1802441-EW-07SEE(1-2)	3/12/2020	13:52	SO	1	BRL
2	1802441-EW-07SEE(2-3)	3/12/2020	13:54	SO	1	BRL
3	1802441-EW-07SSE(0-0.5)	3/12/2020	14:38	SO	1	BRL
4	1802441-EW-07SSE(1-2)	3/12/2020	14:40	SO	1	BRL
5	1802441-EW-07SSE(2-3)	3/12/2020	14:42	SO	1	BRL
6	1802441-EW-07SSS(0-0.5)	3/12/2020	14:50	SO	1	BRL
7	1802441-EW-07SSS(1-2)	3/12/2020	14:52	SO	1	BRL
8	1802441-EW-07SSS(2-3)	3/12/2020	14:54	SO	1	BRL
9	1802441-EW-07SSW(0-0.5)	3/12/2020	15:00	SO	1	BRL
10	1802441-EW-07SSW(1-2)	3/12/2020	15:02	SO	1	BRL
11	1802441-EW-07SSW(2-3)	3/12/2020	15:04	SO	1	BRL

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Time:
1. <i>[Signature]</i>	3/12/20	1400	<i>[Signature]</i>	1
2. <i>[Signature]</i>	3/13/20	1900	<i>[Signature]</i>	2
3. <i>[Signature]</i>			<i>[Signature]</i>	3
4. <i>[Signature]</i>			<i>[Signature]</i>	4

Turnaround Time (Business days):

Normal ___ Other ___
10-Day ___ 7-Day ___
5-Day **X** 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

* Manual Soxhlet Extraction for PCBs. Analysis must be performed in accordance with GEI's Site Specific QAPP.

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 20C0471

Shipped/Delivered Via: ESS Courier

Date Received: 3/13/2020

Project Due Date: 3/20/2020

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.9 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

- 14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	23773	Yes	N/A	Yes	4 oz. Jar	NP	
2	23774	Yes	N/A	Yes	4 oz. Jar	NP	
3	23775	Yes	N/A	Yes	4 oz. Jar	NP	
4	23776	Yes	N/A	Yes	4 oz. Jar	NP	
5	23777	Yes	N/A	Yes	4 oz. Jar	NP	
6	23778	Yes	N/A	Yes	4 oz. Jar	NP	
7	23779	Yes	N/A	Yes	4 oz. Jar	NP	
8	23780	Yes	N/A	Yes	4 oz. Jar	NP	
9	23781	Yes	N/A	Yes	4 oz. Jar	NP	
10	23782	Yes	N/A	Yes	4 oz. Jar	NP	
11	23783	Yes	N/A	Yes	4 oz. Jar	NP	

2nd Review

- Were all containers scanned into storage/lab?
- Are barcode labels on correct containers?
- Are all Flashpoint stickers attached/container ID # circled?
- Are all Hex Chrome stickers attached?
- Are all QC stickers attached?

Initials [Signature]
 Yes / No
 Yes / No / NA
 Yes / No / NA
 Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 20C0471

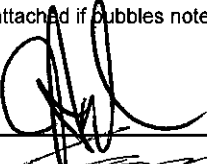
Date Received: 3/13/2020

Are VOA stickers attached if bubbles noted?

Yes / No / (NA)

Completed

By:



Date & Time:

3/15/20 1037

Reviewed

By:

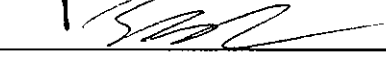


Date & Time:

3/16/20 8:00

Delivered

By:



Date & Time:

3/16/20 8:00

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # **2000471**



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Former Tombarello

Project Location: Lawrence MA

Project Number: 1802441

Project Manager: L. Lombardo

Send Report to: Elise Farrington

Send EDD to: labdata@geiconsultants.com

Page 6 of 8

MCP PRESUMPTIVE CERTAINTY REQUIRED:

If Yes, Are MCP Analytical Methods Required? YES NO NA
 If Yes, Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials
		Date	Time			
1	1802441-EW-07SEE(1-2)	3/12/2020	13:52	SO	1	BRL
2	1802441-EW-07SEE(2-3)	3/12/2020	13:54	SO	1	BRL
3	1802441-EW-07SSE(0-0.5)	3/12/2020	14:38	SO	1	BRL
4	1802441-EW-07SSE(1-2)	3/12/2020	14:40	SO	1	BRL
5	1802441-EW-07SSE(2-3)	3/12/2020	14:42	SO	1	BRL
6	1802441-EW-07SSS(0-0.5)	3/12/2020	14:50	SO	1	BRL
7	1802441-EW-07SSS(1-2)	3/12/2020	14:52	SO	1	BRL
8	1802441-EW-07SSS(2-3)	3/12/2020	14:54	SO	1	BRL
9	1802441-EW-07SSW(0-0.5)	3/12/2020	15:00	SO	1	BRL
10	1802441-EW-07SSW(1-2)	3/12/2020	15:02	SO	1	BRL
11	1802441-EW-07SSW(2-3)	3/12/2020	15:04	SO	1	BRL

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Time:
1. <i>[Signature]</i>	3/12/20	1400	1. <i>[Signature]</i>	
2. <i>[Signature]</i>	3/13/20	1900	2. <i>[Signature]</i>	
3. <i>[Signature]</i>			3. <i>[Signature]</i>	
4. <i>[Signature]</i>			4. <i>[Signature]</i>	

Turnaround Time (Business days):
 Normal ___ Other ___
 10-Day ___ 7-Day ___
 5-Day 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:
 * Manual Soxhlet Extraction for PCBs. Analysis must be performed in accordance with GEI's Site Specific QAPP.



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 20C0472

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 2:26 pm, Mar 23, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

SAMPLE RECEIPT

The following samples were received on March 13, 2020 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20C0472-01	1802441-SB-3WWN 0-0.5	Soil	8082A
20C0472-02	1802441-SB-3WWN 1-2	Soil	8082A
20C0472-03	1802441-SB-3WWN 2-3	Soil	8082A
20C0472-04	1802441-SB-3WWS 0-0.5	Soil	8082A
20C0472-05	1802441-SB-3WWS 1-2	Soil	8082A
20C0472-06	1802441-SB-3WWS 2-3	Soil	8082A
20C0472-07	1802441-SB-3WWW 1-2	Soil	8082A
20C0472-08	1802441-SB-3WWW 2-3	Soil	8082A
20C0472-09	1802441-EW-07SE2-3	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 20C0472-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0472-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0472-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0472-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 20C0472-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **20C0472-01 through 20C0472-09**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: March 20, 2020
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWN 0-0.5
Date Sampled: 03/13/20 09:34
Percent Solids: 91
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	03/17/20 23:00		DC01604
Aroclor 1221	ND (0.05)		8082A		1	03/17/20 23:00		DC01604
Aroclor 1232	ND (0.05)		8082A		1	03/17/20 23:00		DC01604
Aroclor 1242	0.7 (0.05)		8082A		1	03/17/20 23:00		DC01604
Aroclor 1248	ND (0.05)		8082A		1	03/17/20 23:00		DC01604
Aroclor 1254 [2C]	4.1 (0.5)		8082A		10	03/19/20 21:44		DC01604
Aroclor 1260	0.9 (0.05)		8082A		1	03/17/20 23:00		DC01604
Aroclor 1262	ND (0.05)		8082A		1	03/17/20 23:00		DC01604
Aroclor 1268	ND (0.05)		8082A		1	03/17/20 23:00		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	92 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	134 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	79 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWN 1-2
Date Sampled: 03/13/20 09:36
Percent Solids: 89
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1221	ND (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1232	ND (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1242	ND (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1248	ND (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1254	ND (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1260	49.7 (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1262	ND (5.6)		8082A		100	03/19/20 22:03		DC01604
Aroclor 1268	ND (5.6)		8082A		100	03/19/20 22:03		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWN 2-3
Date Sampled: 03/13/20 09:38
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1221	ND (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1232	ND (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1242	ND (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1248	ND (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1254	ND (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1260	27.8 (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1262	ND (2.7)		8082A		50	03/19/20 22:22		DC01604
Aroclor 1268	ND (2.7)		8082A		50	03/19/20 22:22		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWS 0-0.5
Date Sampled: 03/13/20 10:20
Percent Solids: 73
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1221	ND (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1232	ND (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1242 [2C]	3.6 (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1248	ND (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1254 [2C]	15.2 (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1260	6.1 (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1262	ND (1.4)		8082A		20	03/19/20 22:41		DC01604
Aroclor 1268	ND (1.4)		8082A		20	03/19/20 22:41		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWS 1-2
Date Sampled: 03/13/20 10:22
Percent Solids: 91
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1221	ND (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1232	ND (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1242	ND (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1248	ND (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1254	ND (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1260	158 (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1262	ND (27.2)		8082A		500	03/19/20 23:00		DC01604
Aroclor 1268	ND (27.2)		8082A		500	03/19/20 23:00		DC01604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	<i>SD</i>	<i>30-150</i>
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	<i>SD</i>	<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene</i>	%	<i>SD</i>	<i>30-150</i>
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	<i>SD</i>	<i>30-150</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWS 2-3
Date Sampled: 03/13/20 10:24
Percent Solids: 80
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1221	ND (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1232	ND (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1242	ND (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1248	ND (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1254	ND (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1260	85.0 (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1262	ND (6.2)		8082A		100	03/19/20 10:11		DC01605
Aroclor 1268	ND (6.2)		8082A		100	03/19/20 10:11		DC01605

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWW 1-2
Date Sampled: 03/13/20 10:34
Percent Solids: 96
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1221	ND (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1232	ND (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1242	ND (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1248	ND (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1254	ND (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1260	0.5 (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1262	ND (0.05)		8082A		1	03/17/20 13:12		DC01605
Aroclor 1268	ND (0.05)		8082A		1	03/17/20 13:12		DC01605

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	86 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	82 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	92 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWW 2-3
Date Sampled: 03/13/20 10:36
Percent Solids: 85
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 13:31		DC01605
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 13:31		DC01605
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 13:31		DC01605
Aroclor 1242	ND (0.06)		8082A		1	03/17/20 13:31		DC01605
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 13:31		DC01605
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 13:31		DC01605
Aroclor 1260	4.5 (0.3)		8082A		5	03/18/20 15:09		DC01605
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 13:31		DC01605
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 13:31		DC01605

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	94 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	89 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	99 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SE2-3
Date Sampled: 03/13/20 11:00
Percent Solids: 76
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0472
ESS Laboratory Sample ID: 20C0472-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/16/20 14:50

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1221	ND (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1232	ND (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1242	0.4 (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1248	ND (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1254	ND (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1260	ND (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1262	ND (0.06)		8082A		1	03/17/20 13:50		DC01605
Aroclor 1268	ND (0.06)		8082A		1	03/17/20 13:50		DC01605

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	84 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	85 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch DC01604 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0248		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0211		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		104	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			

Surrogate: Decachlorobiphenyl	0.0267		mg/kg wet	0.02500		107	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0266		mg/kg wet	0.02500		107	30-150			
Surrogate: Tetrachloro-m-xylene	0.0226		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		105	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140	0.6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	0.5	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140	5	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.0226		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0261		mg/kg wet	0.02500		104	30-150			

Batch DC01605 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch DC01605 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0238		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0225		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0229		mg/kg wet	0.02500		92	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		82	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		82	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		83	40-140			

Surrogate: Decachlorobiphenyl	0.0235		mg/kg wet	0.02500		94	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0221		mg/kg wet	0.02500		88	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		81	40-140	1	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		83	40-140	0.2	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		84	40-140	2	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		80	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0228		mg/kg wet	0.02500		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0210		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0211		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0224		mg/kg wet	0.02500		90	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0472

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 20C0472
 Date Received: 3/13/2020
 Project Due Date: 3/20/2020
 Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.6 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	23785	Yes	N/A	Yes	4 oz. Jar	NP	
2	23786	Yes	N/A	Yes	4 oz. Jar	NP	
3	23787	Yes	N/A	Yes	4 oz. Jar	NP	
4	23788	Yes	N/A	Yes	4 oz. Jar	NP	
5	23789	Yes	N/A	Yes	4 oz. Jar	NP	
6	23790	Yes	N/A	Yes	4 oz. Jar	NP	
7	23791	Yes	N/A	Yes	4 oz. Jar	NP	
8	23792	Yes	N/A	Yes	4 oz. Jar	NP	
9	23793	Yes	N/A	Yes	4 oz. Jar	NP	

2nd Review

Were all containers scanned into storage/lab? Initials: [Signature]
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GE Consultants, Inc. - TB ESS Project ID: 20C0472
Date Received: 3/13/2020

Completed By: [Signature] Date & Time: 3/15/20 1042
Reviewed By: [Signature] Date & Time: 3/15/20 8:00
Delivered By: [Signature] Date & Time: 3/15/20 8:00

Chain-of-Custody Record

Laboratory: ESS

Laboratory Job # *2020472*

(Lab use only)



400 Unicorn Park Drive
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: Former Tombarello

Project Location: Lawrence MA

Project Number: 1802441

Project Manager: L. Lombardo
339.221.3551

Send Report to: Elise Farrington

Send EDD to: labdata@geiconsultants.com

Page *8* of *8*

MCP PRESUMPTIVE CERTAINTY REQUIRED:

YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
 If Yes, Are Drinking Water Samples Submitted? YES NO NA
 If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Preservative

None

Analysis

Sample Handling

Samples Field Filtered

YES NO NA

Sampled Shipped With Ice

YES NO

Lab Sample Number	GEI Sample ID	Collection		Matrix	No. of Bottles	Sampler(s) Initials	PCBs*											Sample Specific Remarks		
		Date	Time																	
<i>1</i>	1802441-SB-3WWN(0-0.5)	3/13/2020	9:34	SO	1	BRL	x													
<i>2</i>	1802441-SB-3WWN(1-2)	3/13/2020	9:36	SO	1	BRL	x													
<i>3</i>	1802441-SB-3WWN(2-3)	3/13/2020	9:38	SO	1	BRL	x													
<i>4</i>	1802441-SB-3WWS(0-0.5)	3/13/2020	10:20	SO	1	BRL	x													
<i>5</i>	1802441-SB-3WWS(1-2)	3/13/2020	10:22	SO	1	BRL	x													
<i>6</i>	1802441-SB-3WWS(2-3)	3/13/2020	10:24	SO	1	BRL	x													
<i>7</i>	1802441-SB-3WWW(1-2)	3/13/2020	10:34	SO	1	BRL	x													
<i>8</i>	1802441-SB-3WWW(2-3)	3/13/2020	10:36	SO	1	BRL	x													
<i>9</i>	1802441-EW-07SE(2-3)	3/13/2020	11:00	SO	1	BRL	x													

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Turnaround Time (Business days):

Normal ___ Other ___
 10-Day ___ 7-Day ___
 5-Day 3-Day ___

Before submitting rush turnaround samples, you must notify the laboratory to confirm that the TAT can be achieved.

Relinquished by: (signature) <i>1. [Signature]</i>	Date: <i>3/13/20</i>	Time: <i>1400</i>	Received by: (signature) <i>1. [Signature]</i>
Relinquished by: (signature) <i>2. [Signature]</i>	Date: <i>3/13/20</i>	Time: <i>1905</i>	Received by: (signature) <i>2. [Signature]</i>
Relinquished by: (signature) <i>3.</i>	Date:	Time:	Received by: (signature) <i>3.</i>
Relinquished by: (signature) <i>4.</i>	Date:	Time:	Received by: (signature) <i>4.</i>

Additional Requirements/Comments/Remarks:
 * Manual Soxhlet Extraction for PCBs. Analysis must be performed in accordance with GEI's Site Specific QAPP.



CERTIFICATE OF ANALYSIS

Leslie Lombardo
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 20C0796

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 2:10 pm, Apr 01, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0796

SAMPLE RECEIPT

The following samples were received on March 25, 2020 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20C0796-01	1802441-W-07SE 3-5	Soil	8082A
20C0796-02	1802441-SB-3WWN 3-5	Soil	8082A
20C0796-03	1802441-SB-3WWS 3-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0796

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

20C0796-01

[Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0796

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0796

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **20C0796-01 through 20C0796-03**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.**
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

***All negative responses must be addressed in an attached laboratory narrative.**

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: April 01, 2020
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-W-07SE 3-5
Date Sampled: 03/13/20 08:12
Percent Solids: 84
Initial Volume: 5.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0796
ESS Laboratory Sample ID: 20C0796-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/25/20 20:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1221	ND (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1232	ND (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1242 [2C]	33500 (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1248	ND (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1254	ND (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1260 [2C]	2640 (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1262	ND (1140)		8082A		10000	03/30/20 13:18		DC02529
Aroclor 1268	ND (1140)		8082A		10000	03/30/20 13:18		DC02529

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Tombarello Site Investigation
 Client Sample ID: 1802441-SB-3WWN 3-5
 Date Sampled: 03/13/20 09:40
 Percent Solids: 84
 Initial Volume: 5.26
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 20C0796
 ESS Laboratory Sample ID: 20C0796-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: DMC
 Prepared: 3/25/20 20:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1221	ND (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1232	ND (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1242 [2C]	0.4 (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1248	ND (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1254	ND (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1260	0.2 (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1262	ND (0.1)		8082A		1	03/30/20 12:41		DC02529
Aroclor 1268	ND (0.1)		8082A		1	03/30/20 12:41		DC02529

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	90 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	89 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	80 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	88 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-SB-3WWS 3-5
Date Sampled: 03/13/20 10:26
Percent Solids: 83
Initial Volume: 5.21
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20C0796
ESS Laboratory Sample ID: 20C0796-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 3/25/20 20:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1221	ND (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1232	ND (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1242 [2C]	0.7 (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1248	ND (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1254	ND (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1260	0.4 (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1262	ND (0.1)		8082A		1	03/30/20 12:58		DC02529
Aroclor 1268	ND (0.1)		8082A		1	03/30/20 12:58		DC02529

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	94 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	91 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	90 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0796

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch DC02529 - 3540C

Blank

Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0245		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0247		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0195		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0207		mg/kg wet	0.02500		83	30-150			

LCS

Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		91	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		92	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		100	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140			

Surrogate: Decachlorobiphenyl	0.0264		mg/kg wet	0.02500		106	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0262		mg/kg wet	0.02500		105	30-150			
Surrogate: Tetrachloro-m-xylene	0.0221		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0238		mg/kg wet	0.02500		95	30-150			

LCS Dup

Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		88	40-140	3	30	
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		89	40-140	3	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		98	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		97	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0256		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0256		mg/kg wet	0.02500		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0228		mg/kg wet	0.02500		91	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0796

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20C0796

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 20C0796
 Date Received: 3/25/2020
 Project Due Date: 4/1/2020
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 0.4 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about **short holds & rushes**? Yes / No NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt? Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen? Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	26961	Yes	N/A	Yes	4 oz. Jar	NP	
2	26962	Yes	N/A	Yes	4 oz. Jar	NP	
3	26963	Yes	N/A	Yes	4 oz. Jar	NP	

2nd Review

Were all containers scanned into storage/lab? Initials [Signature]

- Are barcode labels on correct containers? Yes / No / NA
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 3/25/20 16:44
 Reviewed By: [Signature] Date & Time: 3/25/20 1650
 Delivered By: [Signature] Date & Time: 3/25/20 1650



CERTIFICATE OF ANALYSIS

Leslie Lombardo
 GEI Consultants, Inc.
 400 Unicorn Park Drive
 Woburn, MA 01801

RE: Tombarello Site Investigation (1802441)
ESS Laboratory Work Order Number: 20D0112

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
 Laboratory Director

REVIEWED
 By ESS Laboratory at 1:17 pm, Apr 10, 2020

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20D0112

SAMPLE RECEIPT

The following samples were received on April 03, 2020 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
20D0112-01	1802441-EW-07SEE 3-5	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20D0112

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20D0112

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH
- MADEP 18-2.1 - VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20D0112

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **20D0112-01**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---|--|--|---|--|---|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

- A Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? Yes No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- C Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? Yes No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- F Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? Yes No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40.1056 (2)(k) and WSC-07-350.**
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: April 10, 2020
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation
Client Sample ID: 1802441-EW-07SEE 3-5
Date Sampled: 03/12/20 13:56
Percent Solids: 77
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20D0112
ESS Laboratory Sample ID: 20D0112-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: DMC
Prepared: 4/3/20 20:15

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	04/06/20 11:14		DD00303
Aroclor 1221	ND (0.06)		8082A		1	04/06/20 11:14		DD00303
Aroclor 1232	ND (0.06)		8082A		1	04/06/20 11:14		DD00303
Aroclor 1242	ND (0.06)		8082A		1	04/06/20 11:14		DD00303
Aroclor 1248	ND (0.06)		8082A		1	04/06/20 11:14		DD00303
Aroclor 1254	ND (0.06)		8082A		1	04/06/20 11:14		DD00303
Aroclor 1260	3.9 (0.3)		8082A		5	04/07/20 12:04		DD00303
Aroclor 1262	ND (0.06)		8082A		1	04/06/20 11:14		DD00303
Aroclor 1268	ND (0.06)		8082A		1	04/06/20 11:14		DD00303

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	86 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	91 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	85 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20D0112

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch DD00303 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0225		mg/kg wet	0.02500		90	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0191		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0215		mg/kg wet	0.02500		86	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		83	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140			

Surrogate: Decachlorobiphenyl	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0226		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene	0.0205		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0216		mg/kg wet	0.02500		86	30-150			

LCS Dup

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		89	40-140	7	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140	7	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140	4	30	

Surrogate: Decachlorobiphenyl	0.0224		mg/kg wet	0.02500		90	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0240		mg/kg wet	0.02500		96	30-150			
Surrogate: Tetrachloro-m-xylene	0.0217		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0229		mg/kg wet	0.02500		92	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.

Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20D0112

Notes and Definitions

- U Analyte included in the analysis, but not detected
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Tombarello Site Investigation

ESS Laboratory Work Order: 20D0112

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 20D0112
 Date Received: 4/3/2020
 Project Due Date: 4/10/2020
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 0.1 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about **short holds & rushes**? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes No
 a. Air bubbles in aqueous VOAs? Yes No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	30537	Yes	N/A	Yes	4 oz. Jar	NP	

2nd Review

Were all containers scanned into storage/lab? Initials dm
 Are barcode labels on correct containers? Yes / No
 Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 Are all Hex Chrome stickers attached? Yes / No / NA
 Are all QC stickers attached? Yes / No / NA
 Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Amber Garcia Date & Time: 4/3/20 17:11
 Reviewed By: [Signature] Date & Time: 4/5/20 1717
 Delivered By: [Signature] Date & Time: 4/5/20 1717

