REMOVAL PROGRAM
PRELIMINARY ASSESSMENT/
SITE INVESTIGATION REPORT
FOR THE
FORMER TOMBARELLO & SONS PROPERTY SITE
LAWRENCE, ESSEX COUNTY, MASSACHUSETTS
21 DECEMBER 2016 AND 27 JUNE 2017

Prepared For:

U.S. Environmental Protection Agency
Region I
Emergency Planning and Response Branch
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912

CONTRACT NO. EP-S3-15-01

TO/TDD NO. TO1-01-16-11-0001

TASK NO. 0153

DC NO. R-00273

Submitted By:

Weston Solutions, Inc.
Region I
Superfund Technical Assessment and Response Team IV (START)
101 Billerica Avenue, Building 5, Suite 103
North Billerica, Massachusetts 01862

August 2017

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I. Preliminary Assessment/Site Investigation Forms

EPA REGION I
REMOVAL PRELIMINARY ASSESSMENT

Site Name and Location

Name: Former Tombarello & Sons Property **Location:** 209 Marston Street
Town: Lawrence **County:** Essex **State:** Massachusetts

Site Status: **( ) NPL** **( ) NON-NPL** **( ) RCRA** **( ) TSCA**
( ) ACTIVE **(X) ABANDONED** **( ) OTHER**

(X) Attached USGS Map of Location **(X) Site I.D. No.:** 01XX

Latitude: 42° 43' 10.9" North **Longitude:** 71° 08' 29.4" West

Referral

( ) Citizen **( ) City/Town** **( ) State** **( ) Preremedial** **( ) RCRA**
(X) Other: EPA Brownfields

Name of referring party: U.S. EPA Brownfields **Telephone:** (617) 918-1111
Address: 5 Post Office Square, Mail Code: OSRR07-2, Boston, MA 02109-3912

Contacts Identified
1) Alan Peterson **Telephone:** (617) 918-1022

Source of Information

( ) Verbal:
(X) Report: Nobis Engineering, Inc. 2016. Targeted Brownfields Assessment Report. September.
( ) Other:

Potential Responsible Parties

Owner: City of Lawrence **Telephone:** (978) 620-3013
Address: 200 Common Street Lawrence, Massachusetts
Operator: **Telephone:** ( )
Address:

REMOVAL PRELIMINARY ASSESSMENT

Site Access

Authorizing Person: Mayor Daniel Riviera
Date: 2 December 2016 **(X) Obtained** **( ) Verbal**
Telephone: (978) 620-3013 **( ) Not Obtained** **(X) Written**

Historical Preservation

( ) Site is Historically Significant or Eligible for Historic Preservation

Contacts Identified

1) State Historical Preservation Officer (SHPO)
Ms. Brona Simon **Telephone:** (617) 727-8470
2) Tribal Historical Preservation Officer (THPO)
Name: **Telephone:** ( )

Comments:

Physical Site Characterization

Background Information: The Former Tombarello & Sons Property site (the site) is located at 209 Marston Street, Lawrence, Essex County, Massachusetts (MA). Geographic coordinates as measured from the approximate center of the site are 42° 43′ 10.9″ north latitude and 71° 8′ 29.4″ longitude west. The site is identified on the City of Lawrence Tax Assessor's Map Number (No.) 33, as Lot Nos. 17 and 18. The site is located in a mixed industrial/residential area bordered to the north by nine residential properties along Hofmann Avenue; to the west by Marston Street and the Parthum Elementary and Middle School; to the south by an automobile dealership (formerly a waste recycling facility); and to the east by Interstate 495. The Merrimac River is also located approximately 400 feet to the east of the property boundary. Currently, the site is an abandoned scrap metal facility containing buildings, former building foundations, and scrap metal/debris scattered throughout the property.

The site is comprised of two tracts of land purchased by John C. Tombarello in 1941 and 1967. The tract of land purchased in 1941 became the northern portion of the site where the scrap metal recycling facility was operated. The southern tract was purchased in 1967 from the City of Lawrence. The southern tract was formerly used by the City as a landfill; and prior to 1935, it was the site of a soap manufacturer.

The site was owned and operated by John C. Tombarello & Sons, Inc. as a scrap metal recycling facility from approximately 1941 until December 1998 when the property was sold to American Recycling, Inc., (American Recycling). American Recycling operated at the facility until 2001. The facility accepted a wide variety of scrap material including crushed automobiles, storage tanks, machinery, and computer parts. One of the recycling methods employed at the site was a stripping

process involving cyanide to recover gold and other precious metals from computers and other electronics. Since 2001, the site has been unoccupied and unused, with the exception of a truck driving school, which operated at the site for a short time in 2006.

On 19 May 1998, a release of oil occurred while the recycling facility staff was dismantling a scrap heat exchanger. New England Disposal Technologies (NEDT) responded to the site to mitigate the spill. Free product from the heat exchanger and from the ground was pumped into a vacuum truck. On 21 May, the impacted area was excavated and the soil stockpiled on site. NEDT collected six samples from the floor of the excavation and three samples from the stockpiled soil. The stockpile samples were analyzed for volatile organic compounds (VOCs), metals, total petroleum hydrocarbons (TPH), and polychlorinated biphenyls (PCBs). Analytical results of the soil samples indicated the presence of the following substances at concentrations above Massachusetts Contingency Plan (MCP) Reportable Concentrations (RC) S-1 (RCS-1) for Soil (maximum concentrations in parentheses): tetrachloroethene (PCE) [1.8 parts per million (ppm)]; cadmium (162 ppm); lead (961 ppm); TPH (6,900 ppm), and PCBs (13.1 ppm).

NEDT determined that this level of contamination was not a result of the oil spill and represented background conditions at the site. Tombarello and Sons were informed by NEDT that as a result of the contamination found at the site and its proximity to a school and athletic field, a condition of Imminent Hazard may exist. Tombarello and Sons concluded that fencing and berms surrounding the site adequately restricted access to the site and therefore no Imminent Hazard condition existed.

In August 1998, W.Z. Baumgartner & Associates, Inc. (WZB) completed an Environmental Site Assessment on behalf of American Recycling. This report was prepared for real estate purposes before American Recycling purchased the site from Tombarello and Sons. WZB collected groundwater, surface soil, and subsurface soil samples at the site. Analytical results of the soil samples indicated the presence of the following substances at concentrations above the MCP RCS-1 for Soil (maximum concentrations in parentheses): benzo(a)anthracene (58.6 ppm); benzo(a)pyrene (32.2 ppm); benzo(b)fluoranthene (39.5 ppm); benzo(k)fluoranthene (22.6 ppm); chrysene (60.4 ppm); indeno(1,2,3-cd)pyrene (7.63 ppm); phenanthrene (143 ppm); lead (3,470 ppm); PCBs (59.27 ppm); and TPH (2,740 ppm). Groundwater samples were collected and analyzed for metals. Results of the groundwater samples indicated the presence of the following substances at concentrations above MCP RC GW-1 (RCGW-1) for Groundwater (maximum concentrations in parentheses): arsenic [0.143 milligrams per Liter (mg/L)]; chromium (0.477 mg/L); and lead (1.56 mg/L).

On 11 December 1998, George Tombarello sold the property to American Recycling. The on-site business continued to operate under the name Tombarello and Sons.

Based on the results of the NEDT and WZB reports, the Massachusetts Department of Environmental Protection (MassDEP) determined that a level of hazardous material contamination existed at site; and due to the proximity to residences and a school, an Imminent Hazard condition may also have existed. An inspection of the site by MassDEP in February 1999 also noted a number of violations, including improper storage of excavated soil, and unmarked and leaking 55-

gallon drums. MassDEP submitted a Notice of Responsibility (NOR) to both American Recycling and Tombarello and Sons requiring them to further investigate the site and to conduct any necessary response actions.

American Recycling and Tombarello and Sons contracted Higgins Environmental Associates (HEA) to perform an evaluation of the site and associated response action. As part of the response action, conducted between April and July 1999, the stockpiled soil on site was properly transported off site and disposed of, a fence was installed to improve site security, monitoring wells were installed, and soil and groundwater samples were collected. Analytical results of the surface soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): benzo(a)anthracene (72 ppm); benzo(a)pyrene (44 ppm); benzo(b)fluoranthene (61 ppm); benzo(k)fluoranthene (53 ppm); chrysene (84 ppm); indeno(1,2,3-cd)pyrene (42 ppm); naphthalene (5 ppm); methyl tertiary butyl ether (0.48 ppm); trichlorofluoromethane (2.7 ppm); lead (980 ppm); PCBs (92 ppm); and TPH (9,090 ppm). Results of the groundwater samples indicated the presence of the following substances at concentrations above MCP RCGW-1 for Groundwater (maximum concentrations in parentheses): benzene (0.0136 mg/L); PCE (0.0071 mg/L); 1,1-dichloroethane (0.1138 mg/L); arsenic (0.143 mg/L); total chromium (0.477 mg/L); and lead (1.56 mg/L).

In September 2001, Haley and Aldrich (H&A) conducted further sampling at the site on behalf of American Recycling. A total of 35 samples were collected from the surface, as well as test pitting to a depth of 15 feet below ground surface (bgs), with the samples collected and analyzed for PCBs only. The maximum concentration of PCBs found at the surface was 66 ppm while the maximum concentration in the test pitting samples was 78 ppm.

In 2003, Weston Solutions, Inc. (Weston) prepared a MCP Phase II Comprehensive Site Assessment and a Phase III Remedial Action Plan on behalf of First Lawrence Financial, LLC (FLF). At that time, FLF was acting as an agent of American Recycling. As part the Site Assessment, Weston collected surface, subsurface, sediment, and groundwater samples between February and September 2003. Samples were submitted for extractable petroleum hydrocarbons (EPH), metals, and PCBs. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): EPH (7,300 ppm); arsenic (69.4 ppm); barium (1,480 ppm); cadmium (716 ppm); lead (2,700 ppm); and PCBs (13,000 ppm).

In 2005, at the request of EPA, Weston collected additional samples at the site to assess potential data gaps identified by EPA. These gaps included evaluating the on-site buildings, concrete pads, scrap metal piles, and soil sampling conducted along the site boundary adjacent to residential properties along Hofmann Avenue. A maximum PCB concentration of 7 ppm was detected along the site boundary.

In 2006, FLF began removing scrap metal piles at the site. The City of Lawrence, MassDEP, and EPA became concerned that dust generated by the on-site activities may contain PCBs and negatively impact the nearby residential area along Hoffmann Avenue. As a result Weston, on behalf of FLF, conducted an Immediate Response Action (IRA). The IRA consisted of collecting

17 surface soil samples along the approximately 700-foot-long northern property boundary fence line. Samples were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): barium (1,300 ppm); cadmium (17 ppm); chromium (57.7 ppm); lead (1,730 ppm); and PCBs (6.3 ppm).

In 2007, MassDEP contracted Shaw Environmental, Inc. (Shaw) to conduct soil sampling to determine the extent of contamination at the residences along Hoffmann Ave. A total of 288 samples were collected down to 1 foot bgs at nine residential properties along Hoffmann Ave. Samples were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): arsenic (65 ppm); barium (2,500 ppm); cadmium (56 ppm); chromium (130 ppm); lead (2,500 ppm); and PCBs (22 ppm).

On 2 April 2008, based on previous sampling results at the residences along Hoffmann Ave., MassDEP requested assistance from EPA to perform remedial activities at the subject residences. EPA agreed to conduct additional soil sampling at the residences along Hoffmann Ave. to determine the extent of contamination.

During the week of 30 August 2010, START and EPA conducted surface and subsurface soil sampling at the residential properties abutting the site to the north. Samples were collected for metals, PAHs, and PCBs at 31, 33, 41, 51, and 53 Hoffman Ave to a depth of 3 feet bgs. Surface soil samples for Hexavalent Chromium analysis were collected at 19 Hoffman Ave. Analytical results indicated that the following three aroclors were detected at concentrations above detection limits [maximum concentrations, reported in milligrams per Kilogram (mg/Kg), and sample locations are in parentheses]: Aroclor-1248 (30 mg/Kg in V-13); Aroclor-1254 (26 mg/Kg in U-10-01); and Aroclor-1260 (57 mg/Kg in P-13). In addition, each of these three Aroclors were detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil. In addition, four metals were detected at concentrations above detection limits (maximum concentrations, in mg/Kg, and sample locations are in parentheses): arsenic (266 mg/Kg in S-04-01); cadmium (58 mg/Kg in S-07-01); chromium (1,265 mg/Kg in S-09); and lead (5,830 mg/Kg in R-12). Furthermore, all four metals were detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil, and two metals (arsenic and lead) were detected at concentrations exceeding the MCP Upper Concentration Limits (UCL) for soils. In addition, 16 PAHs were detected at concentrations above detection limits [maximum concentrations, in micrograms per Kilogram (µg/Kg), and sample locations in parentheses]: acenaphthene (47,000 µg/Kg in U-13); acenaphthylene (2,800 µg/Kg in Q-12); anthracene (80,000 µg/Kg in U-13); benzo(a)anthracene (120,000 µg/Kg in U-13); benzo(a)pyrene (90,000 µg/Kg in U-13); benzo(b)fluoranthene (89,000 µg/Kg in U-13); benzo(g,h,i)perylene (52,000 µg/Kg in U-13); benzo(k)fluoranthene (77,000 µg/Kg in D-06); chrysene (110,000 µg/Kg in U-13); dibenzo(a,h)anthracene (15,000 µg/Kg in O-04); fluoranthene (260,000 µg/Kg in U-13); fluorene (44,000 µg/Kg in U-13); indeno(1,2,3-cd)pyrene (48,000 µg/Kg in D-06); naphthalene (25,000 µg/Kg in U-13); phenanthrene (260,000 µg/Kg in U-13); and pyrene (210,000 µg/Kg in U-13). In addition, one PAH [benzo(a)pyrene] was detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil.

REMOVAL PRELIMINARY ASSESSMENT

During summer 2011, based upon the analytical results from the site, an EPA Fund-lead removal action was conducted on selected residential properties to the north (Hoffman Avenue) with soil excavated from grids at four of the residential properties where sampling data indicated elevated lead levels. At the conclusion of the Fund-lead removal action, a potentially responsible party (PRP)-lead removal action was conducted on the Tombarello property that included the excavation of oil-soaked areas and the removal of PCB-containing soil from a 150- by 150-foot area that was used as a soil consolidation area.

In October 2012, on behalf of First Lawrence Financial, LLC, Tighe & Bond prepared a "Phase II Scope of Work", dated October 2012. The Phase II Scope of Work described a field investigation designed to characterize the nature and extent of contamination so that potential remedial alternatives could be evaluated. Comments were provided by the EPA TSCA coordinator in January 2013 and by MassDEP in November 2012. The Phase II Scope of Work along with EPA and MassDEP comments were used by Nobis to prepare a Field Task Work Plan and Quality Assurance Project Plan Addendum which formed the basis of the Targeted Brownfields Assessment (TBA) that was completed by Nobis in 2016.

In June 2016, TBA investigations were performed by Nobis Engineering on behalf EPA as a grant of service provided to the City of Lawrence under the EPA's TBA program to provide further delineation of the nature and extent of contamination in soil and groundwater at the Site, building on historical environmental data to address data gaps identified during previous investigations. Data gap activities included advancing soil borings, installing groundwater monitoring wells, conducting test pitting, collecting soil and groundwater samples, investigating culverts and drainage devices on site, conducting monitoring well elevation and geographic surveys, and dust monitoring.

In response to numerous previous site investigations and the 2016 Targeted Brownfield Assessment, the US EPA Emergency Planning and Response Branch (EPRB) was requested to conduct a second preliminary assessment/site investigation of areas that indicated elevated levels of PCBs and metals in surface and subsurface soils. This Site Investigation focused on areas where data from previous sampling efforts indicated elevated levels of PCBs in soil.

Description of Substances Possibly Present, Known or Alleged: VOC, SVOCs, metals (arsenic, barium, cadmium, chromium, lead), PCBs, TPH.

Existing Analytical Data

( ) Real-Time Monitoring Data:

(X) Sampling Data: W. Z. Baumgartner and Associates, Inc. (WZB). 1998. Environmental Site Assessment - John C. Tombarello & Sons, Inc. August.

New England Disposal Technologies (NEDT). 1998. Response Action Outcome Statement. July 20.

Higgins Environmental Associates, Inc. 1999. Immediate Response Action (IRA) Completion Report. 21 April.

Haley and Aldrich, Inc. (H&A). 2001. Immediate Response Action (IRA) Completion Report for the American Recycling of Mass., Inc. Property - 207 Marston Street, Lawrence, MA. RTN 3-18126. 15 May.

Weston Solutions, Inc. 2004. Phase II Comprehensive Site Assessment Report. September.

Weston Solutions, Inc. 2005. Letter to Ms. Kimberly Tisa of the U.S. Environmental Protection Agency, RE: Supplemental PCB Characterization Results, Former Tombarello & Sons Property. 8 June.

Weston Solutions, Inc. 2007. Immediate Response Action Completion Report, Former John C. Tombarello & Sons Property, 207 Marston Street, Lawrence, Massachusetts Release Tracking Number 3-18126. April.

Nobis Engineering, Inc. 2016. Targeted Brownfields Assessment Report. September.

Potential Threat

Description of potential hazards to environment and/or population-identify any of the criteria for a Removal Action (from NCP) that may be met by the site under 40 CFR 300.415 [b] [2].

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

viii. Other situations or factors that may pose threats to public health or welfare or the environment.

REMOVAL PRELIMINARY ASSESSMENT

Prior Response Activities

(X) PRP ( ) STATE (X) FEDERAL ( ) OTHER

Brief Description: In 1998, the Potentially Responsible Party (PRP) hired a contractor to clean up an oil spill which occurred at the site. Since then a number of sampling events have been conducted at the site by MassDEP and the PRP to characterize potential soil contamination at the site and adjacent residences.

In 2006, FLF began removing scrap metal piles at the site on behalf of American Recycling.

During summer 2011, an EPA Fund-lead removal action was conducted on selected residential properties to the north (Hoffman Avenue) with soil excavated from grids at four of the residential properties where sampling data indicated elevated lead levels. At the conclusion of the Fund-lead removal action, a potentially responsible party (PRP)-lead removal action was conducted on the Tombarello property that included the excavation of oil-soaked areas and the removal of PCB-containing soil from a 150- by 150-foot area that was used as a soil consolidation area.

Priority for Site Investigation

(X) High ( ) Medium Low ( ) None ( )

Comments:

Report Generation

Originator:	Bonnie Mace	**Date:**	27 July 2017
Affiliation:	Weston Solutions, Inc. (START)	**Telephone:**	(978) 552-2131
TDD No.:	01-16-11-0001	**Task No.:**	0153

EPA REGION I
REMOVAL SITE INVESTIGATION

Inspection Information

Site Name: Former Tombarello & Sons Property **Address:** 209 Marston Street
Town: Lawrence **County:** Essex County **State:** Massachusetts
Date of Inspection: 21 December 2016 **Time of Inspection:** 0800 hours
Weather Conditions: 44° Fahrenheit, Clear/sunny
Date of Inspection: 27 June 2017 **Time of Inspection:** 0800 hours
Weather Conditions: 75° Fahrenheit, Overcast, periods of heavy rain
Site Status at Time of Inspection: **( ) ACTIVE (X) INACTIVE**
Comments: The site consists of the Former Tombarello & Sons scrap metal facility.

Agencies/Personnel Performing Inspection

		Names	Program
(X)	**EPA:**	Tom Condon Wing Chau	U.S. Environmental Protection Agency (EPA) Region I, Emergency Planning and Response Branch (EPRB), On-Scene Coordinator (OSC).
		Brent England Michelle Coombs	EPA Environmental Investigations and Analysis (EIA) Team.
		Will Sommer	EPA EIA Career Intern.
(X)	**EPA Contractor:**	Eric Ackerman Paul Callahan Mark Hall Bill Mahany Chris Dupree Bonnie Mace	Weston Solutions, Inc. (WESTON), Superfund Technical Assessment and Response Team IV (START).
( )	**State:**		

Current Owner Based on Field Interview: City of Lawrence.

REMOVAL SITE INVESTIGATION

Physical Site Characteristics

Parameter		Quantities/Extent
( ) Cylinders:		
( ) Drums:		
( ) Lagoons:		
( ) Tanks:	**( ) Above:**	
	( ) Below:	
( ) Asbestos:		
(X) Piles:		Several soil piles of varying dimensions are located in the eastern portion of the site.
(X) Stained Soil:		Areas of stained soil were observed throughout the site.
( ) Sheens:		
(X) Stressed Vegetation:		Areas of stressed vegetation were observed throughout the site.
( ) Landfill:		
(X) Population in Vicinity:		The site is located in a residential area, and there are residential properties abutting the northern boundary of the site.
( ) Wells:	**( ) Drinking:**	
	( ) Monitoring:	
( ) Other:		

Physical Site Observations

Comments: The majority of the site was vegetated with grass, brush, and small trees; and a dirt access road ran west to east through the center of the property. The most prominent features were an unoccupied house and three buildings in the western portion of the property, several concrete pads and former building foundations, and approximately nine soil piles of various sizes. Debris, such as drum carcasses, scrap metal, and tires, were observed at locations throughout the site.

Field Sampling and Analysis

Matrix/Analytical		**Field Instrumentation**				
Parameter		**CGI/O_2**	**RAD**	**PID**	**FID**	**Other**
Background Readings:			micrograms per hour (µR/hr)	Parts per million (ppm)		
Air:		0%/20.9%	8-12 µR/hr	0.0		
Soil:		0%/20.9%	8-12 µR/hr	0.0		

Field Quality Control Procedures

(X) SOP Followed **( ) Deviation From SOP**

Comments: START followed the protocol outlined in the document, entitled *Sampling and Analysis Plan for the Former Tombarello and Sons Property, Lawrence, Essex County, Massachusetts*, dated December 2016, revised June 2017.

Description of Sampling Conducted

On 21 December 2016, START collected a total 14 surface soil and four subsurface soil samples, including one field duplicate. The surface and subsurface soil samples were screened on-site by START personnel for metals via an X-Ray Fluorescence (XRF) instrument. In addition, all of the surface and subsurface soil samples were submitted to the EPA Office of Environmental Measurement and Evaluation (OEME) laboratory located in North Chelmsford, Massachusetts for PCB and metals confirmatory analyses.

On 27 June 2017, START collected a total of 36 surface and subsurface soil samples (including two field duplicates) from 16 soil boring locations (SB-200 through SB-216). All of the surface and subsurface soil samples were submitted to the EPA OEME Laboratory for PCB and metals analyses. In addition, START personnel screened the soil sample jar headspace for mercury using the Lumex Mercury Vapor Analyzer (MVA).

Analyses

Analytical Parameter	Media	Laboratory
( ) VOC	**( ) AIR**	**(X) NERL**
(X) PCB	**( ) WATER**	**( ) CLP**
( ) PESTICIDE	**(X) SOIL**	**( ) PRIVATE**
(X) METALS	**( ) SOURCE**	**( ) DAS**
( ) CYANIDE	**( ) SEDIMENT**	**( ) SOW**
( ) SVOC	**( ) SOIL GAS**	**(X) FIELD**
( ) TOXICITY		
( ) DIOXIN		
( ) ASBESTOS		
( ) OTHER		

Analytical results: [see attached]

Receptors

Comments

( ) Drinking Water: **( ) Private:**
( ) Municipal:
( ) Groundwater:
( ) Unrestricted Access:
(X) Population in Proximity: The site is located in a residential area, and there are residential properties abutting the northern boundary of the site.
( ) Sensitive Ecosystem:
( ) Other:

Additional Procedures for Site Determination

( ) Biological Evaluation **( ) ATSDR**

To be determined by the On-Scene Coordinator (OSC).

Site Determination

Depending on further information, criteria that may be met by the site include 40 CFR 300.415 [b] [2], parts:

i. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants.

iv. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

v. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

vii. The availability of other appropriate federal or state response mechanisms to respond to the release.

viii. Other situations or factors that may pose threats to public health or welfare or the environment.

Report Generation

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Affiliation:	Weston Solutions, Inc. (START)	**Telephone:**	(978) 552-2131
TDD No.:	TO1-01-16-11-0001	**Task No.:**	0153

II. Narrative Chronology

Narrative Chronology

SITE DESCRIPTION

The Former Tombarello & Sons Property site (the site) is located at 209 Marston Street, Lawrence, Essex County, Massachusetts (MA). Geographic coordinates as measured from the approximate center of the site are 42° 43′ 10.9″ north latitude and 71° 08′ 29.4″ longitude west (see Attachment A, Figure 1). The site is identified on the City of Lawrence Tax Assessor's Map Number (No.) 33, as Lot Nos. 17 and 18. The site is located in a mixed industrial/residential area bordered to the north by nine residential properties along Hofmann Avenue; to the west by Marston Street and the Parthum Elementary and Middle School; to the south by an automobile dealership (formerly a waste recycling facility); and to the east by Interstate 495. The Merrimac River is also located approximately 400 feet to the east of the property boundary. Currently, the site is an abandoned scrap metal facility containing buildings, former building foundations, and scrap metal/debris scattered throughout the property (see Attachment A, Figure 2).

The site is comprised of two tracts of land purchased by John C. Tombarello in 1941 and 1967. The tract of land purchased in 1941 became the northern portion of the site where the scrap metal recycling facility was operated. The southern tract was purchased in 1967 from the City of Lawrence. The southern tract was formerly used by the City as a landfill; and prior to 1935, it was the site of a soap manufacturer.

SITE BACKGROUND

The site was owned and operated by John C. Tombarello & Sons, Inc. as a scrap metal recycling facility from approximately 1941 until December 1998 when the property was sold to American Recycling, Inc., (American Recycling). American Recycling operated at the facility until 2001. The facility accepted a wide variety of scrap material including crushed automobiles, storage tanks, machinery, and computer parts. One of the recycling methods employed at the site was a stripping process involving cyanide to recover gold and other precious metals from computers and other electronics. Since 2001, the site has been unoccupied and unused, with the exception of a truck driving school, which operated at the site for a short time in 2006.

On 19 May 1998, a release of oil occurred while the recycling facility staff was dismantling a scrap heat exchanger. New England Disposal Technologies (NEDT) responded to the site to mitigate the spill. Free product from the heat exchanger and from the ground was pumped into a vacuum truck. On 21 May, the impacted area was excavated and the soil stockpiled on site. NEDT collected six samples from the floor of the excavation and three samples from the stockpiled soil. The stockpile samples were analyzed for volatile organic compounds (VOCs), metals, total petroleum hydrocarbons (TPH), and polychlorinated biphenyls (PCBs). Analytical results of the soil samples indicated the presence of the following substances at concentrations above Massachusetts Contingency Plan (MCP) Reportable Concentrations (RC) S-1 (RCS-1) for Soil (maximum concentrations in parentheses): tetrachloroethene (PCE) [1.8 parts per million (ppm)]; cadmium (162 ppm); lead (961 ppm); TPH (6,900 ppm), and PCBs (13.1 ppm).

NEDT determined that this level of contamination was not a result of the oil spill and represented background conditions at the site. Tombarello and Sons were informed by NEDT that as a result of the contamination found at the site and its proximity to a school and athletic field, a condition of Imminent Hazard may exist. Tombarello and Sons concluded that fencing and berms surrounding the site adequately restricted access to the site and therefore no Imminent Hazard condition existed.

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On 11 December 1998, George Tombarello sold the property to American Recycling. The on-site business continued to operate under the name Tombarello and Sons.

Based on the results of the NEDT and WZB reports, the Massachusetts Department of Environmental Protection (MassDEP) determined that a level of hazardous material contamination existed at site; and due to the proximity to residences and a school, an Imminent Hazard condition may also have existed. An inspection of the site by MassDEP in February 1999 also noted a number of violations, including improper storage of excavated soil, and unmarked and leaking 55-gallon drums. MassDEP submitted a Notice of Responsibility (NOR) to both American Recycling and Tombarello and Sons requiring them to further investigate the site and to conduct any necessary response actions.

American Recycling and Tombarello and Sons contracted Higgins Environmental Associates (HEA) to perform an evaluation of the site and associated response action. As part of the response action, conducted between April and July 1999, the stockpiled soil on site was properly transported off site and disposed of, a fence was installed to improve site security, monitoring wells were installed, and soil and groundwater samples were collected. Analytical results of the surface soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): benzo(a)anthracene (72 ppm); benzo(a)pyrene (44 ppm); benzo(b)fluoranthene (61 ppm); benzo(k)fluoranthene (53 ppm); chrysene (84 ppm); indeno(1,2,3-cd)pyrene (42 ppm); naphthalene (5 ppm); methyl tertiary butyl ether (0.48 ppm); trichlorofluoromethane (2.7 ppm); lead (980 ppm); PCBs (92 ppm); and TPH (9,090 ppm). Results of the groundwater samples indicated the presence of the following substances at concentrations

above MCP RCGW-1 for Groundwater (maximum concentrations in parentheses): benzene (0.0136 mg/L); PCE (0.0071 mg/L); 1,1-dichloroethane (0.1138 mg/L); arsenic (0.143 mg/L); total chromium (0.477 mg/L); and lead (1.56 mg/L).

In September 2001, Haley and Aldrich (H&A) conducted further sampling at the site on behalf of American Recycling. A total of 35 samples were collected from the surface, as well as test pitting down to a depth of 15 feet below ground surface (bgs), with the samples collected and analyzed for PCBs only. The maximum concentration of PCBs found at the surface was 66 ppm while the maximum concentration in the test pitting samples was 78 ppm.

In 2003, Weston Solutions, Inc. (Weston) prepared a MCP Phase II Comprehensive Site Assessment and a Phase III Remedial Action Plan on behalf of First Lawrence Financial, LLC (FLF). At that time, FLF was acting as an agent of American Recycling. As part the Site Assessment, Weston collected surface, subsurface, sediment, and groundwater samples between February and September 2003. Samples were submitted for extractable petroleum hydrocarbons (EPH), metals, and PCBs. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): EPH (7,300 ppm); arsenic (69.4 ppm); barium (1,480 ppm); cadmium (716 ppm); lead (2,700 ppm); and PCBs (13,000 ppm).

In 2005, at the request of EPA, Weston collected additional samples at the site to assess potential data gaps identified by EPA. These gaps included evaluating the on-site buildings, concrete pads, scrap metal piles, and soil sampling conducted along the site boundary adjacent to residential properties along Hofmann Avenue. A maximum PCB concentration of 7 ppm was detected along the site boundary.

In 2006, FLF began removing scrap metal piles at the site. The City of Lawrence, MassDEP, and EPA became concerned that dust generated by the on-site activities may contain PCBs and negatively impact the nearby residential area along Hoffmann Ave. As a result Weston, on behalf of FLF, conducted an Immediate Response Action (IRA). The IRA consisted of collecting 17 surface soil samples along the approximately 700-foot-long northern property boundary fence line. Samples were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): barium (1,300 ppm); cadmium (17 ppm); chromium (57.7 ppm); lead (1,730 ppm); and PCBs (6.3 ppm).

In 2007, MassDEP contracted Shaw Environmental, Inc. (Shaw) to conduct soil sampling to determine the extent of contamination at the residences along Hoffmann Ave. A total of 288 samples were collected to 1 foot bgs at nine residential properties along Hoffmann Ave. Samples were submitted for metals and PCBs analyses. Analytical results of the soil samples indicated the presence of the following substances at concentrations above MCP RCS-1 for Soil (maximum concentrations in parentheses): arsenic (65 ppm); barium (2,500 ppm); cadmium (56 ppm); chromium (130 ppm); lead (2,500 ppm); and PCBs (22 ppm).

On 2 April 2008, based on previous sampling results at the residences along Hoffmann Ave., MassDEP requested assistance from EPA to perform remedial activities at the subject residences. EPA agreed to conduct additional soil sampling at the residences along Hoffmann Ave. to determine the extent of contamination.

During the week of 30 August 2010, START and EPA conducted surface and subsurface soil sampling at the residential properties abutting the site to the north. Samples were collected for metals, polycyclic aromatic hydrocarbons (PAHs), and PCBs at 31, 33, 41, 51, and 53 Hoffman Ave to a depth of 3 feet bgs. Surface soil samples for hexavalent chromium analysis were collected at 19 Hoffman Ave. Analytical results indicated that the following three aroclors were detected at concentrations above detection limits [maximum concentrations, reported in milligrams per Kilogram (mg/Kg), and sample locations are in parentheses]: Aroclor-1248 (30 mg/Kg in V-13); Aroclor-1254 (26 mg/Kg in U-10-01); and Aroclor-1260 (57 mg/Kg in P-13). In addition, each of these three Aroclors were detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil. In addition, four metals were detected at concentrations above detection limits (maximum concentrations, in mg/Kg, and sample locations are in parentheses): arsenic (266 mg/Kg in S-04-01); cadmium (58 mg/Kg in S-07-01); chromium (1,265 mg/Kg in S-09); and lead (5,830 mg/Kg in R-12). Furthermore, all four metals were detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil, and two metals (arsenic and lead) were detected at concentrations exceeding the MCP Upper Concentration Limits (UCL) for soils. In addition, 16 PAHs were detected at concentrations above detection limits [maximum concentrations, in micrograms per Kilogram (µg/Kg), and sample locations in parentheses]: acenaphthene (47,000 µg/Kg in U-13); acenaphthylene (2,800 µg/Kg in Q-12); anthracene (80,000 µg/Kg in U-13); benzo(a)anthracene (120,000 µg/Kg in U-13); benzo(a)pyrene (90,000 µg/Kg in U-13); benzo(b)fluoranthene (89,000 µg/Kg in U-13); benzo(g,h,i)perylene (52,000 µg/Kg in U-13); benzo(k)fluoranthene (77,000 µg/Kg in D-06); chrysene (110,000 µg/Kg in U-13); dibenzo(a,h)anthracene (15,000 µg/Kg in O-04); fluoranthene (260,000 µg/Kg in U-13); fluorene (44,000 µg/Kg in U-13); indeno(1,2,3-cd)pyrene (48,000 µg/Kg in D-06); naphthalene (25,000 µg/Kg in U-13); phenanthrene (260,000 µg/Kg in U-13); and pyrene (210,000 µg/Kg in U-13). In addition, one PAH [benzo(a)pyrene] was detected at concentrations exceeding the MCP Method 1 S-3/GW-3 standards for Soil.

During summer 2011, based upon the analytical results from the site, an EPA Fund-lead removal action was conducted on selected residential properties to the north (Hoffman Avenue) with soil excavated from grids at four of the residential properties where sampling data indicated elevated lead levels. At the conclusion of the Fund-lead removal action, a potentially responsible party (PRP)-lead removal action was conducted on the Tombarello property that included the excavation of oil-soaked areas and the removal of PCB-containing soil from a 150- by 150-foot area that was used as a soil consolidation area.

In October 2012, on behalf of FLF, Tighe & Bond prepared a “Phase II Scope of Work”, dated October 2012. The Phase II Scope of Work described a field investigation designed to characterize the nature and extent of contamination so that potential remedial alternatives could be evaluated. Comments were provided by the EPA TSCA coordinator in January 2013 and by MassDEP in

November 2012. The Phase II Scope of Work along with EPA and MassDEP comments were used by Nobis to prepare a Field Task Work Plan and Quality Assurance Project Plan Addendum which formed the basis of the Targeted Brownfields Assessment (TBA) that was completed by Nobis in 2016.

In June 2016, TBA investigations were performed by Nobis Engineering on behalf of EPA as a grant of service provided to the City of Lawrence under the EPA's TBA program to provide further delineation of the nature and extent of contamination in soil and groundwater at the Site, building on historical environmental data to address data gaps identified during previous investigations. Data gap activities included advancing soil borings, installing groundwater monitoring wells, conducting test pitting, collecting soil and groundwater samples, investigating culverts and drainage devices on site, conducting monitoring well elevation and geographic surveys, and dust monitoring.

In response to numerous previous site investigations and the 2016 Targeted Brownfield Assessment, the US EPA Emergency Planning and Response Branch (EPRB) was requested to conduct a second preliminary assessment/site investigation of areas that indicated elevated levels of PCBs and metals in surface and subsurface soils. This Site Investigation focused on areas where data from previous sampling efforts indicated elevated levels of PCBs in soil.

SITE ACTIVITIES

21 December 2016

On 21 December 2016, EPA OSC Tom Condon and START members Eric Ackerman, Paul Callahan, Mark Hall, and Bill Mahany mobilized to the site to conduct surface and subsurface soil sampling. START member Ackerman conducted a tailgate health and safety meeting, and all personnel signed the site-specific health and safety plan (HASP), which was prepared as a separate document entitled, *Weston Solutions, Inc. Region I START Site Health and Safety Plan (HASP) for the Former Tombarello & Sons Property Site Preliminary Assessment/Site Investigation, Lawrence, Massachusetts*. START personnel established a support zone and calibrated the air monitoring instruments, which included a MultiRAE Plus unit [with lower explosive limit (LEL), oxygen (O_2), carbon monoxide (CO), hydrogen sulfide (H_2S), and volatile organic compound (VOC) detectors], and a Model 19A radiation meter (RAD meter). Ambient conditions were recorded in the site specific HASP as follows: LEL = 0 percent (%); O_2 = 20.9%; CO = parts per million (ppm); H_2S = 0 ppm; VOC = 0 ppm; and RAD = 8-12 microRoentgens per hour (µR/hr). Air monitoring was conducted for the duration of the soil sampling. Any levels above background were documented in the site-specific HASP.

START personnel attempted to collect surface (0- to 1-foot) and subsurface (1- to 3-foot) soil samples at up to 15 locations using hand augers. Most of the sampling efforts at the locations encountered refusal at the 1-foot level. A total of 14 surface (0-1 foot) and four subsurface (including one field duplicate) (1-3 foot) soil samples were collected.

START personnel conducted on-site field screening for metals using an X-Ray Fluorescence (XRF) instrument. All of the soil samples were submitted to the OEME laboratory for PCB and confirmatory metals analyses. Samples were documented on the chain-of-custody record (see Attachment D). START sampling activities were performed in accordance with the site sampling and analysis plan (SAP), which was prepared as a separate document, entitled *Sampling and Analysis Plan for the Former Tombarello & Sons Property Site, Lawrence, Massachusetts*.

Sample locations were photodocumented and recorded using the Trimble™ Pathfinder Pro XRS Global Positioning System (GPS) unit (see Attachment C, Photodocumentation Log).

27 June 2017

On 27 June 2017, EPA OSC Wing Chau, EPA Environmental Investigations and Analysis (EIA) field team members Brent England, Michelle Coombs, EPA EIA Career intern Will Sommer, and START members Hall, Chris Dupree, and Bonnie Mace mobilized to the site to conduct surface and subsurface soil sampling. START member Hall conducted a tailgate health and safety meeting, and all personnel signed the site-specific HASP, which was prepared as a separate document entitled, *Weston Solutions, Inc. Region I START Site Health and Safety Plan (HASP) for the Former Tombarello & Sons Property Site Preliminary Assessment/Site Investigation, Lawrence, Massachusetts*. START personnel established a support zone and calibrated the air monitoring instruments, which included a MultiRAE Plus unit. Ambient conditions were recorded in the site specific HASP as follows: LEL = 0 %; O_2 = 20.9%; CO = ppm; H_2S = 0 ppm; and VOC = 0 ppm. Air monitoring was conducted for the duration of the soil sampling. Any levels above background were documented in the site-specific HASP.

EPA EIA field team members England, Coombs, and Sommer were on site with the Geoprobe® direct-push unit for soil boring collection. After the tailgate health and safety meeting, START personnel decontaminated all down-hole Geoprobe® equipment and began preparing the equipment needed for soil boring classification and sampling.

EPA EIA field team advanced a total of 16 soil borings down to 4 feet bgs. START collected 36 subsurface soil samples (including two field duplicates) from 16 soil boring locations (SB-200 through SB-216) (see Appendix C, Boring Logs). All of the subsurface soil samples collected were submitted to the EPA OEME Laboratory for PCB and metals analyses. In addition, START personnel screened the soil sample jar headspace for mercury using the Lumex Mercury Vapor Analyzer (MVA).

Field activities were completed. START personnel collected the appropriate number of rinsate blanks, placed all of the containers on ice, and completed the chain-of-custody (COC) records to document the history of the samples from the time of sample collection through transportation and analysis (see Appendix E, Analytical Data and Chain-of-Custody Record).

START member Hall utilized the Trimble™ Pathfinder Pro XRS Global Position System (GPS) unit to record sample locations (see Appendix A, Figure 3).

ANALYTICAL DATA SUMMARIES

21 December 2016

A total of 18 soil samples were field screened for metals via XRF. The maximum concentration of lead detected was 2,231 milligrams per kilogram (mg/Kg) in TB-09A; the maximum concentration of arsenic detected was 56 mg/Kg in TB-12A, and the maximum concentration of chromium detected was 369 mg/Kg in SB-14A. Lead, arsenic, and chromium were detected at concentrations exceeding their respective Massachusetts Contingency Plan Soil Category 1, Groundwater Category 3 (MCP S-1/GW-3) Standards. In addition, lead was detected at concentrations exceeding EPA Regional Management Level (RML) for residential and industrial soils (see Appendix B, Table 1).

A total of 15 metals were detected in the surface soil samples that were submitted for confirmation analysis at EPA OEME and include the following (maximum concentration in mg/Kg, and sample location in parentheses): aluminum (16,000 mg/Kg in TB-01A, TB-08B, and TB-100B); arsenic (26 J3 mg/Kg in TB-02A); barium (1,300 mg/Kg in TB-14A); beryllium (0.84 mg/Kg in TB-13B); calcium (45,000 mg/Kg in TB-07A); cadmium (33 mg/Kg in TB-09A); cobalt (62 mg/Kg in TB-05A); chromium (8,300 mg/Kg in TB-05A); copper (2,600 mg/Kg in TB-08A); iron (110,000 mg/Kg in TB-12A); magnesium (8,400 mg/Kg in TB-02A); manganese (730 12A); nickel (4,500 mg/Kg in TB-05A); lead (3,100 mg/Kg in TB-09A); antimony (240 05A); vanadium (1,900 mg/Kg in TB-03A); and zinc (19,000 mg/Kg in TB-14A. Eight metals (arsenic, barium, chromium, nickel, lead, antimony, vanadium, and zinc) were detected above their respective MCP S-1/GW-3 Standards in one or more soil samples. In addition, vanadium was detected at concentrations exceeding EPA RML for residential soils and lead was detected at concentrations exceeding EPA RML for residential and industrial soils (see Appendix B, Table 2).

A total of three PCB aroclors were detected in the soil samples that were submitted for analysis at EPA OEME and include the following (maximum concentration in mg/Kg, and sample location in parentheses): aroclor-1248 (35 mg/Kg in TB-07A); aroclor-1254 (250 mg/K in TB-05A); and aroclor-1260 (130 mg/Kg in TB-15A). All three PCB aroclors (aroclor-1248, aroclor-1254, and aroclor-1260) were detected above their respective MCP S-1/GW-3 Standards in one or more soil samples. In addition, aroclor-1260 was detected at concentrations exceeding EPA RML for residential soils (see Appendix B, Table 3).

27 June 2017

A total of 15 metals were detected in the surface soil samples that were submitted for analysis at EPA OEME and include the following (maximum concentration in mg/Kg, and sample location in parentheses): silver (7.2 mg/Kg in SB-233B); aluminum (18,000 mg/Kg in SB-200A); arsenic (189 mg/Kg in SB-233B); barium (1,500 mg/Kg in SB-212A); calcium (49,000 mg/Kg in SB-207A); cadmium (100 mg/Kg in SB-205A); cobalt (12 mg/Kg in SB-202A); chromium (220 mg/Kg in SB-214A); copper (8,200 mg/Kg in SB-202A); iron (110,000 mg/Kg in SB-214A); magnesium (10,000 mg/Kg in SB-201A); manganese (790 mg/Kg in SB-214A); nickel (240

mg/Kg in SB-202A); lead (3,300 mg/Kg in SB-211A and SB-206A); antimony (16 mg/Kg in SB-211A and SB-216B); vanadium (1,100 mg/Kg in SB-202A); and zinc (11,000 mg/Kg in SB-212A). Five metals (barium, cadmium, chromium, lead, and zinc) were detected above their respective MCP S-1/GW-3 Standards in one or more soil samples. In addition, zinc was detected at concentrations exceeding EPA RML for residential soils and lead was detected at concentrations exceeding EPA RML for residential and industrial soils (see Appendix B, Table 4).

A total of two PCB aroclors were detected in the soil samples that were submitted for analysis at EPA OEME and include the following (maximum concentration in mg/Kg, and sample location in parentheses): aroclor-1248 (270 mg/Kg in SB-207A) and aroclor-1260 (200 mg/Kg in SB-209A). In addition, both PCB aroclors (aroclor-1248 and aroclor-1260) were detected above their respective MCP S-1/GW-3 Standards in one or more soil samples. In addition, aroclor-1260 was detected at concentrations exceeding EPA RML for residential and industrial soils (see Appendix B, Table 5).

A total of 36 soil samples were field screened for mercury using the Lumex MVA. The maximum concentration of mercury detected was 797 nanograms per cubic meter (ng/m^3) (see Appendix B, Table 6).

III. Appendices

Appendix A

Figures

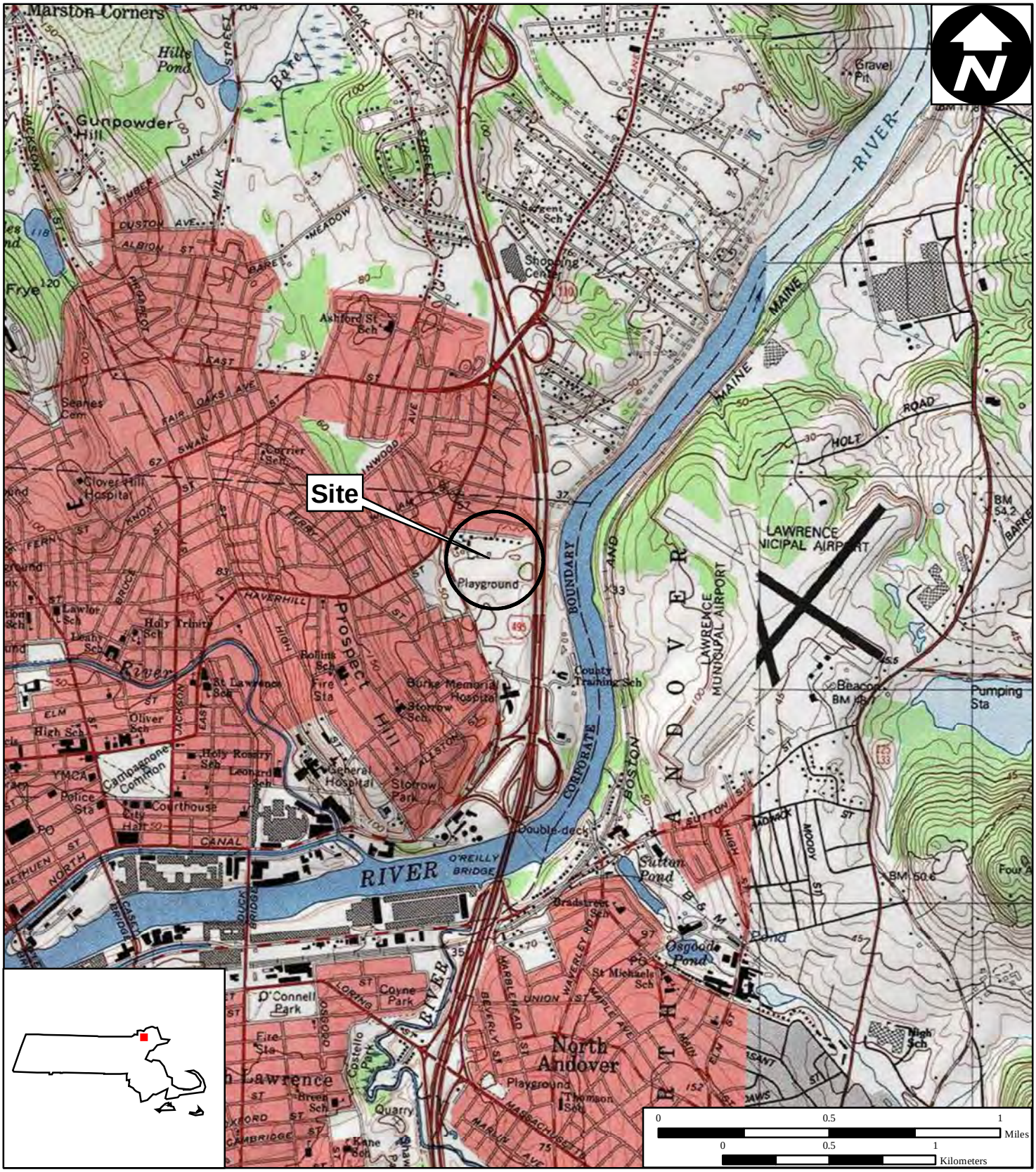

Figure 1

Site Location Map

Former Tombarello & Sons Property Site
207 Marston Street
Lawrence, Massachusetts

EPA Region I
Superfund Technical Assessment and Response Team (START) III
Contract No. EP-W-05-042

TDD Number:	TO1-01-16-11-0001
Created by:	Eric Ackerman
Created on:	6 December 2016
Modified by:	Bonnie Mace
Modified on:	7 July 2017

Data Sources:
Topos: MicroPath/USGS
Quadrangle Name: Lawrence, MA
All other data: START

WESTON SOLUTIONS

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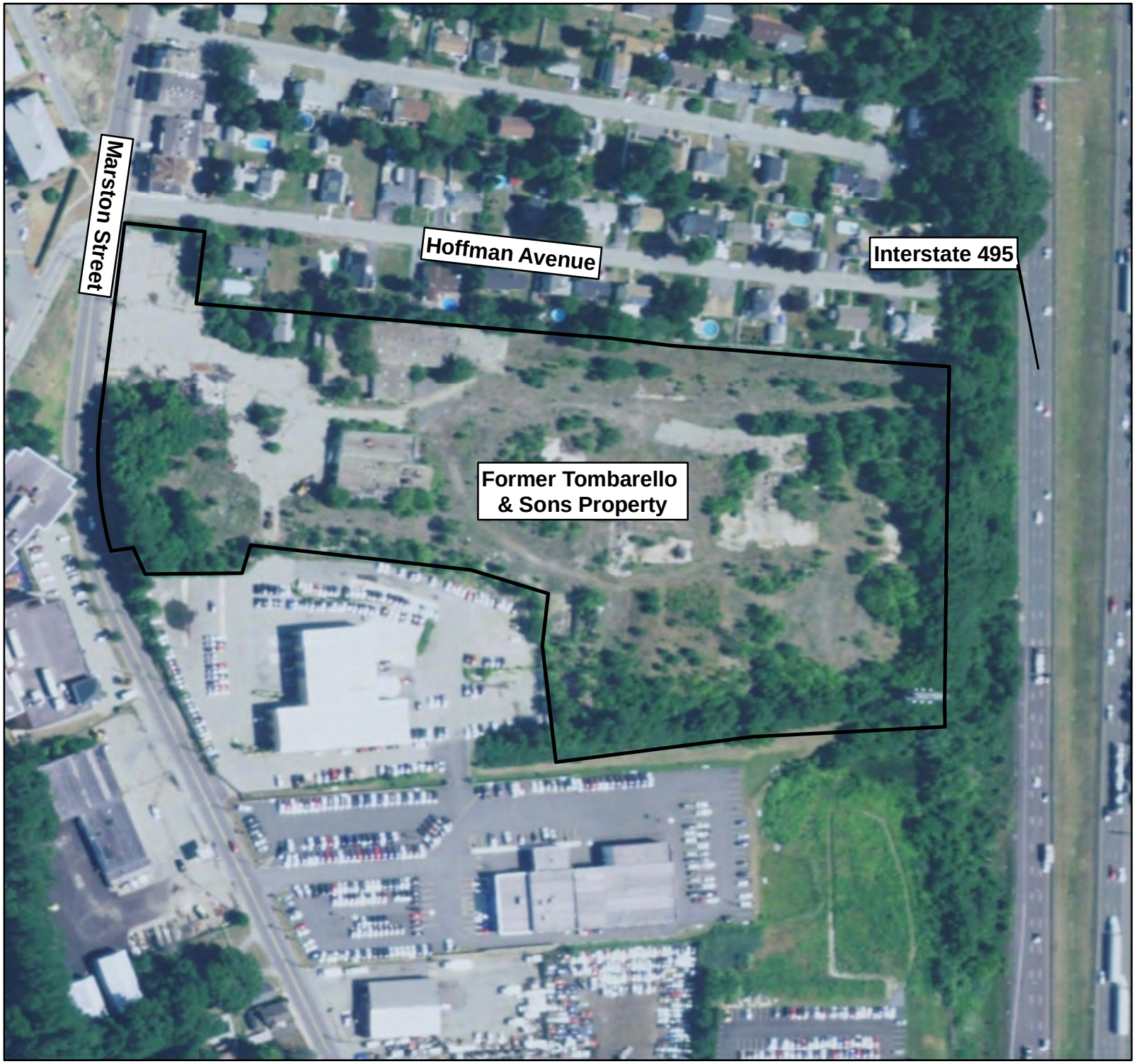

Figure 2

Site Diagram

Former Tombarello & Sons Property
209 Marston Street
Lawrence, Massachusetts

EPA Region I
Superfund Technical Assessment and Response Team (START) IV
Contract No. EP-S3-15-01

TDD Number:	TO1-01-16-11-0001
Created by:	Bill Mahany
Created on:	20 December 2016
Modified by:	Bonnie Mace
Modified on:	7 July 2017

Legend

Approx Site Boundary

N

0 125 250 Feet

Data Sources:

Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
All other data: START, MassGIS

WESTON SOLUTIONS

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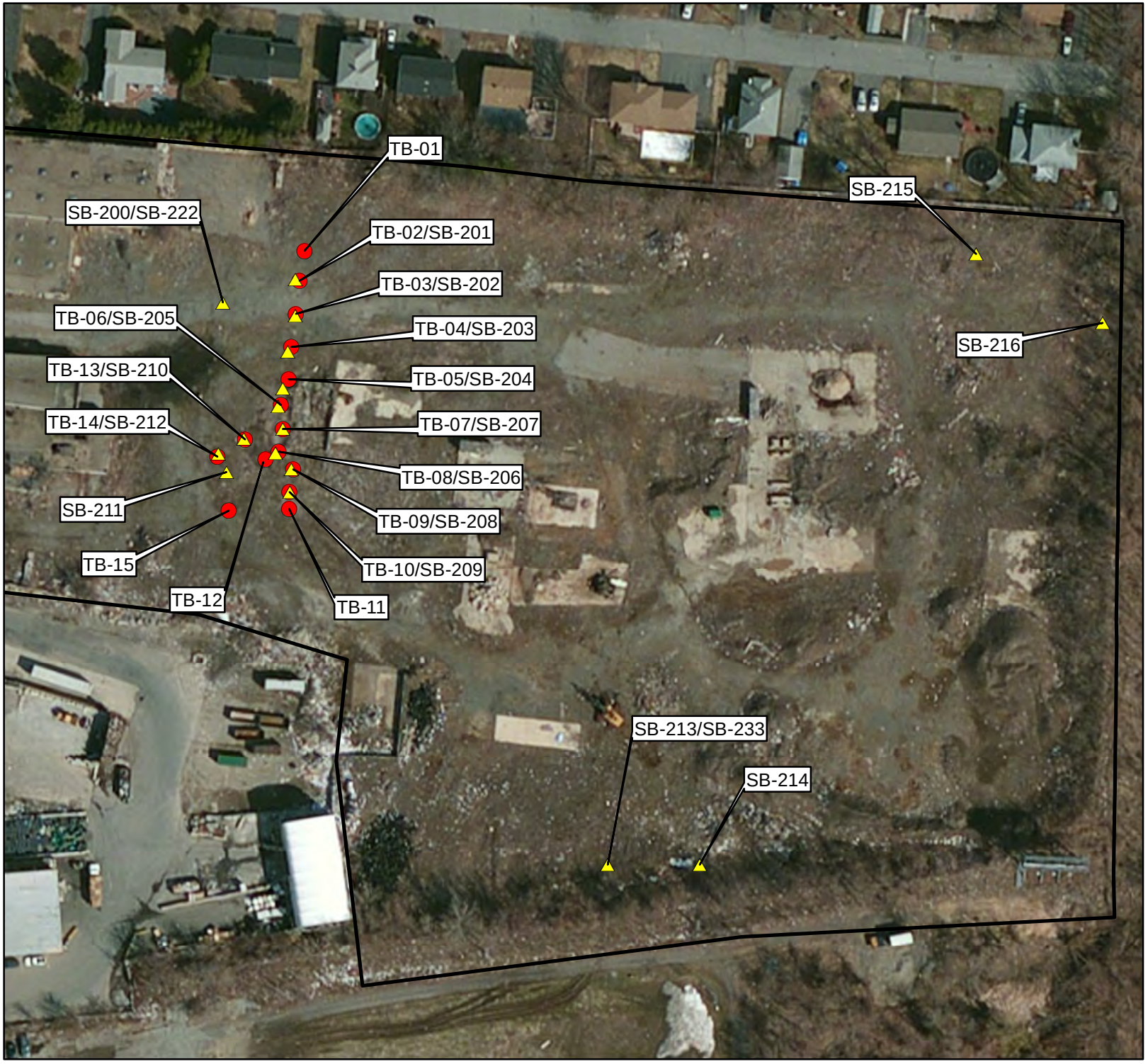

Figure 3

Sample Location Map

Former Tombarello & Sons Property
207 Marston Street
Lawrence, Massachusetts

EPA Region I
Superfund Technical Assessment and Response Team (START) IV
Contract No. EP-S3-15-01

TDD Number:	TO1-01-16-11-0001
Created by:	B. Mahany
Created on:	20 December 2016
Modified by:	B. Mace
Modified on:	8 August 2017

Legend

- Approx Site Boundary
- Dec 2016 Soil Samples
- June 2017 Soil Borings

N

0 50 100 Feet

Data Sources:

Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
All other data: START, MassGIS

WESTON SOLUTIONS

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Appendix B

Tables and Spreadsheets

TABLE 1

SUMMARY OF X-RAY FLUORESCENCE FIELD SCREENING RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY SITE
LAWRENCE, MASSACHUSETTS
21 DECEMBER 2016

Sample Location	Depth (feet)	Lead	Arsenic	Chromium
MassDEP S-1/GW-3 Standard		200	20	100
EPA RML - Residential		400	68	350,000
EPA RML - Industrial		800	300	5,300,000
TB-01A	0-1	**401**	ND	99
TB-02A	0-1	193	11	**182**
TB-03A	0-1	**317**	ND	**217**
TB-04A	0-1	**761**	ND	**153**
TB-05A	0-1	**415**	ND	96
TB-06A	0-1	**767**	ND	ND
TB-06B	1-3	**445**	ND	**198**
TB-07A	0-1	**434**	16	ND
TB-08A	0-1	**533**	ND	**114**
TB-08B	1-3	37	ND	ND
TB-100B	1-3	40	ND	ND
TB-09A	0-1	**2,231**	ND	**289**
TB-10A	0-1	**1,496**	ND	**278**
TB-12A	0-1	**1,483**	**56**	**254**
TB-12A (dup)	0-1	**1,161**	ND	**232**
TB-13A	0-1	**653**	**47**	**192**
TB-13B	1-3	174	ND	ND
TB-14A	0-1	**1,106**	**35**	**369**
TB-15A	0-1	**849**	ND	**142**

NOTES:

Soil samples were analyzed by START with an X-Ray Fluorescence Spectrometry Analyzer (XRF) using Weston Solutions SOP No. WSI/S3-021 For Field Screening Metals In Soil Samples.

Units in milligrams per Kilogram (mg/Kg).
For comparison purposes, the metals field screening data were compared to MCP S-1/GW-3 and EPA RMLs.

EPA RML - Residential = EPA Regional Management Level for Residential Soil, HQ=3.

MCP S-1/GW-3 = Massachusetts Contingency Plan Soil Category S-1 Standard for Lead is 200 mg/Kg, Arsenic is 20 mg/Kg, and Chromium is 100 mg/Kg.

Bolded values exceed MCP S-1/GW-3.
Results highlighted in Yellow exceed EPA RMLs for residential soils.
Results highlighted in Red exceed EPA RMLs for industrial soils.
TB-100B is field duplicate of TB-08B.
dup = Laboratory duplicate.

TABLE 2

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
21 DECEMBER 2016

				TB-01A	TB-02A	TB-03A	TB-04A	TB-05A	TB-06A
			SAMPLE LOCATION	R01-161221TB-0001	R01-161221TB-0002	R01-161221TB-0003	R01-161221TB-0004	R01-161221TB-0005	R01-161221TB-0006
			SAMPLE NUMBER						
			SAMPLE DEPTH	0 - 1 ft.	0 - 1 ft.	0 - 1 ft.	0 - 1 ft.	0 - 1 ft.	0 - 1 ft.
PARAMETER	**MCP S-1/GW-3**	**EPA RML Res.**	**EPA RML Ind.**						
Aluminum	NL	230,000	3,400,000	16,000	15,000	9,800	11,000	11,000	11,000
Arsenic	20	68	300	9.5	**26 J3**	14	11	ND	14
Barium	1,000	46,000	650,000	97	93	190	240	190	360
Beryllium	90	470	6,900	ND	ND	ND	ND	ND	ND
Calcium	NL	NL	NL	5,400	6,800	11,000	7,300	1,900	3,000
Cadmium	70	210	2,900	8.9	4.2	2.8	7.0	ND	11
Cobalt	NL	70	1,000	24	20	13	10	62	11
Chromium	100	350,000	5,300,000	58	57	56	75	**8,300**	62
Copper	NL	9,400	140,000	510	200	210	660	560	540
Iron	NL	160,000	2,500,000	32,000	30,000	30,000	36,000	67,000	37,000
Magnesium	NL	NL	NL	6,500	8,400	4,900	4,500	3,300	4,400
Manganese	NL	5,500	77,000	510	530	300	350	620	350
Nickel	600	4,600	67,000	170	110	360	95	4,500	81
Lead	200	400	800	**480**	**280**	**430**	**720**	**750**	**1,000**
Antimony	20	94	1,400	ND J1	ND	ND	ND	240	4.6
Vanadium	40	1,200	17,000	250	**84**	**1,900**	**160**	**120**	**100**
Zinc	1,000	70,000	1,100,000	770	360	670	**1,500**	**1,200**	**1,800**

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) using EPA Region I SOP, EIASOP-OPTIMAS0, Metals in Soil Medium Level by ICP.
All results in Milligrams per Kilogram (mg/Kg).
EPA RML Res. = EPA Regional Management Level for Residential Soils.
EPA RML Ind. = EPA Regional Management Level for Industrial Soils.
MCP S-1/GW-1 = Massachusetts Department of Environmental Protection, Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards. Bolded and shaded results exceed MCP S-1/GW-1. All results in mg/Kg.
ND = Not Detected.
NL = Not Listed.
J1 = Estimated value due to MS recovery outside acceptance criteria.

TABLE 2

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
21 DECEMBER 2016

				SAMPLE LOCATION	TB-06B	TB-07A	TB-08A	TB-08B	TB-100B	TB-09A
				SAMPLE NUMBER	R01-161221TB-0007	R01-161221TB-0008	R01-161221TB-0009	R01-161221TB-0010	R01-161221TB-0012	R01-161221TB-0011
				SAMPLE DEPTH		0 - 1 ft.	0 - 1 ft.			0 - 1 ft.
PARAMETER	**MCP S-1/GW-3**	**EPA RML Res.**	**EPA RML Ind.**							
Aluminum	NL	230,000	3,400,000		12,000	12,000	10,000	16,000	16,000	9,300
Arsenic	20	68	300		11	11	18	5.4	5.7	17
Barium	1,000	46,000	650,000		210	300	320	32	27	**1,200**
Beryllium	90	470	6,900		ND	ND	ND	ND	ND	ND
Calcium	NL	NL	NL		3,300	45,000	26,000	3,800	2,900	12,000
Cadmium	70	210	2,900		6.3	10	8.1	ND	ND	33
Cobalt	NL	70	1,000		18	9.3	8.0	3.0	3.1	24
Chromium	100	350,000	5,300,000		59	68	77	18	17	**140**
Copper	NL	9,400	140,000		330	470	2,600	26	49	1,100
Iron	NL	160,000	2,500,000		33,000	32,000	32,000	13,000	13,000	86,000
Magnesium	NL	NL	NL		3,400	5,100	3,300	2,500	2,500	4,000
Manganese	NL	5,500	77,000		300	370	330	120	120	600
Nickel	600	4,600	67,000		53	65	34	8.9	8.9	230
Lead	200	400	800		**760**	**710**	**880**	36	27	**3,100**
Antimony	20	94	1,400		4.5	ND	ND	ND	ND	**22**
Vanadium	40	1,200	17,000		**71**	**42**	34	24	25	34
Zinc	1,000	70,000	1,100,000		**1,200**	**2,400**	**1,800**	85	78	**7,500**

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) using EPA Region I SOP, EIASOP-OPTIMAS0, Metals in Soil Medium Level by ICP.
All results in Milligrams per Kilogram (mg/Kg).
EPA RML Res. = EPA Regional Management Level for Residential Soils.
EPA RML Ind. = EPA Regional Management Level for Industrial Soils.
MCP S-1/GW-1 = Massachusetts Department of Environmental Protection, Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards. Bolded and shaded results exceed MCP S-1/GW-1. All results in mg/Kg.
ND = Not Detected.
NL = Not Listed.
J1 = Estimated value due to MS recovery outside acceptance criteria.

TABLE 2

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
21 DECEMBER 2016

			SAMPLE LOCATION	TB-12A	TB-13A	TB-13B	TB-14A	TB-15A	
			SAMPLE NUMBER	R01-161221TB-0020	R01-161221TB-0014	R01-161221TB-0015	R01-161221TB-0016	R01-161221TB-0017	
			SAMPLE DEPTH	0 - 1 ft.	0 - 1 ft.		0 - 1 ft.	0 - 1 ft.	
PARAMETER	**MCP S-1/GW-3**	**EPA RML Res.**	**EPA RML Ind.**						
Aluminum	NL	230,000	3,400,000	7,500	8,700	14,000	15,000	13,000	
Arsenic	20	68	300	17	13	8.7	15	14	
Barium	1,000	46,000	650,000	**1,100**	600	130	**1,300**	500	
Beryllium	90	470	6,900	ND	ND	0.84	ND	ND	
Calcium	NL	NL	NL	6,300	6,700	3,100	13,000	9,200	
Cadmium	70	210	2,900	27	20	4.8	30	16	
Cobalt	NL	70	1,000	21	13	3.6	16	14	
Chromium	100	350,000	5,300,000	**140**	89	25	**140**	**140**	
Copper	NL	9,400	140,000	680	580	2,200	1,400	900	
Iron	NL	160,000	2,500,000	110,000	63,000	16,000	78,000	68,000	
Magnesium	NL	NL	NL	3,600	4,800	2,600	5,500	4,200	
Manganese	NL	5,500	77,000	730	520	150	560	470	
Nickel	600	4,600	67,000	100	120	18	230	160	
Lead	200	400	800	**2,800**	**1,400**	150	**1,800**	**2,000**	
Antimony	20	94	1,400	16	9.1	2.6	20	17	
Vanadium	40	1,200	17,000	29	**53**	27	**46**	**50**	
Zinc	1,000	70,000	1,100,000	**7,200**	**4,500**	**1,300**	**19,000**	**11,000**	

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) using EPA Region I SOP, EIASOP-OPTIMAS0, Metals in Soil Medium Level by ICP.
All results in Milligrams per Kilogram (mg/Kg).
EPA RML Res. = EPA Regional Management Level for Residential Soils.
EPA RML Ind. = EPA Regional Management Level for Industrial Soils.
MCP S-1/GW-1 = Massachusetts Department of Environmental Protection, Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards. Bolded and shaded results exceed MCP S-1/GW-1. All results in mg/Kg.
ND = Not Detected.
NL = Not Listed.
J1 = Estimated value due to MS recovery outside acceptance criteria.

TABLE 3

SUMMARY OF POLYCHLORINATED BIPHENYL RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY SITE
LAWRENCE, MASSACHUSETTS
21 DECEMBER 2016

			SAMPLE LOCATION	**TB-01A**	**TB-02A**	**TB-03A**	**TB-04A**	**TB-05A**	**TB-06A**	**TB-06B**	**TB-07A**
			SAMPLE NUMBER	**R01-161221TC-0001**	**R01-161221TC-0002**	**R01-161221TC-0003**	**R01-161221TC-0004**	**R01-161221TC-0005**	**R01-161221TC-0006**	**R01-161221TC-0007**	**R01-161221TC-0008**
			DEPTH	**0 -1 ft.**	**0 -1 ft.**	**0 -1 ft.**	**0 -1 ft.**	**0 -1 ft.**	**0 -1 ft.**	**1-3 ft.**	**0 -1 ft.**
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.								
Aroclor-1248	1	23	95	ND	ND	ND	ND	ND	ND	ND	**35**
Aroclor-1254	1	3.5	44	ND	ND	ND	ND	**250**	ND	ND	ND
Aroclor-1260	1	24	99	**23**	**6.1**	**2.8**	**20**	**74**	**84**	**32**	**9.8**

			SAMPLE LOCATION	**TB-08A**	**TB-08A**	**TB-09A**	**TB-100B**	**TB-10A**	**TB-13A**	**TB-13BA**	**TB-14A**
			SAMPLE NUMBER	**R01-161221TC-0009**	**R01-161221TC-0010**	**R01-161221TC-0011**	**R01-161221TC-0012**	**R01-161221TC-0013**	**R01-161221TC-0014**	**R01-161221TC-0015**	**R01-161221TC-0016**
			DEPTH	**0 -1 ft.**	**0 -1 ft.**	**0 -1 ft.**	**1-3 ft.**	**0 -1 ft.**	**0 -1 ft.**	**1-3 ft.**	**0 -1 ft.**
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.								
Aroclor-1248	1	23	95	ND	ND	ND	ND	**21**	ND	ND	ND
Aroclor-1254	1	3.5	44	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	1	24	99	**1.3**	0.09	**23**	0.11	**54**	**58**	**4.3**	**36**

			SAMPLE LOCATION	**TB-15A**	**TB-12A**						
			SAMPLE NUMBER	**R01-161221TC-0017**	**R01-161221TC-0020**						
			DEPTH	**0 -1 ft.**	**0 -1 ft.**						
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.								
Aroclor-1248	1	23	95	ND	ND						
Aroclor-1254	1	3.5	44	ND	ND						
Aroclor-1260	1	24	99	**130**	**2.4**						

NOTES:

Samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) using EPA Region I SOP,EIASOP-PESTSOIL4.SOP, PCBs Medium level in Soil and Sediments.
All Results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-3 = Massachusetts Contingency Plan Soil Category S-1/GW-3 Standard. Units in milligrams per Kilogram (mg/Kg).
EPA RML Res. = EPA Regional Management Level for Residential Soils.
EPA RML Ind. = EPA Regional Management Level for Industrial Soils.
Bolded values exceed MCP S-1/GW-3.
Results highlighted in Yellow exceed EPA RMLs for residential soils.
Results highlighted in Red exceed EPA RMLs for industrial soils.
ND = Not Detected.

TABLE 4

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
27 JUNE 2017

				SAMPLE LOCATION	SB-200A	SB-200B	SB-201A	SB-201B	SB-202A	SB-202B
				SAMPLE NUMBER	R01-161221TC-0022	R01-161221TC-0023	R01-161221TC-0024	R01-161221TC-0025	R01-161221TC-0026	R01-161221TC-0027
				SAMPLE DEPTH	0 - 1 ft.	1 - 3 ft.	0 - 1 ft.	1 - 3 ft.	0 - 1 ft.	1 - 3 ft.
PARAMETER	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.							
Silver	100	1,200	18,000		ND	ND	ND	ND	ND	ND
Aluminum	NL	230,000	3,400,000		18,000	17,000	16,000	16,000	11,000	15,000
Arsenic	20	68	300		27	8.8	15	8.3	14	9.9
Barium	1,000	46,000	650,000		130	29	130	29	150	110
Calcium	NL	NL	NL		6,500	830	7,500	1,400	7,200	2,200
Cadmium	70	210	2,900		11.0	ND	8.9	ND	ND	1.3
Cobalt	NL	70	1,000		30	5.0	21	5.2	12	5.3
Chromium	100	350,000	5,300,000		55	22	70	19	48	24
Copper	NL	9,400	140,000		1700	11	400	12	8,200	71
Iron	NL	160,000	2,500,000		37,000	16,000	35,000	16,000	27,000	17,000
Magnesium	NL	NL	NL		7,900	3,100	10,000	3,300	4,800	3,100
Manganese	NL	5,500	77,000		520	230	510	200	270	210
Nickel	600	4,600	67,000		150	13	180	20	240	51
Lead	200	400	800		**420**	13	**610**	13	**450**	170
Antimony	20	94	1,400		ND	ND	4.7	ND	ND	ND
Vanadium	40	1,200	17,000		**160**	32	**150**	**110**	**1,100**	**340**
Zinc	1,000	70,000	1,100,000		790	41	740	40	500	390

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) USING EPA Region I SOP, EIASOP-OPTIMAS0,
All results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-1 = Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards Bolded and shaded results exceed MCP S-1/GW-1.
EPA RML Res. = EPA Regional Management Level for Residential Soils. All results in Milligrams per Kilogram (mg/Kg).
EPA RML Ind. = EPA Regional Management Level for Industrial Soils. All results in Milligrams per Kilogram (mg/Kg).
ND = Not Detected.
NL = Not Listed.

TABLE 4

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
27 JUNE 2017

				SAMPLE LOCATION	SB-203A	SB-203B	SB-204A	SB-204B	SB-205A	SB-205B
				SAMPLE NUMBER	R01-161221TC-0028	R01-161221TC-0029	R01-161221TC-0030	R01-161221TC-0031	R01-161221TC-0032	R01-161221TC-0033
				SAMPLE DEPTH	0 - 1 ft.	1 - 3 ft.	0 - 1 ft.	1 - 3 ft.	0 - 1 ft.	1 - 3 ft.
PARAMETER	**MCP S-1/GW-3**	**EPA RML Res.**	**EPA RML Ind.**							
Silver	100	1,200	18,000		5.4	ND	ND	ND	ND	ND
Aluminum	NL	230,000	3,400,000		12,000	17,000	12,000	11,000	12,000	10,000
Arsenic	20	68	300		12	9.5	12	10	12	13
Barium	1,000	46,000	650,000		290	90	530	210	400	330
Calcium	NL	NL	NL		5,400	2,000	3,600	3,500	10,000	4,100
Cadmium	70	210	2,900		6.1	1.4	8.6	5.0	9.5	8.0
Cobalt	NL	70	1,000		9.1	5.1	9.8	7.0	10	8.2
Chromium	100	350,000	5,300,000		89	23	66	41	81	52
Copper	NL	9,400	140,000		380	60	530	290	430	1,700
Iron	NL	160,000	2,500,000		30,000	18,000	40,000	23,000	32,000	31,000
Magnesium	NL	NL	NL		4,300	3,000	4,300	4,200	4,100	3,900
Manganese	NL	5,500	77,000		330	190	400	280	320	290
Nickel	600	4,600	67,000		92	16	93	45	78	66
Lead	200	400	800		**810**	130	**1,200**	**510**	**750**	**820**
Antimony	20	94	1,400		5.8	ND	5.2	2.8	5.5	11
Vanadium	40	1,200	17,000		**100**	30	**180**	**94**	**80**	**76**
Zinc	1,000	70,000	1,100,000		**1,600**	580	**1,500**	**1,300**	**1,600**	**2,000**

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) USING EPA Region I SOP, EIASOP-OPTIMAS0,
All results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-1 = Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards Bolded and shaded results exceed MCP S-1/GW-1.
EPA RML Res. = EPA Regional Management Level for Residential Soils. All results in Milligrams per Kilogram (mg/Kg).
EPA RML Ind. = EPA Regional Management Level for Industrial Soils. All results in Milligrams per Kilogram (mg/Kg).
ND = Not Detected.
NL = Not Listed.

TABLE 4

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
27 JUNE 2017

				SAMPLE LOCATION	SB-206A	SB-206B	SB-207A	SB-207B	SB-208A	SB-208B
				SAMPLE NUMBER	R01-161221TC-0034	R01-161221TC-0035	R01-161221TC-0036	R01-161221TC-0037	R01-161221TC-0038	R01-161221TC-0039
				SAMPLE DEPTH	0 - 1 ft.	1 - 3 ft.	0 - 1 ft.	1 - 3 ft.	0 - 1 ft.	1 - 3 ft.
PARAMETER	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.							
Silver	100	1,200	18,000		ND	ND	ND	ND	ND	ND
Aluminum	NL	230,000	3,400,000		10,000	15,000	13,000	14,000	11,000	15,000
Arsenic	20	68	300		21	9.6	12	8.1	21	7.3
Barium	1,000	46,000	650,000		**1,200**	73	300	35	**1,100**	72
Calcium	NL	NL	NL		34,000	3,100	49,000	1,600	15,000	5,400
Cadmium	70	210	2,900		30	ND	9.7	2.0	32	1.0
Cobalt	NL	70	1,000		18	3.1	8.7	3.6	26	4.0
Chromium	100	350,000	5,300,000		**120**	28	52	23	**160**	41
Copper	NL	9,400	140,000		890	58	370	220	2,800	34
Iron	NL	160,000	2,500,000		80,000	14,000	27,000	13,000	85,000	12,000
Magnesium	NL	NL	NL		4,000	2,300	5,000	2,300	4,600	2,700
Manganese	NL	5,500	77,000		630	120	370	150	610	130
Nickel	600	4,600	67,000		95	11	46	11	140	12
Lead	200	400	800		**3,300**	110	**580**	81	**3,100**	100
Antimony	20	94	1,400		11	ND	ND	2.7	12	2.7
Vanadium	40	1,200	17,000		35	25	39	23	**44**	23
Zinc	1,000	70,000	1,100,000		**6,000**	240	**1,400**	320	**7,300**	270

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) USING EPA Region I SOP, EIASOP-OPTIMAS0,
All results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-1 = Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards Bolded and shaded results exceed MCP S-1/GW-1.
EPA RML Res. = EPA Regional Management Level for Residential Soils. All results in Milligrams per Kilogram (mg/Kg).
EPA RML Ind. = EPA Regional Management Level for Industrial Soils. All results in Milligrams per Kilogram (mg/Kg).
ND = Not Detected.
NL = Not Listed.

TABLE 4

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
27 JUNE 2017

				SAMPLE LOCATION	SB-209A	SB-209B	SB-210A	SB-210B	SB-211A	SB-211B
				SAMPLE NUMBER	R01-161221TC-0040	R01-161221TC-0041	R01-161221TC-0042	R01-161221TC-0043	R01-161221TC-0044	R01-161221TC-0045
				SAMPLE DEPTH	0 - 1 ft	1 - 3 ft	0 - 1 ft	1 - 3 ft	0 - 1 ft	1 - 3 ft
PARAMETER	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.							
Silver	100	1,200	18,000		ND	ND	ND	ND	ND	ND
Aluminum	NL	230,000	3,400,000		14,000	13,000	11,000	17,000	12,000	16,000
Arsenic	20	68	300		18	11	18	11	22	11
Barium	1,000	46,000	650,000		670	480	800	110	960	49
Calcium	NL	NL	NL		10,000	7,200	5,600	1,900	12,000	5,000
Cadmium	70	210	2,900		22	2.8	22	3.3	26	ND
Cobalt	NL	70	1,000		20	ND	13	3.0	17	3.2
Chromium	100	350,000	5,300,000		**200**	62	99	25	**190**	40
Copper	NL	9,400	140,000		1,000	140	1,100	1,300	4,300	27
Iron	NL	160,000	2,500,000		80,000	13,000	51,000	14,000	77,000	16,000
Magnesium	NL	NL	NL		4,000	2,700	6,300	2,600	5,900	2,700
Manganese	NL	5,500	77,000		510	140	460	120	570	120
Nickel	600	4,600	67,000		210	15	110	12	220	9.1
Lead	200	400	800		**1,800**	160 J1	**1,300**	77	**3,300**	61
Antimony	20	94	1,400		13	7.1 J1	ND	2.2	16	3.0
Vanadium	40	1,200	17,000		32	23	**54**	27	**49**	27
Zinc	1,000	70,000	1,100,000		**7,100**	**2,400**	**4,700**	530	**9,900**	62

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) USING EPA Region I SOP, EIASOP-OPTIMAS0,
All results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-1 = Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards Bolded and shaded results exceed MCP S-1/GW-1.
EPA RML Res. = EPA Regional Management Level for Residential Soils. All results in Milligrams per Kilogram (mg/Kg).
EPA RML Ind. = EPA Regional Management Level for Industrial Soils. All results in Milligrams per Kilogram (mg/Kg).
ND = Not Detected.
NL = Not Listed.

TABLE 4

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
27 JUNE 2017

			SAMPLE LOCATION	SB-212A	SB-212B	SB-213A	SB-213B	SB-214A	SB-214B
			SAMPLE NUMBER	R01-161221TC-0046	R01-161221TC-0047	R01-161221TC-0048	R01-161221TC-0049	R01-161221TC-0050	R01-161221TC-0051
			SAMPLE DEPTH	0 - 1 ft	1 - 3 ft	0 - 1 ft	1 - 3 ft	0 - 1 ft	1 - 3 ft
PARAMETER	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.						
Silver	100	1,200	18,000	ND	ND	ND	5.7	5.6	ND
Aluminum	NL	230,000	3,400,000	14,000	14,000	12,000	11,000	13,000	9,500
Arsenic	20	68	300	23	9.4	19	18	21	12
Barium	1,000	46,000	650,000	**1,500**	150	380	490	470	270
Calcium	NL	NL	NL	13,000	7,200	14,000	18,000	13,000	6,700
Cadmium	70	210	2,900	29	2.2	22	18	21	10
Cobalt	NL	70	1,000	ND	3.7	20	21	26	10
Chromium	100	350,000	5,300,000	**110**	61	**150**	**170**	**220**	72
Copper	NL	9,400	140,000	1,200	78	820	680	960	370
Iron	NL	160,000	2,500,000	82,000	16,000	92,000	98,000	110,000	49,000
Magnesium	NL	NL	NL	6,700	3,200	4,600	4,600	4,600	3,200
Manganese	NL	5,500	77,000	620	140	670	690	790	400
Nickel	600	4,600	67,000	180	31	130	160	200	70
Lead	200	400	800	**2,100**	160	**2,700**	**1,600**	**2,000**	**950**
Antimony	20	94	1,400	ND	4.7	ND	10	13	ND
Vanadium	40	1,200	17,000	**57**	23	**63**	**65**	**70**	36
Zinc	1,000	70,000	1,100,000	**11,000**	730	**4,200**	**4,500**	**4,300**	**1,600**

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) USING EPA Region I SOP, EIASOP-OPTIMAS0,
All results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-1 = Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards Bolded and shaded results exceed MCP S-1/GW-1.
EPA RML Res. = EPA Regional Management Level for Residential Soils. All results in Milligrams per Kilogram (mg/Kg).
EPA RML Ind. = EPA Regional Management Level for Industrial Soils. All results in Milligrams per Kilogram (mg/Kg).
ND = Not Detected.
NL = Not Listed.

TABLE 4

SUMMARY OF METALS RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY
LAWRENCE, MASSACHUSETTS
27 JUNE 2017

			SAMPLE LOCATION	SB-215A	SB-215B	SB-222B	SB-233B	SB-216A	SB-216B
			SAMPLE NUMBER	R01-161221TC-0052	R01-161221TC-0053	R01-161221TC-0054	R01-161221TC-0055	R01-161221TC-0059	R01-161221TC-0060
			SAMPLE DEPTH	0 - 1 ft	1 - 3 ft	1 - 3 ft	1 - 3 ft	0 - 1 ft	1 - 3 ft
PARAMETER	**MCP S-1/GW-3**	**EPA RML Res.**	**EPA RML Ind.**						
Silver	100	1,200	18,000	ND	ND	ND	7.2	ND	ND
Aluminum	NL	230,000	3,400,000	12,000	13,000	17,000	11,000	12,000	9,900
Arsenic	20	68	300	8.4	9.1	8.7	18	14	18
Barium	1,000	46,000	650,000	35	60	29	400	240	280
Calcium	NL	NL	NL	3,000	1,800	850	17,000	5,700	4,700
Cadmium	70	210	2,900	ND	ND	ND	19	7.6	8.8
Cobalt	NL	70	1,000	7.2	3.6	5.0	19	11	9.9
Chromium	100	350,000	5,300,000	29	16	18	**160**	71	77
Copper	NL	9,400	140,000	13	38	11	730	810	430
Iron	NL	160,000	2,500,000	11,000	13,000	16,000	96,000	41,000	41,000
Magnesium	NL	NL	NL	3,700	2,300	3,100	4,600	3,700	3,300
Manganese	NL	5,500	77,000	160	130	230	650	500	450
Nickel	600	4,600	67,000	30	14	11	130	83	85
Lead	200	400	800	20	58	11	**1,600**	**680**	**1,400**
Antimony	20	94	1,400	ND	ND	ND	ND	6.1	16
Vanadium	40	1,200	17,000	21	22	29	**62**	**63**	**68**
Zinc	1,000	70,000	1,100,000	35	500	39	**4,500**	**1,600**	**1,600**

NOTES:

Metals samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) USING EPA Region I SOP, EIASOP-OPTIMAS0,
All results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-1 = Massachusetts Contingency Plan, Method 1 Soil Category S-1 Standards Bolded and shaded results exceed MCP S-1/GW-1.
All results in Milligrams per Kilogram (mg/Kg).
EPA RML Res. = EPA Regional Management Level for Residential Soils. All results in Milligrams per Kilogram (mg/Kg).
EPA RML Ind. = EPA Regional Management Level for Industrial Soils. All results in Milligrams per Kilogram (mg/Kg).
ND = Not Detected.
NL = Not Listed.

TABLE 5

SUMMARY OF POLYCHLORINATED BIPHENYL RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY SITE
LAWRENCE, MASSACHUSETTS
27 June 2017

	SAMPLE LOCATION			SB-200A	SB-200B	SB-201A	SB-201B	SB-202A	SB-202B	SB-203A	SB-203B
	SAMPLE NUMBER			R01-161221TC-0022	R01-161221TC-0023	R01-161221TC-0024	R01-161221TC-0025	R01-161221TC-0026	R01-161221TC-0027	R01-161221TC-0028	R01-161221TC-0029
	DEPTH			0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.								
Aroclor-1248	1	23	95	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	1	24	99	**23**	0.23	**11**	ND	**2.8**	0.077	**7.4**	0.75

	SAMPLE LOCATION			SB-204A	SB-204B	SB-205A	SB-205B	SB-206A	SB-206B	SB-207A	SB-207B
	SAMPLE NUMBER			R01-161221TC-0030	R01-161221TC-0031	R01-161221TC-0032	R01-161221TC-0033	R01-161221TC-0034	R01-161221TC-0035	R01-161221TC-0036	R01-161221TC-0037
	DEPTH			0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.								
Aroclor-1248	1	23	95	ND	ND	ND	ND	ND	ND	**270**	**170**
Aroclor-1260	1	24	99	**110**	**17**	**36**	**55**	**7.0**	ND	ND	ND

	SAMPLE LOCATION			SB-208A	SB-208B	SB-209A	SB-209B	SB-210A	SB-210B	SB-211A	SB-211B
	SAMPLE NUMBER			R01-161221TC-0038	R01-161221TC-0039	R01-161221TC-0040	R01-161221TC-0041	R01-161221TC-0042	R01-161221TC-0043	R01-161221TC-0044	R01-161221TC-0045
	DEPTH			0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.								
Aroclor-1248	1	23	95	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	1	24	99	**93**	0.15	**200**	0.10	**34**	ND	**59**	ND

NOTES:

Samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) using EPA Region I SOP,EIASOP-PESTSOIL4.SOP, PCBs Medium level in Soil and Sediments.
All Results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-3 = Massachusetts Contingency Plan Soil Category S-1/GW-3 Standard. Units in milligrams per Kilogram (mg/Kg).
EPA RML Res. = EPA Regional Management Level for Residential Soils.
EPA RML Ind. = EPA Regional Management Level for Industrial Soils.
Bolded values exceed MCP S-1/GW-3.
Results highlighted in Yellow exceed EPA RMLs for residential soils.
Results highlighted in Red exceed EPA RMLs for industrial soils.
ND = Not Detected.

TABLE 5

SUMMARY OF POLYCHLORINATED BIPHENYL RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY SITE
LAWRENCE, MASSACHUSETTS
27 June 2017

	SAMPLE LOCATION			SB-212A	SB-212B	SB-213A	SB-213B	SB-214A	SB-214B	SB-215A	SB-215B
	SAMPLE NUMBER			R01-161221TC-0046	R01-161221TC-0047	R01-161221TC-0048	R01-161221TC-0049	R01-161221TC-0050	R01-161221TC-0051	R01-161221TC-0052	R01-161221TC-0053
	DEPTH			0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.								
Aroclor-1248	1	23	95	ND	ND	**21**	**13**	**15**	**14**	ND	ND
Aroclor-1260	1	24	99	**57**	ND	**25**	**11**	**8.5**	**17**	ND	0.081

	SAMPLE LOCATION			SB-222B	SB-233B	SB-216A	SB-216B
	SAMPLE NUMBER			R01-161221TC-0054	R01-161221TC-0055	R01-161221TC-0059	R01-161221TC-0060
	DEPTH			1 - 3 feet	1 - 3 feet	0 - 1 feet	1 - 3 feet
COMPOUND	MCP S-1/GW-3	EPA RML Res.	EPA RML Ind.				
Aroclor-1248	1	23	95	ND	**12**	**11**	**13**
Aroclor-1260	1	24	99	ND	**9.6**	**17**	**24**

NOTES:

Samples analyzed by U.S. EPA Office of Environmental Measurement and Evaluation (OEME) using EPA Region I SOP,EIASOP-PESTSOIL4.SOP, PCBs Medium level in Soil and Sediments.
All Results in Milligrams per Kilogram (mg/Kg).
MCP S-1/GW-3 = Massachusetts Contingency Plan Soil Category S-1/GW-3 Standard. Units in milligrams per Kilogram (mg/Kg).
EPA RML Res. = EPA Regional Management Level for Residential Soils.
EPA RML Ind. = EPA Regional Management Level for Industrial Soils.
Bolded values exceed MCP S-1/GW-3.
Results highlighted in Yellow exceed EPA RMLs for residential soils.
Results highlighted in Red exceed EPA RMLs for industrial soils.
ND = Not Detected.

TABLE 6

SUMMARY OF MERCURY VAPOR ANALYZER (MVA) FIELD SCREENING RESULTS
SURFACE AND SUBSURFACE SOIL SAMPLES
FORMER TOMBARELLO & SONS PROPERTY SITE
LAWRENCE, MASSACHUSETTS
27 JUNE 2017

Sample Location	Depth (feet)	Mercury Screening
SB-200A	0 - 1	12
SB-200B	1 - 3	ND
SB-201A	0 - 1	12
SB-201B	1 - 3	6
SB-202A	0 - 1	16
SB-202B	1 - 3	19
SB-203A	0 - 1	41
SB-203B	1 - 3	13
SB-204A	0 - 1	65
SB-204B	1 - 3	33
SB-205A	0 - 1	172
SB-205B	1 - 3	226
SB-206A	0 - 1	797
SB-206B	1 - 3	37
SB-207A	0 - 1	60
SB-207B	1 - 3	18
SB-208A	0 - 1	172
SB-208B	1 - 3	18
SB-209A	0 - 1	51
SB-209B	1 - 3	52
SB-210A	0 - 1	442
SB-210B	1 - 3	187
SB-211A	0 - 1	27
SB-211B	1 - 3	209
SB-212A	0 - 1	75
SB-212B	1 - 3	5
SB-213A	0 - 1	48
SB-213B	1 - 3	68
SB-214A	0 - 1	448
SB-214B	1 - 3	56
SB-215A	0 - 1	9
SB-215B	1 - 3	15
SB-216A	0 - 1	61
SB-216B	1 - 3	168
SB-222B	1 - 3	ND
SB-213B	1 - 3	77

NOTES:

Soil samples were analyzed by START with a Lumex Mercury Vapor Analyzer (MVA).
Units in nanograms per cubic meter (ng/m^3)
SB-222B is field duplicate of SB-200B and SB-233B is field duplicate of SB-213B.

Appendix C

Boring Logs

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-200	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc. Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	48	0 - 7" Dark Brown SILT and fine-to-coarse SAND, little fine gravel, trace debris. 7 - 10" Gray SAND and crushed GRAVEL. 12 - 15" Medium Brown fine SAND and SILT, trace organics. 15 - 39" Light Brown-orange fine SAND and SILT (striated discs). 39 - 48" Light Brown fine SAND, moist.	Top = 0 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 200A = collected from 0-12" interval at 0910 hrs for PCB and metals analyses.
Sample SB - 200B/SB-222B = collected from 12-36" interval at 0915 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-201	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	40	0 - 3" Dark Brown fine-to-coarse SAND and SILT, trace debris and fine gravel. 3 - 8" Light Brown-gray fine-to-coarse SAND and crushed GRAVEL, some fine-to-medium gravel. 8 - 10" Debris (Red-orange Brick, insulation/"auto fluff", metal). 10 - 13" Light Brown fine-to-coarse SAND and fine GRAVEL. 13 - 15" Medium-to-dark Brown SILT and SAND. 15 - 38" Light Brown Silt and fine SAND. 38 - 40" Light Brown-tan fine-to-coarse SAND.	Top = 0 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 201A = collected from 0-10" interval at 0930 hrs for PCB and metals analyses.
Sample SB - 201B = collected from 10-30" interval at 0935 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-202	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	42	0 - 2" Dark Brown SILT and fine SAND, little organics. 2 - 3" Black asphalt. 3 - 8" Medium brown-gray fine-to-medium SAND and SILT, little fine gravel, trace organics. 8 - 10" Dark Brown fine-to-coarse SAND and SILT, little debris (white material), trace fine-to-medium gravel. 10 - 14" Dark Brown SILT and fine SAND, trace fine gravel and organics. 14 - 19" Light Brown-dark brown-orange fine SNAD and SILT, trace fine gravel and debris (glass). Striated/mottled. 19 - 42" Light Brown-orange SILT and fine SAND.	Top = 0 Center = 0 Bottom = 0
2_			
3_			
4_			

Sample Collection Details:

Sample SB - 202A = collected from 0-11" interval at 0945 hrs for PCB and metals analyses.
Sample SB - 202B = collected from 11-31" interval at 0950 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-203	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_		0 - 7" Medium-to-dark Brown fine SAND and SILT, trace fine gravel, organics and debris (ceramic). 7 - 12" Dark Brown fine-to-coarse SAND and SILT, some brick, trace fine-to-medium gravel (ash/charcoal).	Top = 0
2_	35	12 - 15" Dark Brown-black SILT and fine SAND, trace debris (brick/glass) and organics.	Center = 0
3_		15 - 35" Light Brown-orange SILT and fine SAND.	
4_			Bottom = 0

Sample Collection Details:

Sample SB - 203A = collected from 0-11" interval at 0955 hrs for PCB and metals analyses.
Sample SB - 203B = collected from 11-27" interval at 1000 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-204	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	37	0 - 13" Dark Brown SILT and fine-to-coarse SAND, little fine-to-coarse gravel, trace organics and debris (metal/brick/glass). 13 - 15" Light Brown fine-to-coarse SAND. 15 - 21" Light Gray-black SILT and fine-to-coarse SAND, little clay and fine-to-coarse gravel, trace debris (slag/asphalt/rubber). 21 - 25" Orange crushed rock (granite). 25 - 30" Light-to-medium Brown fine-to-coarse SAND. 30 - 37" Light Brown-gray SILT and fine SAND, trace clay. Moist.	Top = 0
2_			Center = 0
3_			
4_			Bottom = 0

Sample Collection Details:

Sample SB - 204A = collected from 0-10" interval at 1010 hrs for PCB and metals analyses.
Sample SB - 204B = collected from 10-28" interval at 1015 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-205	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	36	0 - 5" Dark Brown-black fine-to-coarse SAND and SILT, trace organics, fine gravel, and debris. 5 - 6" Gray SILT and fine SAND, trace gravel. 6 - 13" Medium Brown fine-to-coarse SAND and SILT, trace organics, fine grave, and debris (brick). 13 - 14" Rock. 14 - 19" Dark Brown-black fine-to-coarse SAND and SILT, little fine-to-medium gravel, little debris (brick, glass, slag). 19 - 22" Light Brown and gray SILT and fine SAND, trace clay. Moist. 22 - 25" Red Brick. 25 - 30" Dark Brown-black fine-to-coarse SAND and SILT, little fine-to-medium gravel, little debris (brick, glass, slag). 30 - 36" Light Brown-gray fine SAND and SILT.	Top = 0 Center = 0 Bottom = 0
2_			
3_			
4_			

Sample Collection Details:

Sample SB - 205A = collected from 0-10" interval at 1025 hrs for PCB and metals analyses.
Sample SB - 205B = collected from 10-30" interval at 1030 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-206	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	35	0 - 3" Dark Brown fine-to-coarse SAND and SILT, little fine-to-medium gravel, trace organics and debris (glass). 3 - 6" Gray fine-to-coarse SAND, little fine-to-medium gravel, trace organics. 6 - 11" Dark Brown-black fine-to-coarse SAND and SILT, trace fine-to-medium gravel and debris (brick/glass). 11 - 13" Dark Brown fine-to-coarse SAND and debris (brick). 13 - 16" Dark Brown fine SAND and SILT. 16 - 35" Light Brown-orange fine SAND and SILT, trace coarse sand (layers).	Top = 0 Center = 0 Bottom = 0
2_			
3_			
4_			

Sample Collection Details:

Sample SB - 206A = collected from 0-11" interval at 1040 hrs for PCB and metals analyses.
Sample SB - 206B = collected from 11-28" interval at 1045 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-207	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	42	0 - 4" Medium Brown fine-to-coarse SAND and SILT, little fine gravel, trace organics. 4 - 11" Gray-to-black fine-to-coarse SAND, little fine-medium gravel. 11 - 13" Red crushed brick. 13 - 17" Brown-black fine SAND and SILT, trace fine gravel, organics, and debris (brick/slag/ash). 17 - 42" Light Brown-orange fine SAND and SILT (>30" moist).	Top = 0 Center = 0 Bottom = 0
2_			
3_			
4_			

Sample Collection Details:

Sample SB - 207A = collected from 0-11" interval at 1055 hrs for PCB and metals analyses.
Sample SB - 207B = collected from 11-31" interval at 1100 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-208	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	41	0 - 3" Dark Brown SAND and SILT, little organics, trace fine-to-medium gravel and debris (glass). 3 - 13" Dark Brown fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace debris (brick, mortar, metal). 13 - 17" Gray-black slag, some fine-to-coarse SAND (black), trace fine gravel. 17 - 20" Orange-gray-black fine-to-coarse SAND, some silt, little fine-tocoarse gravel, trace debris. 20 - 25" Gray and black SILT. 25 - 41" Light Brown-gray fine SAND and SILT.	Top = 0 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 208A = collected from 0-11" interval at 1105 hrs for PCB and metals analyses.
Sample SB - 208B = collected from 11-30" interval at 1110 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-209	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	46	0 - 6" Red-brown fine-to-coarse SAND and SILT, little debris (metal, glass, ceramic) and fine-to-medium gravel. 6 - 9" Dark Brown-black fine-to-coarse SAND and SILT, trace fine gravel and debris (metal, glass). 9 - 10" Light Brown fine-to-coarse SAND and SILT, trace fine gravel. 10 - 18" Dark Brown-black fine-to-coarse SAND and SILT, little debris (mortar, brick, metal), trace fine gravel. 18 - 20" Black fine SAND and SILT. 20 - 46" Light Brown-gray fine SAND and SILT (>32" moist).	Top = 0 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 209A = collected from 0-11" interval at 1120 hrs for PCB and metals analyses.
Sample SB - 209B = collected from 11-34" interval at 1125 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-210	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	45	0 - 7" Dark Brown fine-to-coarse SAND and SILT, trace organics, fine-to medium gravel, and debris (glass, slag). 7 - 9" Black fine-to-coarse SAND and SILT, some fine-to-medium gravel, little debris (glass, slag). 9 - 11" Light Brown fine-to-coarse SAND, little fine-to-medium gravel. 11 - 15" Dark Brown-black SILT, trace fine-to-medium gravel. 15 - 45" Orange-light brown fine SAND and SILT.	Top = 0 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 210A = collected from 0-11" interval at 1130 hrs for PCB and metals analyses.
Sample SB - 210B = collected from 11-34" interval at 1135 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-211	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	46	0 - 8" Brown fine-to-coarse SAND and SILT, trace organics, fine-to medium gravel, and debris (brick, glass, slag). 8 - 12" Crushed stone over brown fine-to-coarse SAND and SILT, trace organics, fine-to medium gravel, and debris (brick, glass, slag). 12 - 15" Red BRICK. 15 - 19" Black fine-to-coarse SAND and SILT, some brick, trace fine-to-medium gravel. 19 - 21" Brown-orange fine SAND and SILT. 21 - 23" Black SILT. 23 - 46" Light Brown-gray fine SAND and SILT.	Top = 0 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 211A = collected from 0-12" interval at 1145 hrs for PCB and metals analyses.
Sample SB - 211B = collected from 12-34" interval at 1150 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-212	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	46	0 - 8" Dark Brown fine-to-coarse SAND and SILT, little fine-to-medium gravel, trace organics and debris (brick, glass). 8 - 16" Black fine-to-coarse SAND and SILT, some debris (brick, glass, metal, slag). 16 - 19" Red BRICK. 19 - 20" Brown fine-to-coarse SAND and SILT, trace fine gravel. 20 - 23" Black-Dark Brown SILT, some debris (degraded wood). 23 - 46" Medium-light Brown-gray fine SAND and SILT.	Top = 0.7 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 212A = collected from 0-12" interval at 1200 hrs for PCB and metals analyses.
Sample SB - 212B = collected from 12-35" interval at 1205 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-213	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_ 2_ 3_ 4_	30	0 - 30" Dark Brown fine-to-coarse SAND and SILT, little fine-to-coarse gravel and debris (brick, glass, metal, ceramic), trace organics.	Top = 0 Center = 0 Bottom = 0

Sample Collection Details:

Sample SB - 213A = collected from 0-8" interval at 1455 hrs for PCB and metals analyses.
Sample SB - 213B/SB-233B = collected from 8-22" interval at 1500 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-214	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	34	0 - 17" Dark Brown fine-to-coarse SAND and SILT, little debris (brick, glass, slag, plastic), trace organics.	Top = 0
2_		17 - 23" Light Brown fine SAND and SILT, trace fine-to-medium gravel.	Center = 0
3_		23 -34" Medium Brown fine-to-coarse SAND and SILT, little fine-to-medium gravel and debris (glass, brick, slag).	Bottom = 0
4_			

Sample Collection Details:

Sample SB - 214A = collected from 0-10" interval at 1445 hrs for PCB and metals analyses.
Sample SB - 214B = collected from 10-26" interval at 1450 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-215	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	44	0 - 6" Medium Brown fine-to-coarse SAND and SILT, little organics, trace fine-to-medium gravel. 6 - 14" Light Brown fine-to-coarse SAND and SILT, trace fine-to-medium gravel. 14 - 15" Black SAND and SILT, trace debris (fabric) and fine-to-medium gravel. 15 - 23" Dark Brown fine SAND and SILT. 23 -44" Orange-light brown fine SAND and SILT.	Top = 0 Center = 0 Bottom = 0
2_			
3_			
4_			

Sample Collection Details:

Sample SB - 215A = collected from 0-11" interval at 1420 hrs for PCB and metals analyses.
Sample SB - 215B = collected from 11-33" interval at 1425 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Weston Solutions, Inc.	SOIL BORING LOG				
Project	Former Tombarello & Sons Site	**Boring ID**	SB-216	**Groundwater Levels***	
Location	Lawrence, Massachusetts	**Well ID**	N/A	**Date**	**Depth (ft)**
Date Drilled	6/27/2017	**Drilling Method**	Direct Push	N/A	N/A
Drilling Company	EPA	**Sampling Method**	4-ft. Macrocore		
Operator	NERL personnel	**Completion Depth**	48 inches		
Drill Rig Type	Geoprobe	**Surface Elevation**	NA		
Logged by	Chris Dupree - Weston Solutions, Inc., Superfund Technical Assessment and Response Team (START)				

Depth (ft bgs)	Recovery (inches)	Soil Description*	PID Screen (ppm)
1_	32	0 - 11" Medium Brown fine-to-coarse SAND and SILT, trace organics, fine-to-medium gravel, and debris (plastic, metal, glass). 11 - 15" Medium-to-light Brown fine-to-coarse SAND and SILT, trace fine gravel and organics. 15 - 25" Medium Brown fine-to-coarse SAND and SILT, little fine-to-coarse gravel, trace organics. 25 -47" Dark Brown fine-to-coarse SAND and SILT, some fine-to-coarse gravel. 27 - 32" Gray-tan-brown coarse SAND, trace gravel and organics.	Top = 0
2_			Center = 0
3_			
4_			Bottom = 0

Sample Collection Details:

Sample SB - 216A = collected from 0-11" interval at 1430 hrs for PCB and metals analyses.
Sample SB - 216B = collected from 11-24" interval at 1435 hrs for PCB and metals analyses.

Notes:
bgs = below ground surface
ft = feet
hrs = hours
N/A = Not Applicable
PID = Photoionization detector
ppm = parts per million
PCB = Polychlorinated biphenyl
" = inch
* Burmeister Soil Classification System

PROPORTIONS USED (by DRY WEIGHT)
0 to 10% = TRACE
>10 to 20% = LITTLE
>20 to 35% = SOME
>35 to 50% = AND
> 50% = MAJOR

Appendix D

Photodocumentation Log

SCENE: View of sample location TB-02. Photograph taken facing west.

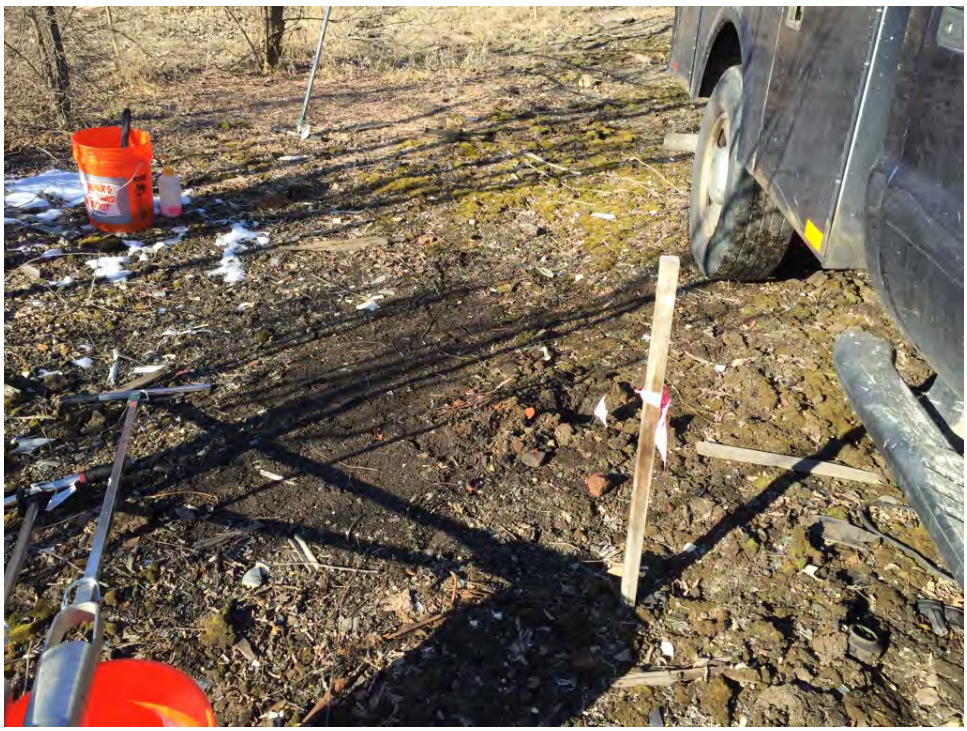
DATE: 21 December 2016 **TIME:** 1102 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-03. Photograph taken facing west.

DATE: 21 December 2016 **TIME:** 1102 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-07. Photograph taken facing east.

DATE: 21 December 2016 **TIME:** 1144 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6



SCENE: View of sample location TB-03. Photograph taken facing northwest.

DATE: 21 December 2016 **TIME:** 1216 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-13. Photograph taken facing northwest.

DATE: 21 December 2016 **TIME:** 1330 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-14. Photograph taken facing northwest.

DATE: 21 December 2016 **TIME:** 1330 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-10. Photograph taken facing northwest.

DATE: 21 December 2016 **TIME:** 1331 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-09. Photograph taken facing east.

DATE: 21 December 2016 **TIME:** 1331 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-06. Photograph taken facing south.

DATE: 21 December 2016 **TIME:** 1333 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-05. Photograph taken facing south.

DATE: 21 December 2016 **TIME:** 1333 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-04. Photograph taken facing east.

DATE: 21 December 2016 **TIME:** 1333 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of sample location TB-01. Photograph taken facing west.

DATE: 21 December 2016 **TIME:** 1335 hours
PHOTOGRAPHER: P. Callahan **CAMERA:** iPhone 6

SCENE: View of bottom section (2 to 4 feet) of soil boring SB-204.

DATE: 27 June 2017 **TIME:** 1001 hours
PHOTOGRAPHER: C. Dupree **CAMERA:** iPhone 6

SCENE: View of top section (0 to 2 feet) of soil boring SB-204.

DATE: 27 June 2017 **TIME:** 1001 hours
PHOTOGRAPHER: C. Dupree **CAMERA:** iPhone 6

SCENE: View of bottom section (2 to 4 feet) of soil boring SB-205.

DATE: 27 June 2017 **TIME:** 1016 hours
PHOTOGRAPHER: C. Dupree **CAMERA:** iPhone 6

SCENE: View of top section (0 to 2 feet) of soil boring SB-205.

DATE: 27 June 2017 **TIME:** 1016 hours
PHOTOGRAPHER: C. Dupree **CAMERA:** iPhone 6

Appendix E

Analytical Data and Chain-of-Custody Record

12/21/16 TOMBARELLO SITE LAWRENCE, MA Used Comp Clock

	RUN #	TIME	DESCRIPTION	Pb	Cr	As	COMMENTS	
	1	1235	Cal Check	—			Passed; Res. = 157	
	2	1237	SiO_2 Blank	<3.8	≤51	< 3.3		
	3	1239	NIST 2709A	25	150	6.6		
	4	1240	NIST 2711A	1419	~~1479~~ 90	76		
	5	1242	NIST 2781	203	163	ND<10		
	6	1243	TB-01A	401	99	~~ND<10~~ ND<14		1
	7	1245	TB-02A	193	182	11		2
	8	1246	TB-03A	317	217	ND<13		3
	9	1247	TB-04A	761	153	ND<19		4
	10	1249	TB-05A	415	96	ND<14		5
	11	1251	TB-06A	767	ND<70	ND<19		6
	12	1252	TB-06B	445	188	ND<14		7
	13	1254	TB-07A	434	ND<68	16		8
	14	1255	TB-09A	2231	289	ND<36		9
	15	1257	TB-12A	1483	254	56		10
	16	1259	TB-12A (dup)	1161	232	ND<26	Duplicate	11
*	17	1301	TB-10A	1496	278	ND<31		12
	18	1310	TB-08A	553	114	ND<16		13
	19	1312	TB-08B	37	ND<56	ND<5.1		14
	20	1314	TB-100B	40	ND<61	ND<5.5		15
	21	1316	TB-13A	653	192	47		16
✓	22	1318	TB-13B	174	ND<60	ND<10		17
	23	1337	TB-14A	1106	369	35		18
	24	1411	TB-15A	849	142	ND<23		19
	25	1424	SiO_2 Blank	ND<3.8	ND<52	ND<3.4		20
	26	1425	NIST 2709A	21.7	158	6.9		
	27	1426	NIST 2711A	1420	ND<71	87		
	28	1427	NIST 2781	205	151	ND<10		
	29	1428	CAL CHECK	—	—	—	PASSED; RES=155	
	~~30~~							

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

February 01, 2017

Tom Condon - Mail Code OSRR02-2
US EPA New England R1

Project Number: 16120015
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: Metals in Soil Medium Level by ICP
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 12/22/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8

Preparation and analysis SOP's are based on "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 2, Final Update III, Methods 3050B and 6010B," respectively. Samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

All sample results, except the results for AB65195, reported mg/Kg dry weight basis. The results for AB65195 reported mg/Kg, as received.

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0001	Lab Sample ID:	AB65178
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.9	
7429-90-5	Aluminum	**16000**	21	
7440-38-2	Arsenic	**9.5**	3.8	
7440-39-3	Barium	**97**	3.8	
7440-41-7	Beryllium	ND	1.5	
7440-70-2	Calcium	**5400**	19	
7440-43-9	Cadmium	**8.9**	1.9	
7440-48-4	Cobalt	**24**	3.8	
7440-47-3	Chromium	**58**	3.8	
7440-50-8	Copper	**510**	3.8	
7439-89-6	Iron	**32000**	7.7	
7439-95-4	Magnesium	**6500**	19	
7439-96-5	Manganese	**510**	3.8	
7440-02-0	Nickel	**170**	3.8	
7439-92-1	Lead	**480**	3.8	
7440-36-0	Antimony	ND	3.8	J1
7782-49-2	Selenium	ND	7.7	
7440-28-0	Thallium	ND	7.7	
7440-62-2	Vanadium	**250**	3.8	
7440-66-6	Zinc	**770**	3.8	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0002	Lab Sample ID:	AB65179
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**15000**	22	
7440-38-2	Arsenic	**26**	3.9	J3
7440-39-3	Barium	**93**	3.9	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**6800**	20	
7440-43-9	Cadmium	**4.2**	2.0	
7440-48-4	Cobalt	**20**	3.9	
7440-47-3	Chromium	**57**	3.9	
7440-50-8	Copper	**200**	3.9	
7439-89-6	Iron	**30000**	7.8	
7439-95-4	Magnesium	**8400**	20	
7439-96-5	Manganese	**530**	3.9	
7440-02-0	Nickel	**110**	3.9	
7439-92-1	Lead	**280**	3.9	
7440-36-0	Antimony	ND	3.9	
7782-49-2	Selenium	ND	7.8	
7440-28-0	Thallium	ND	7.8	
7440-62-2	Vanadium	**84**	3.9	
7440-66-6	Zinc	**360**	3.9	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0003	Lab Sample ID:	AB65180
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**9800**	22	
7440-38-2	Arsenic	**14**	3.9	
7440-39-3	Barium	**190**	3.9	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**11000**	20	
7440-43-9	Cadmium	**2.8**	2.0	
7440-48-4	Cobalt	**13**	3.9	
7440-47-3	Chromium	**56**	3.9	
7440-50-8	Copper	**210**	3.9	
7439-89-6	Iron	**30000**	7.8	
7439-95-4	Magnesium	**4900**	20	
7439-96-5	Manganese	**300**	3.9	
7440-02-0	Nickel	**360**	3.9	
7439-92-1	Lead	**430**	3.9	
7440-36-0	Antimony	ND	3.9	
7782-49-2	Selenium	ND	7.8	
7440-28-0	Thallium	ND	7.8	
7440-62-2	Vanadium	**1900**	3.9	
7440-66-6	Zinc	**670**	3.9	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0004	Lab Sample ID:	AB65181
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**11000**	22	
7440-38-2	Arsenic	**11**	4.0	
7440-39-3	Barium	**240**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**7300**	20	
7440-43-9	Cadmium	**7.0**	2.0	
7440-48-4	Cobalt	**10**	4.0	
7440-47-3	Chromium	**75**	4.0	
7440-50-8	Copper	**660**	4.0	
7439-89-6	Iron	**36000**	8.0	
7439-95-4	Magnesium	**4500**	20	
7439-96-5	Manganese	**350**	4.0	
7440-02-0	Nickel	**95**	4.0	
7439-92-1	Lead	**720**	4.0	
7440-36-0	Antimony	ND	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	8.0	
7440-62-2	Vanadium	**160**	4.0	
7440-66-6	Zinc	**1500**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0005	Lab Sample ID:	AB65182
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/04/2016	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**11000**	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	**190**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**1900**	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	**62**	20	
7440-47-3	Chromium	**8300**	20	
7440-50-8	Copper	**560**	20	
7439-89-6	Iron	**67000**	40	
7439-95-4	Magnesium	**3300**	100	
7439-96-5	Manganese	**620**	20	
7440-02-0	Nickel	**4500**	20	
7439-92-1	Lead	**750**	20	
7440-36-0	Antimony	**240**	40	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	40	
7440-62-2	Vanadium	**120**	20	
7440-66-6	Zinc	**1200**	20	

Comments: Antimony reported from the 20x dilution of 1/12/17. Al reported from the 10x dilution of 1/13/17.

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0006	Lab Sample ID:	AB65183
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**11000**	22	
7440-38-2	Arsenic	**14**	4.0	
7440-39-3	Barium	**360**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**3000**	20	
7440-43-9	Cadmium	**11**	2.0	
7440-48-4	Cobalt	**11**	4.0	
7440-47-3	Chromium	**62**	4.0	
7440-50-8	Copper	**540**	4.0	
7439-89-6	Iron	**37000**	8.0	
7439-95-4	Magnesium	**4400**	20	
7439-96-5	Manganese	**350**	4.0	
7440-02-0	Nickel	**81**	4.0	
7439-92-1	Lead	**1000**	4.0	
7440-36-0	Antimony	**4.6**	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	8.0	
7440-62-2	Vanadium	**100**	4.0	
7440-66-6	Zinc	**1800**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0007	Lab Sample ID:	AB65184
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**12000**	22	
7440-38-2	Arsenic	**11**	4.0	
7440-39-3	Barium	**210**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**3300**	20	
7440-43-9	Cadmium	**6.3**	2.0	
7440-48-4	Cobalt	**18**	4.0	
7440-47-3	Chromium	**59**	4.0	
7440-50-8	Copper	**330**	4.0	
7439-89-6	Iron	**33000**	8.0	
7439-95-4	Magnesium	**3400**	20	
7439-96-5	Manganese	**300**	4.0	
7440-02-0	Nickel	**53**	4.0	
7439-92-1	Lead	**760**	4.0	
7440-36-0	Antimony	**4.5**	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	8.0	
7440-62-2	Vanadium	**71**	4.0	
7440-66-6	Zinc	**1200**	4.0	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0008	Lab Sample ID:	AB65185
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**12000**	22	
7440-38-2	Arsenic	**11**	4.0	
7440-39-3	Barium	**300**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**45000**	20	
7440-43-9	Cadmium	**10**	2.0	
7440-48-4	Cobalt	**9.3**	4.0	
7440-47-3	Chromium	**68**	4.0	
7440-50-8	Copper	**470**	4.0	
7439-89-6	Iron	**32000**	8.0	
7439-95-4	Magnesium	**5100**	20	
7439-96-5	Manganese	**370**	4.0	
7440-02-0	Nickel	**65**	4.0	
7439-92-1	Lead	**710**	4.0	
7440-36-0	Antimony	ND	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	8.0	
7440-62-2	Vanadium	**42**	4.0	
7440-66-6	Zinc	**2400**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0009	Lab Sample ID:	AB65186
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**10000**	22	
7440-38-2	Arsenic	**18**	4.0	
7440-39-3	Barium	**320**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**26000**	20	
7440-43-9	Cadmium	**8.1**	2.0	
7440-48-4	Cobalt	**8.0**	4.0	
7440-47-3	Chromium	**77**	4.0	
7440-50-8	Copper	**2600**	4.0	
7439-89-6	Iron	**32000**	8.0	
7439-95-4	Magnesium	**3300**	20	
7439-96-5	Manganese	**330**	4.0	
7440-02-0	Nickel	**34**	4.0	
7439-92-1	Lead	**880**	4.0	
7440-36-0	Antimony	ND	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	8.0	
7440-62-2	Vanadium	**34**	4.0	
7440-66-6	Zinc	**1800**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0010	Lab Sample ID:	AB65187
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.0	
7429-90-5	Aluminum	**16000**	11	
7440-38-2	Arsenic	**5.4**	2.1	
7440-39-3	Barium	**32**	2.1	
7440-41-7	Beryllium	ND	0.83	
7440-70-2	Calcium	**3800**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**3.0**	2.1	
7440-47-3	Chromium	**18**	2.1	
7440-50-8	Copper	**26**	2.1	
7439-89-6	Iron	**13000**	4.2	
7439-95-4	Magnesium	**2500**	10	
7439-96-5	Manganese	**120**	2.1	
7440-02-0	Nickel	**8.9**	2.1	
7439-92-1	Lead	**36**	2.1	
7440-36-0	Antimony	ND	2.1	
7782-49-2	Selenium	ND	4.2	
7440-28-0	Thallium	ND	4.2	
7440-62-2	Vanadium	**24**	2.1	
7440-66-6	Zinc	**85**	2.1	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0011	Lab Sample ID:	AB65188
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	4
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	3.9	
7429-90-5	Aluminum	**9300**	43	
7440-38-2	Arsenic	**17**	7.8	
7440-39-3	Barium	**1200**	7.8	
7440-41-7	Beryllium	ND	3.1	
7440-70-2	Calcium	**12000**	39	
7440-43-9	Cadmium	**33**	3.9	
7440-48-4	Cobalt	**24**	7.8	
7440-47-3	Chromium	**140**	7.8	
7440-50-8	Copper	**1100**	7.8	
7439-89-6	Iron	**86000**	16	
7439-95-4	Magnesium	**4000**	39	
7439-96-5	Manganese	**600**	7.8	
7440-02-0	Nickel	**230**	7.8	
7439-92-1	Lead	**3100**	7.8	
7440-36-0	Antimony	**22**	7.8	
7782-49-2	Selenium	ND	16	
7440-28-0	Thallium	ND	16	
7440-62-2	Vanadium	**34**	7.8	
7440-66-6	Zinc	**7500**	7.8	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0012	Lab Sample ID:	AB65189
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/04/2016	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.1	
7429-90-5	Aluminum	**16000**	12	
7440-38-2	Arsenic	**5.7**	2.1	
7440-39-3	Barium	**27**	2.1	
7440-41-7	Beryllium	ND	0.85	
7440-70-2	Calcium	**2900**	11	
7440-43-9	Cadmium	ND	1.1	
7440-48-4	Cobalt	**3.1**	2.1	
7440-47-3	Chromium	**17**	2.1	
7440-50-8	Copper	**49**	2.1	
7439-89-6	Iron	**13000**	4.2	
7439-95-4	Magnesium	**2500**	11	
7439-96-5	Manganese	**120**	2.1	
7440-02-0	Nickel	**8.9**	2.1	
7439-92-1	Lead	**27**	2.1	
7440-36-0	Antimony	ND	2.1	
7782-49-2	Selenium	ND	4.2	
7440-28-0	Thallium	ND	4.2	
7440-62-2	Vanadium	**25**	2.1	
7440-66-6	Zinc	**78**	2.1	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0014	Lab Sample ID:	AB65191
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	3
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.9	
7429-90-5	Aluminum	**8700**	63	
7440-38-2	Arsenic	**13**	5.8	
7440-39-3	Barium	**600**	5.8	
7440-41-7	Beryllium	ND	2.3	
7440-70-2	Calcium	**6700**	29	
7440-43-9	Cadmium	**20**	2.9	
7440-48-4	Cobalt	**13**	5.8	
7440-47-3	Chromium	**89**	5.8	
7440-50-8	Copper	**580**	5.8	
7439-89-6	Iron	**63000**	12	
7439-95-4	Magnesium	**4800**	29	
7439-96-5	Manganese	**520**	5.8	
7440-02-0	Nickel	**120**	5.8	
7439-92-1	Lead	**1400**	5.8	
7440-36-0	Antimony	**9.1**	5.8	
7782-49-2	Selenium	ND	12	
7440-28-0	Thallium	ND	12	
7440-62-2	Vanadium	**53**	5.8	
7440-66-6	Zinc	**4500**	5.8	

Comments: Aluminum reported from the 3x dilution of 1/13/17.

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0015	Lab Sample ID:	AB65192
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.0	
7429-90-5	Aluminum	**14000**	23	
7440-38-2	Arsenic	**8.7**	2.1	
7440-39-3	Barium	**130**	2.1	
7440-41-7	Beryllium	**0.84**	0.83	
7440-70-2	Calcium	**3100**	10	
7440-43-9	Cadmium	**4.8**	1.0	
7440-48-4	Cobalt	**3.6**	2.1	
7440-47-3	Chromium	**25**	2.1	
7440-50-8	Copper	**220**	2.1	
7439-89-6	Iron	**16000**	4.2	
7439-95-4	Magnesium	**2600**	10	
7439-96-5	Manganese	**150**	2.1	
7440-02-0	Nickel	**18**	2.1	
7439-92-1	Lead	**150**	2.1	
7440-36-0	Antimony	**2.6**	2.1	
7782-49-2	Selenium	ND	4.2	
7440-28-0	Thallium	ND	4.2	
7440-62-2	Vanadium	**27**	2.1	
7440-66-6	Zinc	**1300**	2.1	

Comments: Aluminum reported from the analysis of 1/13/17.

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0016	Lab Sample ID:	AB65193
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	4.9	
7429-90-5	Aluminum	**15000**	110	
7440-38-2	Arsenic	**15**	9.8	
7440-39-3	Barium	**1300**	9.8	
7440-41-7	Beryllium	ND	3.9	
7440-70-2	Calcium	**13000**	49	
7440-43-9	Cadmium	**30**	4.9	
7440-48-4	Cobalt	**16**	9.8	
7440-47-3	Chromium	**140**	9.8	
7440-50-8	Copper	**1400**	9.8	
7439-89-6	Iron	**78000**	20	
7439-95-4	Magnesium	**5500**	49	
7439-96-5	Manganese	**560**	9.8	
7440-02-0	Nickel	**230**	9.8	
7439-92-1	Lead	**1800**	9.8	
7440-36-0	Antimony	**20**	9.8	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	**46**	9.8	
7440-66-6	Zinc	**19000**	9.8	

Comments: Aluminum reported from the 5x dilution of 1/13/17.

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0017	Lab Sample ID:	AB65194
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	4.9	
7429-90-5	Aluminum	**13000**	110	
7440-38-2	Arsenic	**14**	9.8	
7440-39-3	Barium	**500**	9.8	
7440-41-7	Beryllium	ND	3.9	
7440-70-2	Calcium	**9200**	49	
7440-43-9	Cadmium	**16**	4.9	
7440-48-4	Cobalt	**14**	9.8	
7440-47-3	Chromium	**140**	9.8	
7440-50-8	Copper	**900**	9.8	
7439-89-6	Iron	**68000**	20	
7439-95-4	Magnesium	**4200**	49	
7439-96-5	Manganese	**470**	9.8	
7440-02-0	Nickel	**160**	9.8	
7439-92-1	Lead	**2000**	9.8	
7440-36-0	Antimony	**17**	9.8	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	**50**	9.8	
7440-66-6	Zinc	**11000**	9.8	

Comments: Aluminum reported from the 5x dilution of 1/13/17.

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0018	Lab Sample ID:	AB65195
Date of Collection:	12/21/2016	Matrix:	Lab Sand
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**7.2**	0.98	
7429-90-5	Aluminum	**2200**	22	
7440-38-2	Arsenic	**46**	2.0	
7440-39-3	Barium	**6.7**	2.0	
7440-41-7	Beryllium	**14**	0.78	
7440-70-2	Calcium	**6200**	9.8	
7440-43-9	Cadmium	ND	0.98	
7440-48-4	Cobalt	**44**	2.0	
7440-47-3	Chromium	**51**	2.0	
7440-50-8	Copper	**17**	2.0	
7439-89-6	Iron	**4800**	3.9	
7439-95-4	Magnesium	**420**	9.8	
7439-96-5	Manganese	**34**	2.0	
7440-02-0	Nickel	ND	2.0	
7439-92-1	Lead	**6.4**	2.0	
7440-36-0	Antimony	**25**	2.0	
7782-49-2	Selenium	**21**	3.9	
7440-28-0	Thallium	ND	3.9	
7440-62-2	Vanadium	**49**	2.0	
7440-66-6	Zinc	**5.6**	2.0	

Comments: Aluminum reported from the analysis of 1/13/17.

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0020	Lab Sample ID:	AB65197
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	4.9	
7429-90-5	Aluminum	**7500**	110	
7440-38-2	Arsenic	**17**	9.8	
7440-39-3	Barium	**1100**	9.8	
7440-41-7	Beryllium	ND	3.9	
7440-70-2	Calcium	**6300**	49	
7440-43-9	Cadmium	**27**	4.9	
7440-48-4	Cobalt	**21**	9.8	
7440-47-3	Chromium	**140**	9.8	
7440-50-8	Copper	**680**	9.8	
7439-89-6	Iron	**110000**	20	
7439-95-4	Magnesium	**3600**	49	
7439-96-5	Manganese	**730**	9.8	
7440-02-0	Nickel	**100**	9.8	
7439-92-1	Lead	**2800**	9.8	
7440-36-0	Antimony	**16**	9.8	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	**29**	9.8	
7440-66-6	Zinc	**7200**	9.8	

Comments: Aluminum reported from the 5x dilution of 1/13/17.

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	1/04/2017	Amount Prepared:	N/A
Date of Analysis:	1/12/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	110	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	**43**	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	40	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Former Tombarello & Sons Property - Lawrence, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB65178

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Antimony	96.0	ND	21.0	21	75 - 125
Arsenic	96.0	9.5	106	101	75 - 125
Barium	96.0	97.0	205	112	75 - 125
Beryllium	38.0	ND	39.0	102	75 - 125
Cadmium	48.0	8.9	57.0	99	75 - 125
Chromium	86.0	58.0	152	109	75 - 125
Cobalt	96.0	24.0	120	100	75 - 125
Copper	96.0	510	573	R	75 - 125
Lead	96.0	480	685	R	75 - 125
Manganese	96.0	510	484	R	75 - 125
Nickel	96.0	170	268	102	75 - 125
Selenium	96.0	ND	96.0	100	75 - 125
Silver	19.0	ND	21.0	108	75 - 125
Thallium	96.0	ND	92.0	95	75 - 125
Vanadium	96.0	250	363	118	75 - 125
Zinc	96.0	770	815	R	75 - 125

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB65179

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aluminum	15000	15000	0	30
Antimony	ND	ND	NC	30
Arsenic	26.0	19	31	30
Barium	93.0	100	7.3	30
Beryllium	ND	ND	NC	30
Cadmium	4.2	4.6	9.1	30
Calcium	6800	7200	5.7	30
Chromium	57.0	52	9.2	30
Cobalt	20.0	20	0	30
Copper	200	230	14	30
Iron	30000	31000	3.3	30
Lead	280	290	3.5	30
Magnesium	8400	8400	0	30
Manganese	530	540	1.9	30
Nickel	110	110	0	30
Selenium	ND	ND	NC	30
Silver	ND	ND	NC	30
Thallium	ND	ND	NC	30
Vanadium	84.0	92	9.1	30
Zinc	360	390	8.0	30

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	1000	950	95	85 - 115
Antimony	1000	971	97	85 - 115
Arsenic	1000	965	97	85 - 115
Barium	1000	963	96	85 - 115
Beryllium	400	385	96	85 - 115
Cadmium	500	482	96	85 - 115
Calcium	10000	9770	98	85 - 115
Chromium	1000	989	99	85 - 115
Cobalt	1000	977	98	85 - 115
Copper	1000	987	99	85 - 115
Iron	1000	1020	102	85 - 115
Lead	1000	971	97	85 - 115
Magnesium	10000	10100	101	85 - 115
Manganese	1000	1010	101	85 - 115
Nickel	1000	972	97	85 - 115
Selenium	1000	954	95	85 - 115
Silver	200	191	96	85 - 115
Thallium	1000	943	94	85 - 115
Vanadium	1000	1000	100	85 - 115
Zinc	1000	978	98	85 - 115

Comments:

Former Tombarello & Sons Property - Lawrence, MA

Solid Laboratory Control Sample (LCS) Results

PARAMETER	LCS RESULTS mg/Kg	CONTROL LIMITS mg/Kg
Aluminum	7620	3200 - 13000
Antimony	52.6	21.4 - 255
Arsenic	98.2	69.6 - 131
Barium	204	160 - 278
Beryllium	143	111 - 185
Cadmium	81.2	61.3 - 110
Calcium	5760	4430 - 7590
Chromium	106	74.3 - 144
Cobalt	121	91.4 - 160
Copper	168	125 - 213
Iron	12600	5270 - 23900
Lead	80.2	61.8 - 115
Magnesium	2980	1930 - 3940
Manganese	304	233 - 390
Nickel	49.2	34.4 - 67.3
Selenium	87.8	56.2 - 119
Silver	40.0	27.3 - 55.4
Thallium	54.7	37.1 - 79.2
Vanadium	136	97.8 - 181
Zinc	143	98.2 - 192

Comments:

Samples in Batch: AB65178, AB65179, AB65180, AB65181, AB65182, AB65183, AB65184, AB65185, AB65186, AB65187, AB65188, AB65189, AB65191, AB65192, AB65193, AB65194, AB65195, AB65197

Page 1 of 2

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-122116-151332-0001
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 12/22/2016

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0001	TB-01A	PCB	Soil	12/21/2016	11:10	1	4 oz Jar	4 C	
	R01-161221TC-0001	TB-01A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:10	1	4 oz Jar	4 C	
	R01-161221TC-0002	TB-02A	PCB	Soil	12/21/2016	11:00	1	4 oz Jar	4 C	
	R01-161221TC-0002	TB-02A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:00	1	4 oz Jar	4 C	
	R01-161221TC-0003	TB-03A	PCB	Soil	12/21/2016	10:45	1	4 oz Jar	4 C	
	R01-161221TC-0003	TB-03A	RCRA8 Metals (include Hg)	Soil	12/21/2016	10:45	1	4 oz Jar	4 C	
	R01-161221TC-0004	TB-04A	PCB	Soil	12/21/2016	11:15	1	4 oz Jar	4 C	
	R01-161221TC-0004	TB-04A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:15	1	4 oz Jar	4 C	
	R01-161221TC-0005	TB-05A	PCB	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0005	TB-05A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0006	TB-06A	PCB	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0006	TB-06A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0007	TB-06B	PCB	Soil	12/21/2016	11:50	1	4 oz Jar	4 C	
	R01-161221TC-0007	TB-06B	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:50	1	4 oz Jar	4 C	
	R01-161221TC-0008	TB-07A	PCB	Soil	12/21/2016	11:40	1	4 oz Jar	4 C	
	R01-161221TC-0008	TB-07A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:40	1	4 oz Jar	4 C	
	R01-161221TC-0009	TB-08A	PCB	Soil	12/21/2016	12:05	1	4 oz Jar	4 C	
	R01-161221TC-0009	TB-08A	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:05	1	4 oz Jar	4 C	
	R01-161221TC-0010	TB-08B	PCB	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	12/22/16 0750		12/22/16 07:50	3°C

16120015 $PCBMS
16120015 $METMS_PE

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-122116-151332-0001
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 12/22/2016

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0010	TB-08B	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	
	R01-161221TC-0011	TB-09A	PCB	Soil	12/21/2016	11:55	1	4 oz Jar	4 C	
	R01-161221TC-0011	TB-09A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:55	1	4 oz Jar	4 C	
	R01-161221TC-0012	TB-100B	PCB	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	
	R01-161221TC-0012	TB-100B	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	
	R01-161221TC-0013	TB-10A	PCB	Soil	12/21/2016	12:25	1	4 oz Jar	4 C	
	R01-161221TC-0014	TB-13A	PCB	Soil	12/21/2016	12:50	1	4 oz Jar	4 C	Y
	R01-161221TC-0014	TB-13A	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:50	1	4 oz Jar	4 C	
	R01-161221TC-0015	TB-13B	PCB	Soil	12/21/2016	12:55	1	4 oz Jar	4 C	
	R01-161221TC-0015	TB-13B	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:55	1	4 oz Jar	4 C	Y
	R01-161221TC-0016	TB-14A	PCB	Soil	12/21/2016	13:25	1	4 oz Jar	4 C	
	R01-161221TC-0016	TB-14A	RCRA8 Metals (include Hg)	Soil	12/21/2016	13:25	1	4 oz Jar	4 C	
	R01-161221TC-0017	TB-15A	PCB	Soil	12/21/2016	13:45	1	4 oz Jar	4 C	
	R01-161221TC-0017	TB-15A	RCRA8 Metals (include Hg)	Soil	12/21/2016	13:45	1	4 oz Jar	4 C	
	R01-161221TC-0018	PE-IS7518	RCRA8 Metals (include Hg)	Lab Sand	12/21/2016	07:00	1	2 oz Jar	4 C	
	R01-161221TC-0019	PE-AS1897	PCB	Lab Sand	12/21/2016	07:00	1	2 oz Jar	4 C	
	R01-161221TC-0020	TB-12A	PCB	Soil	12/21/2016	12:10	1	4 oz Jar	4 C	
	R01-161221TC-0020	TB-12A	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:10	1	4 oz Jar	4 C	

Special Instructions: Please email results to condon.tom@epa.gov

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	12/22/16 0750	OSAT	12-22-16 07:50	3°C

16120015 $PCBMS
16120015 $METMS_PE

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

January 09, 2017

Tom Condon - Mail Code OSRR02-2
US EPA New England R1

Project Number: 16120015
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: PCBs Medium Level in Soils and Sediments
EPA Chemist: Aaron Zimmer

Date Samples Received by the Laboratory: 12/22/2016

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-PESTSOIL4.

The SOP is based on EPA SW-846 Method 8082A

The analysis was performed using high resolution capillary column gas chromatography equipped with dual electron capture detectors. The 30 meter dual capillary column system consists of a J&W DB-5 and J&W DB-1701,

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0001	Lab Sample ID:	AB65178
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	90%
Dry Weight Prepared:	4.563 grams	Extract Dilution:	25
Wet Weight Prepared:	5.075 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	2.7	
11104-28-2	Aroclor-1221	ND	2.7	
11141-16-5	Aroclor-1232	ND	2.7	
53469-21-9	Aroclor-1242	ND	2.7	
12672-29-6	Aroclor-1248	ND	2.7	
11097-69-1	Aroclor-1254	ND	2.7	
11096-82-5	Aroclor-1260	**23**	2.7	
11100-14-4	Aroclor-1262	ND	2.7	
37324-23-5	Aroclor-1268	ND	2.7	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	88	36 - 131
Decachlorobiphenyl	78	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0002	Lab Sample ID:	AB65179
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	89%
Dry Weight Prepared:	5.294 grams	Extract Dilution:	10
Wet Weight Prepared:	5.940 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.94	
11104-28-2	Aroclor-1221	ND	0.94	
11141-16-5	Aroclor-1232	ND	0.94	
53469-21-9	Aroclor-1242	ND	0.94	
12672-29-6	Aroclor-1248	ND	0.94	
11097-69-1	Aroclor-1254	ND	0.94	
11096-82-5	Aroclor-1260	**6.1**	0.94	
11100-14-4	Aroclor-1262	ND	0.94	
37324-23-5	Aroclor-1268	ND	0.94	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	95	36 - 131
Decachlorobiphenyl	117	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0003	Lab Sample ID:	AB65180
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	90%
Dry Weight Prepared:	6.009 grams	Extract Dilution:	5
Wet Weight Prepared:	6.649 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.42	
11104-28-2	Aroclor-1221	ND	0.42	
11141-16-5	Aroclor-1232	ND	0.42	
53469-21-9	Aroclor-1242	ND	0.42	
12672-29-6	Aroclor-1248	ND	0.42	
11097-69-1	Aroclor-1254	ND	0.42	
11096-82-5	Aroclor-1260	**2.8**	0.42	
11100-14-4	Aroclor-1262	ND	0.42	
37324-23-5	Aroclor-1268	ND	0.42	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	99	36 - 131
Decachlorobiphenyl	146	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0004	Lab Sample ID:	AB65181
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	88%
Dry Weight Prepared:	5.623 grams	Extract Dilution:	25
Wet Weight Prepared:	6.408 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	2.2	
11104-28-2	Aroclor-1221	ND	2.2	
11141-16-5	Aroclor-1232	ND	2.2	
53469-21-9	Aroclor-1242	ND	2.2	
12672-29-6	Aroclor-1248	ND	2.2	
11097-69-1	Aroclor-1254	ND	2.2	
11096-82-5	Aroclor-1260	**20**	2.2	
11100-14-4	Aroclor-1262	ND	2.2	
37324-23-5	Aroclor-1268	ND	2.2	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	86	36 - 131
Decachlorobiphenyl	126	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0005	Lab Sample ID:	AB65182
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	80%
Dry Weight Prepared:	6.091 grams	Extract Dilution:	200
Wet Weight Prepared:	7.635 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	16	
11104-28-2	Aroclor-1221	ND	16	
11141-16-5	Aroclor-1232	ND	16	
53469-21-9	Aroclor-1242	ND	16	
12672-29-6	Aroclor-1248	ND	16	
11097-69-1	Aroclor-1254	**250**	16	
11096-82-5	Aroclor-1260	**74**	16	
11100-14-4	Aroclor-1262	ND	16	
37324-23-5	Aroclor-1268	ND	16	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: NA - The large dilution impedes the quantitation of the surrogates.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0006	Lab Sample ID:	AB65183
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	86%
Dry Weight Prepared:	6.676 grams	Extract Dilution:	100
Wet Weight Prepared:	7.758 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	7.5	
11104-28-2	Aroclor-1221	ND	7.5	
11141-16-5	Aroclor-1232	ND	7.5	
53469-21-9	Aroclor-1242	ND	7.5	
12672-29-6	Aroclor-1248	ND	7.5	
11097-69-1	Aroclor-1254	ND	7.5	
11096-82-5	Aroclor-1260	**84**	7.5	
11100-14-4	Aroclor-1262	ND	7.5	
37324-23-5	Aroclor-1268	ND	7.5	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: NA - The large dilution impedes the quantitation of the surrogates.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0007	Lab Sample ID:	AB65184
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	83%
Dry Weight Prepared:	4.926 grams	Extract Dilution:	25
Wet Weight Prepared:	5.913 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	2.5	
11104-28-2	Aroclor-1221	ND	2.5	
11141-16-5	Aroclor-1232	ND	2.5	
53469-21-9	Aroclor-1242	ND	2.5	
12672-29-6	Aroclor-1248	ND	2.5	
11097-69-1	Aroclor-1254	ND	2.5	
11096-82-5	Aroclor-1260	**32**	2.5	
11100-14-4	Aroclor-1262	ND	2.5	
37324-23-5	Aroclor-1268	ND	2.5	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	110	36 - 131
Decachlorobiphenyl	110	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0008	Lab Sample ID:	AB65185
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	85%
Dry Weight Prepared:	6.075 grams	Extract Dilution:	25
Wet Weight Prepared:	7.118 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.10	
11104-28-2	Aroclor-1221	ND	0.10	
11141-16-5	Aroclor-1232	ND	0.10	
53469-21-9	Aroclor-1242	ND	0.10	
12672-29-6	Aroclor-1248	**35**	0.10	
11097-69-1	Aroclor-1254	ND	0.10	
11096-82-5	Aroclor-1260	**9.8**	0.10	
11100-14-4	Aroclor-1262	ND	0.10	
37324-23-5	Aroclor-1268	ND	0.10	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	97	36 - 131
Decachlorobiphenyl	98	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0009	Lab Sample ID:	AB65186
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	80%
Dry Weight Prepared:	5.778 grams	Extract Dilution:	1
Wet Weight Prepared:	7.231 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	**1.3**	0.09	
11100-14-4	Aroclor-1262	ND	0.09	
37324-23-5	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	76	36 - 131
Decachlorobiphenyl	203	30 - 165

Comments: Co-eluting constructive interference is observed for DCB on column B. TCX is within the appropriate parameters.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0010	Lab Sample ID:	AB65187
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	72%
Dry Weight Prepared:	5.457 grams	Extract Dilution:	1
Wet Weight Prepared:	7.550 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	**0.09**	0.09	
11100-14-4	Aroclor-1262	ND	0.09	
37324-23-5	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	91	36 - 131
Decachlorobiphenyl	104	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0011	Lab Sample ID:	AB65188
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	85%
Dry Weight Prepared:	7.035 grams	Extract Dilution:	50
Wet Weight Prepared:	8.254 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.6	
11104-28-2	Aroclor-1221	ND	3.6	
11141-16-5	Aroclor-1232	ND	3.6	
53469-21-9	Aroclor-1242	ND	3.6	
12672-29-6	Aroclor-1248	ND	3.6	
11097-69-1	Aroclor-1254	ND	3.6	
11096-82-5	Aroclor-1260	**23**	3.6	
11100-14-4	Aroclor-1262	ND	3.6	
37324-23-5	Aroclor-1268	ND	3.6	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: NA - The large dilution impedes the quantitation of the surrogates.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0012	Lab Sample ID:	AB65189
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	72%
Dry Weight Prepared:	5.767 grams	Extract Dilution:	1
Wet Weight Prepared:	8.043 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	**0.11**	0.09	
11100-14-4	Aroclor-1262	ND	0.09	
37324-23-5	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	82	36 - 131
Decachlorobiphenyl	102	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0013	Lab Sample ID:	AB65190
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	80%
Dry Weight Prepared:	6.906 grams	Extract Dilution:	50
Wet Weight Prepared:	8.677 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.6	
11104-28-2	Aroclor-1221	ND	3.6	
11141-16-5	Aroclor-1232	ND	3.6	
53469-21-9	Aroclor-1242	ND	3.6	
12672-29-6	Aroclor-1248	**21**	3.6	
11097-69-1	Aroclor-1254	ND	3.6	
11096-82-5	Aroclor-1260	**54**	3.6	
11100-14-4	Aroclor-1262	ND	3.6	
37324-23-5	Aroclor-1268	ND	3.6	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: NA - The large dilution impedes the quantitation of the surrogates.

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PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0014	Lab Sample ID:	AB65191
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	90%
Dry Weight Prepared:	6.498 grams	Extract Dilution:	100
Wet Weight Prepared:	7.236 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	7.7	
11104-28-2	Aroclor-1221	ND	7.7	
11141-16-5	Aroclor-1232	ND	7.7	
53469-21-9	Aroclor-1242	ND	7.7	
12672-29-6	Aroclor-1248	ND	7.7	
11097-69-1	Aroclor-1254	ND	7.7	
11096-82-5	Aroclor-1260	**58**	7.7	
11100-14-4	Aroclor-1262	ND	7.7	
37324-23-5	Aroclor-1268	ND	7.7	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: NA - The large dilution impedes the quantitation of the surrogates.

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PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0015	Lab Sample ID:	AB65192
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	74%
Dry Weight Prepared:	5.507 grams	Extract Dilution:	10
Wet Weight Prepared:	7.396 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.91	
11104-28-2	Aroclor-1221	ND	0.91	
11141-16-5	Aroclor-1232	ND	0.91	
53469-21-9	Aroclor-1242	ND	0.91	
12672-29-6	Aroclor-1248	ND	0.91	
11097-69-1	Aroclor-1254	ND	0.91	
11096-82-5	Aroclor-1260	**4.3**	0.91	
11100-14-4	Aroclor-1262	ND	0.91	
37324-23-5	Aroclor-1268	ND	0.91	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	99	36 - 131
Decachlorobiphenyl	155	30 - 165

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PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0016	Lab Sample ID:	AB65193
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	86%
Dry Weight Prepared:	6.923 grams	Extract Dilution:	100
Wet Weight Prepared:	8.066 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	7.2	
11104-28-2	Aroclor-1221	ND	7.2	
11141-16-5	Aroclor-1232	ND	7.2	
53469-21-9	Aroclor-1242	ND	7.2	
12672-29-6	Aroclor-1248	ND	7.2	
11097-69-1	Aroclor-1254	ND	7.2	
11096-82-5	Aroclor-1260	**36**	7.2	
11100-14-4	Aroclor-1262	ND	7.2	
37324-23-5	Aroclor-1268	ND	7.2	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: NA - The large dilution impedes the quantitation of the surrogates.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0017	Lab Sample ID:	AB65194
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/31/2016	Percent Solids:	84%
Dry Weight Prepared:	7.002 grams	Extract Dilution:	100
Wet Weight Prepared:	8.306 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	7.1	
11104-28-2	Aroclor-1221	ND	7.1	
11141-16-5	Aroclor-1232	ND	7.1	
53469-21-9	Aroclor-1242	ND	7.1	
12672-29-6	Aroclor-1248	ND	7.1	
11097-69-1	Aroclor-1254	ND	7.1	
11096-82-5	Aroclor-1260	**130**	7.1	
11100-14-4	Aroclor-1262	ND	7.1	
37324-23-5	Aroclor-1268	ND	7.1	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: NA - The large dilution impedes the quantitation of the surrogates.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0019	Lab Sample ID:	AB65196
Date of Collection:	12/21/2016	Matrix:	Lab Sand
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	99%
Dry Weight Prepared:	4.970 grams	Extract Dilution:	1
Wet Weight Prepared:	5.003 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.10	
11104-28-2	Aroclor-1221	ND	0.10	
11141-16-5	Aroclor-1232	ND	0.10	
53469-21-9	Aroclor-1242	ND	0.10	
12672-29-6	Aroclor-1248	ND	0.10	
11097-69-1	Aroclor-1254	**0.77**	0.10	
11096-82-5	Aroclor-1260	ND	0.10	
11100-14-4	Aroclor-1262	ND	0.10	
37324-23-5	Aroclor-1268	ND	0.10	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	66	36 - 131
Decachlorobiphenyl	80	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0020	Lab Sample ID:	AB65197
Date of Collection:	12/21/2016	Matrix:	Soil
Date of Preparation:	12/27/2016	Amount Prepared:	N/A
Date of Analysis:	12/31/2016	Percent Solids:	87%
Dry Weight Prepared:	6.174 grams	Extract Dilution:	10
Wet Weight Prepared:	7.093 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.81	
11104-28-2	Aroclor-1221	ND	0.81	
11141-16-5	Aroclor-1232	ND	0.81	
53469-21-9	Aroclor-1242	ND	0.81	
12672-29-6	Aroclor-1248	ND	0.81	
11097-69-1	Aroclor-1254	ND	0.81	
11096-82-5	Aroclor-1260	**2.4**	0.81	
11100-14-4	Aroclor-1262	ND	0.81	
37324-23-5	Aroclor-1268	ND	0.81	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	91	36 - 131
Decachlorobiphenyl	126	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	12/23/2016	Amount Prepared:	N/A
Date of Analysis:	12/30/2016	Percent Solids:	100%
Dry Weight Prepared:	5.063 grams	Extract Dilution:	1
Wet Weight Prepared:	5.064 grams	pH:	N/A

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.10	
11104-28-2	Aroclor-1221	ND	0.10	
11141-16-5	Aroclor-1232	ND	0.10	
53469-21-9	Aroclor-1242	ND	0.10	
12672-29-6	Aroclor-1248	ND	0.10	
11097-69-1	Aroclor-1254	ND	0.10	
11096-82-5	Aroclor-1260	ND	0.10	
11100-14-4	Aroclor-1262	ND	0.10	
37324-23-5	Aroclor-1268	ND	0.10	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	89	36 - 131
Decachlorobiphenyl	103	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB65186

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Aroclor-1016	0.53	ND	0.72	136	61 - 122
Aroclor-1260	0.53	1.3	1.6	57	36 - 154

Comments: Matrix spike recovery for Aroclor-1016 is outside of the QC limit. Spike recovery for Aroclor-1260 was within specification.

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB65186

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aroclor-1016	ND	ND	NC	50
Aroclor-1221	ND	ND	NC	50
Aroclor-1232	ND	ND	NC	50
Aroclor-1242	ND	ND	NC	50
Aroclor-1248	ND	ND	NC	50
Aroclor-1254	ND	ND	NC	50
Aroclor-1260	1.3	1.1	17	50
Aroclor-1262	ND	ND	NC	50
Aroclor-1268	ND	ND	NC	50

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED mg/Kg	LFB RESULT mg/Kg	LFB RECOVERY %	QC LIMITS %
Aroclor-1016	0.600	0.636	106	70 - 130
Aroclor-1260	0.600	0.672	112	70 - 130

Comments:

Samples in Batch: AB65178, AB65179, AB65180, AB65181, AB65182, AB65183, AB65184, AB65185, AB65186, AB65187, AB65188, AB65189, AB65190, AB65191, AB65192, AB65193, AB65194, AB65196, AB65197

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Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-122116-151332-0001
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 12/22/2016

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0001	TB-01A	PCB	Soil	12/21/2016	11:10	1	4 oz Jar	4 C	
	R01-161221TC-0001	TB-01A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:10	1	4 oz Jar	4 C	
	R01-161221TC-0002	TB-02A	PCB	Soil	12/21/2016	11:00	1	4 oz Jar	4 C	
	R01-161221TC-0002	TB-02A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:00	1	4 oz Jar	4 C	
	R01-161221TC-0003	TB-03A	PCB	Soil	12/21/2016	10:45	1	4 oz Jar	4 C	
	R01-161221TC-0003	TB-03A	RCRA8 Metals (include Hg)	Soil	12/21/2016	10:45	1	4 oz Jar	4 C	
	R01-161221TC-0004	TB-04A	PCB	Soil	12/21/2016	11:15	1	4 oz Jar	4 C	
	R01-161221TC-0004	TB-04A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:15	1	4 oz Jar	4 C	
	R01-161221TC-0005	TB-05A	PCB	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0005	TB-05A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0006	TB-06A	PCB	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0006	TB-06A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:30	1	4 oz Jar	4 C	
	R01-161221TC-0007	TB-06B	PCB	Soil	12/21/2016	11:50	1	4 oz Jar	4 C	
	R01-161221TC-0007	TB-06B	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:50	1	4 oz Jar	4 C	
	R01-161221TC-0008	TB-07A	PCB	Soil	12/21/2016	11:40	1	4 oz Jar	4 C	
	R01-161221TC-0008	TB-07A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:40	1	4 oz Jar	4 C	
	R01-161221TC-0009	TB-08A	PCB	Soil	12/21/2016	12:05	1	4 oz Jar	4 C	
	R01-161221TC-0009	TB-08A	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:05	1	4 oz Jar	4 C	
	R01-161221TC-0010	TB-08B	PCB	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	12/22/16 0750		12/22/16 07:50	3°C

16120015 $PCBMS
16120015 $METMS_PE

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-122116-151332-0001
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 12/22/2016

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0010	TB-08B	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	
	R01-161221TC-0011	TB-09A	PCB	Soil	12/21/2016	11:55	1	4 oz Jar	4 C	
	R01-161221TC-0011	TB-09A	RCRA8 Metals (include Hg)	Soil	12/21/2016	11:55	1	4 oz Jar	4 C	
	R01-161221TC-0012	TB-100B	PCB	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	
	R01-161221TC-0012	TB-100B	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:20	1	4 oz Jar	4 C	
	R01-161221TC-0013	TB-10A	PCB	Soil	12/21/2016	12:25	1	4 oz Jar	4 C	
	R01-161221TC-0014	TB-13A	PCB	Soil	12/21/2016	12:50	1	4 oz Jar	4 C	Y
	R01-161221TC-0014	TB-13A	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:50	1	4 oz Jar	4 C	
	R01-161221TC-0015	TB-13B	PCB	Soil	12/21/2016	12:55	1	4 oz Jar	4 C	
	R01-161221TC-0015	TB-13B	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:55	1	4 oz Jar	4 C	Y
	R01-161221TC-0016	TB-14A	PCB	Soil	12/21/2016	13:25	1	4 oz Jar	4 C	
	R01-161221TC-0016	TB-14A	RCRA8 Metals (include Hg)	Soil	12/21/2016	13:25	1	4 oz Jar	4 C	
	R01-161221TC-0017	TB-15A	PCB	Soil	12/21/2016	13:45	1	4 oz Jar	4 C	
	R01-161221TC-0017	TB-15A	RCRA8 Metals (include Hg)	Soil	12/21/2016	13:45	1	4 oz Jar	4 C	
	R01-161221TC-0018	PE-IS7518	RCRA8 Metals (include Hg)	Lab Sand	12/21/2016	07:00	1	2 oz Jar	4 C	
	R01-161221TC-0019	PE-AS1897	PCB	Lab Sand	12/21/2016	07:00	1	2 oz Jar	4 C	
	R01-161221TC-0020	TB-12A	PCB	Soil	12/21/2016	12:10	1	4 oz Jar	4 C	
	R01-161221TC-0020	TB-12A	RCRA8 Metals (include Hg)	Soil	12/21/2016	12:10	1	4 oz Jar	4 C	

Special Instructions: Please email results to condon.tom@epa.gov

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
OEME	Weston	12/22/16 0750	OSAT	12-22-16 07:50	3°C

16120015 $PCBMS
16120015 $METMS_PE

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

July 24, 2017

Tom Condon - Mail Code OSRR02-2
Jerry keefe - EIA / OEME
US EPA New England R1

Project Number: 17060047
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: PCBs Medium Level in Soils and Sediments
EPA Chemist: Aaron Zimmer

Date Samples Received by the Laboratory: 06/28/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-PESTSOIL4.

The SOP is based on EPA SW-846 Method 8082A

The analysis was performed using high resolution capillary column gas chromatography equipped with dual electron capture detectors. The 30 meter dual capillary column system consists of a J&W DB-5 and J&W DB-1701,

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0022	Lab Sample ID:	AB68023
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	91%
Dry Weight Prepared:	6.536 grams	Extract Dilution:	50
Wet Weight Prepared:	7.146 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.8	
11104-28-2	Aroclor-1221	ND	3.8	
11141-16-5	Aroclor-1232	ND	3.8	
53469-21-9	Aroclor-1242	ND	3.8	
12672-29-6	Aroclor-1248	ND	3.8	
11097-69-1	Aroclor-1254	ND	3.8	
11096-82-5	Aroclor-1260	**23**	3.8	
37234-23-5	Aroclor-1262	ND	3.8	
11100-14-4	Aroclor-1268	ND	3.8	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0023	Lab Sample ID:	AB68024
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	80%
Dry Weight Prepared:	5.551 grams	Extract Dilution:	1
Wet Weight Prepared:	6.972 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	**0.23**	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	78	36 - 131
Decachlorobiphenyl	89	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0024	Lab Sample ID:	AB68025
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	93%
Dry Weight Prepared:	5.335 grams	Extract Dilution:	25
Wet Weight Prepared:	5.737 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	2.3	
11104-28-2	Aroclor-1221	ND	2.3	
11141-16-5	Aroclor-1232	ND	2.3	
53469-21-9	Aroclor-1242	ND	2.3	
12672-29-6	Aroclor-1248	ND	2.3	
11097-69-1	Aroclor-1254	ND	2.3	
11096-82-5	Aroclor-1260	**11**	2.3	
37234-23-5	Aroclor-1262	ND	2.3	
11100-14-4	Aroclor-1268	ND	2.3	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0025	Lab Sample ID:	AB68026
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	79%
Dry Weight Prepared:	5.713 grams	Extract Dilution:	1
Wet Weight Prepared:	7.234 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	ND	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	90	36 - 131
Decachlorobiphenyl	105	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0026	Lab Sample ID:	AB68027
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	94%
Dry Weight Prepared:	6.427 grams	Extract Dilution:	5
Wet Weight Prepared:	6.840 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.39	
11104-28-2	Aroclor-1221	ND	0.39	
11141-16-5	Aroclor-1232	ND	0.39	
53469-21-9	Aroclor-1242	ND	0.39	
12672-29-6	Aroclor-1248	ND	0.39	
11097-69-1	Aroclor-1254	ND	0.39	
11096-82-5	Aroclor-1260	**2.8**	0.39	
37234-23-5	Aroclor-1262	ND	0.39	
11100-14-4	Aroclor-1268	ND	0.39	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	108	36 - 131
Decachlorobiphenyl	127	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0027	Lab Sample ID:	AB68028
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/10/2017	Percent Solids:	80%
Dry Weight Prepared:	6.969 grams	Extract Dilution:	1
Wet Weight Prepared:	8.730 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.07	
11104-28-2	Aroclor-1221	ND	0.07	
11141-16-5	Aroclor-1232	ND	0.07	
53469-21-9	Aroclor-1242	ND	0.07	
12672-29-6	Aroclor-1248	ND	0.07	
11097-69-1	Aroclor-1254	ND	0.07	
11096-82-5	Aroclor-1260	ND	0.07	
37234-23-5	Aroclor-1262	**0.077**	0.07	
11100-14-4	Aroclor-1268	ND	0.07	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	89	36 - 131
Decachlorobiphenyl	106	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0028	Lab Sample ID:	AB68029
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	91%
Dry Weight Prepared:	5.793 grams	Extract Dilution:	25
Wet Weight Prepared:	6.347 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	2.2	
11104-28-2	Aroclor-1221	ND	2.2	
11141-16-5	Aroclor-1232	ND	2.2	
53469-21-9	Aroclor-1242	ND	2.2	
12672-29-6	Aroclor-1248	ND	2.2	
11097-69-1	Aroclor-1254	ND	2.2	
11096-82-5	Aroclor-1260	**7.4**	2.2	
37234-23-5	Aroclor-1262	ND	2.2	
11100-14-4	Aroclor-1268	ND	2.2	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0029	Lab Sample ID:	AB68030
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	77%
Dry Weight Prepared:	5.830 grams	Extract Dilution:	1
Wet Weight Prepared:	7.581 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	**0.75**	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	83	36 - 131
Decachlorobiphenyl	99	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0030	Lab Sample ID:	AB68031
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	88%
Dry Weight Prepared:	6.753 grams	Extract Dilution:	250
Wet Weight Prepared:	7.678 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	19	
11104-28-2	Aroclor-1221	ND	19	
11141-16-5	Aroclor-1232	ND	19	
53469-21-9	Aroclor-1242	ND	19	
12672-29-6	Aroclor-1248	ND	19	
11097-69-1	Aroclor-1254	ND	19	
11096-82-5	Aroclor-1260	**110**	19	
37234-23-5	Aroclor-1262	ND	19	
11100-14-4	Aroclor-1268	ND	19	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0031	Lab Sample ID:	AB68032
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	88%
Dry Weight Prepared:	6.480 grams	Extract Dilution:	50
Wet Weight Prepared:	7.379 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.9	
11104-28-2	Aroclor-1221	ND	3.9	
11141-16-5	Aroclor-1232	ND	3.9	
53469-21-9	Aroclor-1242	ND	3.9	
12672-29-6	Aroclor-1248	ND	3.9	
11097-69-1	Aroclor-1254	ND	3.9	
11096-82-5	Aroclor-1260	**17**	3.9	
37234-23-5	Aroclor-1262	ND	3.9	
11100-14-4	Aroclor-1268	ND	3.9	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0032	Lab Sample ID:	AB68033
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	87%
Dry Weight Prepared:	6.114 grams	Extract Dilution:	50
Wet Weight Prepared:	7.061 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	4.1	
11104-28-2	Aroclor-1221	ND	4.1	
11141-16-5	Aroclor-1232	ND	4.1	
53469-21-9	Aroclor-1242	ND	4.1	
12672-29-6	Aroclor-1248	ND	4.1	
11097-69-1	Aroclor-1254	ND	4.1	
11096-82-5	Aroclor-1260	**36**	4.1	
37234-23-5	Aroclor-1262	ND	4.1	
11100-14-4	Aroclor-1268	ND	4.1	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0033	Lab Sample ID:	AB68034
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	85%
Dry Weight Prepared:	6.105 grams	Extract Dilution:	100
Wet Weight Prepared:	7.159 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	8.2	
11104-28-2	Aroclor-1221	ND	8.2	
11141-16-5	Aroclor-1232	ND	8.2	
53469-21-9	Aroclor-1242	ND	8.2	
12672-29-6	Aroclor-1248	ND	8.2	
11097-69-1	Aroclor-1254	ND	8.2	
11096-82-5	Aroclor-1260	**55**	8.2	
37234-23-5	Aroclor-1262	ND	8.2	
11100-14-4	Aroclor-1268	ND	8.2	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0034	Lab Sample ID:	AB68035
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	88%
Dry Weight Prepared:	6.095 grams	Extract Dilution:	10
Wet Weight Prepared:	6.947 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.82	
11104-28-2	Aroclor-1221	ND	0.82	
11141-16-5	Aroclor-1232	ND	0.82	
53469-21-9	Aroclor-1242	ND	0.82	
12672-29-6	Aroclor-1248	ND	0.82	
11097-69-1	Aroclor-1254	ND	0.82	
11096-82-5	Aroclor-1260	**7.0**	0.82	
37234-23-5	Aroclor-1262	ND	0.82	
11100-14-4	Aroclor-1268	ND	0.82	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0035	Lab Sample ID:	AB68036
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	74%
Dry Weight Prepared:	5.806 grams	Extract Dilution:	1
Wet Weight Prepared:	7.884 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	ND	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	83	36 - 131
Decachlorobiphenyl	104	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0036	Lab Sample ID:	AB68037
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/10/2017	Percent Solids:	88%
Dry Weight Prepared:	6.032 grams	Extract Dilution:	250
Wet Weight Prepared:	6.858 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	21	
11104-28-2	Aroclor-1221	ND	21	
11141-16-5	Aroclor-1232	ND	21	
53469-21-9	Aroclor-1242	ND	21	
12672-29-6	Aroclor-1248	**270**	21	
11097-69-1	Aroclor-1254	ND	21	
11096-82-5	Aroclor-1260	ND	21	
37234-23-5	Aroclor-1262	ND	21	
11100-14-4	Aroclor-1268	ND	21	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0037	Lab Sample ID:	AB68038
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/10/2017	Percent Solids:	76%
Dry Weight Prepared:	5.762 grams	Extract Dilution:	250
Wet Weight Prepared:	7.609 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	22	
11104-28-2	Aroclor-1221	ND	22	
11141-16-5	Aroclor-1232	ND	22	
53469-21-9	Aroclor-1242	ND	22	
12672-29-6	Aroclor-1248	**170**	22	
11097-69-1	Aroclor-1254	ND	22	
11096-82-5	Aroclor-1260	ND	22	
37234-23-5	Aroclor-1262	ND	22	
11100-14-4	Aroclor-1268	ND	22	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0038	Lab Sample ID:	AB68039
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/11/2017	Percent Solids:	83%
Dry Weight Prepared:	5.699 grams	Extract Dilution:	250
Wet Weight Prepared:	6.841 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	22	
11104-28-2	Aroclor-1221	ND	22	
11141-16-5	Aroclor-1232	ND	22	
53469-21-9	Aroclor-1242	ND	22	
12672-29-6	Aroclor-1248	ND	22	
11097-69-1	Aroclor-1254	ND	22	
11096-82-5	Aroclor-1260	**93**	22	
37234-23-5	Aroclor-1262	ND	22	
11100-14-4	Aroclor-1268	ND	22	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0039	Lab Sample ID:	AB68040
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/10/2017	Percent Solids:	75%
Dry Weight Prepared:	5.766 grams	Extract Dilution:	1
Wet Weight Prepared:	7.684 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	**0.15**	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	74	36 - 131
Decachlorobiphenyl	99	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0040	Lab Sample ID:	AB68041
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/10/2017	Percent Solids:	88%
Dry Weight Prepared:	6.779 grams	Extract Dilution:	250
Wet Weight Prepared:	7.672 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	18	
11104-28-2	Aroclor-1221	ND	18	
11141-16-5	Aroclor-1232	ND	18	
53469-21-9	Aroclor-1242	ND	18	
12672-29-6	Aroclor-1248	ND	18	
11097-69-1	Aroclor-1254	ND	18	
11096-82-5	Aroclor-1260	**200**	18	
37234-23-5	Aroclor-1262	ND	18	
11100-14-4	Aroclor-1268	ND	18	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates were not reported as a result of the sample dilution.

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	6/29/2017	Amount Prepared:	N/A
Date of Analysis:	7/10/2017	Percent Solids:	100%
Dry Weight Prepared:	5.101 grams	Extract Dilution:	1
Wet Weight Prepared:	5.102 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.10	
11104-28-2	Aroclor-1221	ND	0.10	
11141-16-5	Aroclor-1232	ND	0.10	
53469-21-9	Aroclor-1242	ND	0.10	
12672-29-6	Aroclor-1248	ND	0.10	
11097-69-1	Aroclor-1254	ND	0.10	
11096-82-5	Aroclor-1260	ND	0.10	
37234-23-5	Aroclor-1262	ND	0.10	
11100-14-4	Aroclor-1268	ND	0.10	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	80	36 - 131
Decachlorobiphenyl	98	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68024

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Aroclor-1254	0.55	ND	0.55	100	34 - 152

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB68024

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aroclor-1016	ND	ND	NC	50
Aroclor-1221	ND	ND	NC	50
Aroclor-1232	ND	ND	NC	50
Aroclor-1242	ND	ND	NC	50
Aroclor-1248	ND	ND	NC	50
Aroclor-1254	ND	ND	NC	50
Aroclor-1260	0.23	0.21	9.1	50
Aroclor-1262	ND	ND	NC	50
Aroclor-1268	ND	ND	NC	50

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED mg/Kg	LFB RESULT mg/Kg	LFB RECOVERY %	QC LIMITS %
Aroclor-1016	0.57	0.62	109	70 - 130
Aroclor-1260	0.57	0.65	114	70 - 130

Comments:

Samples in Batch: AB68023, AB68024, AB68025, AB68026, AB68027, AB68028, AB68029, AB68030, AB68031, AB68032, AB68033, AB68034, AB68035, AB68036, AB68037, AB68038, AB68039, AB68040, AB68041

PN-17060047

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0022	SB-200A	Metals	Soil	6/27/2017	09:10	1	4 oz Jar	4 C	Y
	R01-161221TC-0022	SB-200A	PCB	Soil	6/27/2017	09:10	1	4 oz Jar	4 C	Y
	R01-161221TC-0023	SB-200B	PCB	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0023	SB-200B	Metals	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0024	SB-201A	PCB	Soil	6/27/2017	09:30	1	4 oz Jar	4 C	N
	R01-161221TC-0024	SB-201A	Metals	Soil	6/27/2017	09:30	1	4 oz Jar	4 C	N
	R01-161221TC-0025	SB-201B	PCB	Soil	6/27/2017	09:35	1	4 oz Jar	4 C	N
	R01-161221TC-0025	SB-201B	Metals	Soil	6/27/2017	09:35	1	4 oz Jar	4 C	N
	R01-161221TC-0026	SB-202A	PCB	Soil	6/27/2017	09:45	1	4 oz Jar	4 C	N
	R01-161221TC-0026	SB-202A	Metals	Soil	6/27/2017	09:45	1	4 oz Jar	4 C	N
	R01-161221TC-0027	SB-202B	Metals	Soil	6/27/2017	09:50	1	4 oz Jar	4 C	N
	R01-161221TC-0027	SB-202B	PCB	Soil	6/27/2017	09:50	1	4 oz Jar	4 C	N
	R01-161221TC-0028	SB-203A	PCB	Soil	6/27/2017	09:55	1	4 oz Jar	4 C	N
	R01-161221TC-0028	SB-203A	Metals	Soil	6/27/2017	09:55	1	4 oz Jar	4 C	N
	R01-161221TC-0029	SB-203B	PCB	Soil	6/27/2017	10:00	1	4 oz Jar	4 C	N
	R01-161221TC-0029	SB-203B	Metals	Soil	6/27/2017	10:00	1	4 oz Jar	4 C	N
	R01-161221TC-0030	SB-204A	Metals	Soil	6/27/2017	10:10	1	4 oz Jar	4 C	N
	R01-161221TC-0030	SB-204A	PCB	Soil	6/27/2017	10:10	1	4 oz Jar	4 C	N
	R01-161221TC-0031	SB-204B	Metals	Soil	6/27/2017	10:15	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6-28-17/1200	ESAT	6-28-17 12.00	

17060047 $PCBMS
17060047 $METMS_PE

PN:170C0047

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0031	SB-204B	PCB	Soil	6/27/2017	10:15	1	4 oz Jar	4 C	N
	R01-161221TC-0032	SB-205A	PCB	Soil	6/27/2017	10:25	1	4 oz Jar	4 C	N
	R01-161221TC-0032	SB-205A	Metals	Soil	6/27/2017	10:25	1	4 oz Jar	4 C	N
	R01-161221TC-0033	SB-205B	PCB	Soil	6/27/2017	10:30	1	4 oz Jar	4 C	N
	R01-161221TC-0033	SB-205B	Metals	Soil	6/27/2017	10:30	1	4 oz Jar	4 C	N
	R01-161221TC-0034	SB-206A	PCB	Soil	6/27/2017	10:40	1	4 oz Jar	4 C	N
	R01-161221TC-0034	SB-206A	Metals	Soil	6/27/2017	10:40	1	4 oz Jar	4 C	N
	R01-161221TC-0035	SB-206B	PCB	Soil	6/27/2017	10:45	1	4 oz Jar	4 C	N
	R01-161221TC-0035	SB-206B	Metals	Soil	6/27/2017	10:45	1	4 oz Jar	4 C	N
	R01-161221TC-0036	SB-207A	Metals	Soil	6/27/2017	10:55	1	4 oz Jar	4 C	N
	R01-161221TC-0036	SB-207A	PCB	Soil	6/27/2017	10:55	1	4 oz Jar	4 C	N
	R01-161221TC-0037	SB-207B	PCB	Soil	6/27/2017	11:00	1	4 oz Jar	4 C	N
	R01-161221TC-0037	SB-207B	Metals	Soil	6/27/2017	11:00	1	4 oz Jar	4 C	N
	R01-161221TC-0038	SB-208A	PCB	Soil	6/27/2017	11:05	1	4 oz Jar	4 C	N
	R01-161221TC-0038	SB-208A	Metals	Soil	6/27/2017	11:05	1	4 oz Jar	4 C	N
	R01-161221TC-0039	SB-208B	PCB	Soil	6/27/2017	11:10	1	4 oz Jar	4 C	N
	R01-161221TC-0039	SB-208B	Metals	Soil	6/27/2017	11:10	1	4 oz Jar	4 C	N
	R01-161221TC-0040	SB-209A	Metals	Soil	6/27/2017	11:20	1	4 oz Jar	4 C	N
	R01-161221TC-0040	SB-209A	PCB	Soil	6/27/2017	11:20	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6.28.17/1200	EST	6-28-17 12.00	

17060047 $PCBMS
17060047 $METMS_PE

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 01, 2017

Tom Condon - Mail Code OSRR02-2
Jerry keefe - EIA / OEME
US EPA New England R1

Project Number: 17060047
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: Metals in Soil Medium Level by ICP
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 06/28/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8

Preparation and analysis SOP's are based on "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 2, Final Update III, Methods 3050B and 6010B," respectively. Samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

All sample results reported mg/kg, dry weight basis.

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0022	Lab Sample ID:	AB68023
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**18000**	44	
7440-38-2	Arsenic	**27**	4.0	
7440-39-3	Barium	**130**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**6500**	20	
7440-43-9	Cadmium	**11**	2.0	
7440-48-4	Cobalt	**30**	4.0	
7440-47-3	Chromium	**55**	4.0	
7440-50-8	Copper	**1200**	4.0	
7439-89-6	Iron	**37000**	8.0	
7439-95-4	Magnesium	**7900**	20	
7439-96-5	Manganese	**520**	4.0	
7440-02-0	Nickel	**150**	4.0	
7439-92-1	Lead	**420**	4.0	
7440-36-0	Antimony	ND	4.0	J1
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	4.0	
7440-62-2	Vanadium	**160**	4.0	
7440-66-6	Zinc	**790**	4.0	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0023	Lab Sample ID:	AB68024
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	3.0	
7429-90-5	Aluminum	**17000**	22	
7440-38-2	Arsenic	**8.8**	2.0	
7440-39-3	Barium	**29**	2.0	
7440-41-7	Beryllium	ND	0.80	
7440-70-2	Calcium	**830**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**5.0**	2.0	
7440-47-3	Chromium	**22**	2.0	
7440-50-8	Copper	**11**	2.0	
7439-89-6	Iron	**16000**	4.0	
7439-95-4	Magnesium	**3100**	10	
7439-96-5	Manganese	**230**	2.0	
7440-02-0	Nickel	**13**	2.0	
7439-92-1	Lead	**13**	2.0	
7440-36-0	Antimony	ND	2.0	
7782-49-2	Selenium	ND	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**32**	2.0	
7440-66-6	Zinc	**41**	2.0	

Comments: The result for silver reported from a 3x dilution of 7/14/2017.

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0024	Lab Sample ID:	AB68025
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**16000**	43	
7440-38-2	Arsenic	**15**	3.9	
7440-39-3	Barium	**130**	3.9	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**7500**	20	
7440-43-9	Cadmium	**8.9**	2.0	
7440-48-4	Cobalt	**21**	3.9	
7440-47-3	Chromium	**70**	3.9	
7440-50-8	Copper	**400**	3.9	
7439-89-6	Iron	**35000**	7.8	
7439-95-4	Magnesium	**10000**	20	
7439-96-5	Manganese	**510**	3.9	
7440-02-0	Nickel	**180**	3.9	
7439-92-1	Lead	**610**	3.9	
7440-36-0	Antimony	**4.7**	3.9	
7782-49-2	Selenium	ND	7.8	
7440-28-0	Thallium	ND	3.9	
7440-62-2	Vanadium	**150**	3.9	
7440-66-6	Zinc	**740**	3.9	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0025	Lab Sample ID:	AB68026
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.9	
7429-90-5	Aluminum	**16000**	21	
7440-38-2	Arsenic	**8.3**	1.9	
7440-39-3	Barium	**29**	1.9	
7440-41-7	Beryllium	ND	0.77	
7440-70-2	Calcium	**1400**	9.6	
7440-43-9	Cadmium	ND	0.96	
7440-48-4	Cobalt	**5.2**	1.9	
7440-47-3	Chromium	**19**	1.9	
7440-50-8	Copper	**12**	1.9	
7439-89-6	Iron	**16000**	3.8	
7439-95-4	Magnesium	**3300**	9.6	
7439-96-5	Manganese	**200**	1.9	
7440-02-0	Nickel	**20**	1.9	
7439-92-1	Lead	**13**	1.9	
7440-36-0	Antimony	ND	1.9	
7782-49-2	Selenium	ND	3.8	
7440-28-0	Thallium	ND	1.9	
7440-62-2	Vanadium	**110**	1.9	
7440-66-6	Zinc	**40**	1.9	

Comments: The result for silver reported from a 3x dilution of 7/17/2017.

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0026	Lab Sample ID:	AB68027
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	4
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	4.0	
7429-90-5	Aluminum	**11000**	88	
7440-38-2	Arsenic	**14**	8.0	
7440-39-3	Barium	**150**	8.0	
7440-41-7	Beryllium	ND	3.2	
7440-70-2	Calcium	**7200**	40	
7440-43-9	Cadmium	ND	4.0	
7440-48-4	Cobalt	**12**	8.0	
7440-47-3	Chromium	**48**	8.0	
7440-50-8	Copper	**8200**	8.0	
7439-89-6	Iron	**27000**	16	
7439-95-4	Magnesium	**4800**	40	
7439-96-5	Manganese	**270**	8.0	
7440-02-0	Nickel	**240**	8.0	
7439-92-1	Lead	**450**	8.0	
7440-36-0	Antimony	ND	8.0	
7782-49-2	Selenium	ND	16	
7440-28-0	Thallium	ND	8.0	
7440-62-2	Vanadium	**1100**	8.0	
7440-66-6	Zinc	**500**	8.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0027	Lab Sample ID:	AB68028
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	0.98	
7429-90-5	Aluminum	**15000**	22	
7440-38-2	Arsenic	**9.9**	2.0	
7440-39-3	Barium	**110**	2.0	
7440-41-7	Beryllium	ND	0.78	
7440-70-2	Calcium	**2200**	9.8	
7440-43-9	Cadmium	**1.3**	0.98	
7440-48-4	Cobalt	**5.3**	2.0	
7440-47-3	Chromium	**24**	2.0	
7440-50-8	Copper	**71**	2.0	
7439-89-6	Iron	**17000**	3.9	
7439-95-4	Magnesium	**3100**	9.8	
7439-96-5	Manganese	**210**	2.0	
7440-02-0	Nickel	**51**	2.0	
7439-92-1	Lead	**170**	2.0	
7440-36-0	Antimony	ND	2.0	
7782-49-2	Selenium	ND	3.9	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**340**	2.0	
7440-66-6	Zinc	**390**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0028	Lab Sample ID:	AB68029
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**5.4**	2.0	
7429-90-5	Aluminum	**12000**	44	
7440-38-2	Arsenic	**12**	4.0	
7440-39-3	Barium	**290**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**5400**	20	
7440-43-9	Cadmium	**6.1**	2.0	
7440-48-4	Cobalt	**9.1**	4.0	
7440-47-3	Chromium	**89**	4.0	
7440-50-8	Copper	**380**	4.0	
7439-89-6	Iron	**30000**	8.0	
7439-95-4	Magnesium	**4300**	20	
7439-96-5	Manganese	**330**	4.0	
7440-02-0	Nickel	**92**	4.0	
7439-92-1	Lead	**810**	4.0	
7440-36-0	Antimony	**5.8**	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	4.0	
7440-62-2	Vanadium	**100**	4.0	
7440-66-6	Zinc	**1600**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0029	Lab Sample ID:	AB68030
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	0.98	
7429-90-5	Aluminum	**17000**	22	
7440-38-2	Arsenic	**9.5**	2.0	
7440-39-3	Barium	**90**	2.0	
7440-41-7	Beryllium	ND	0.78	
7440-70-2	Calcium	**2000**	9.8	
7440-43-9	Cadmium	**1.4**	0.98	
7440-48-4	Cobalt	**5.1**	2.0	
7440-47-3	Chromium	**23**	2.0	
7440-50-8	Copper	**60**	2.0	
7439-89-6	Iron	**18000**	3.9	
7439-95-4	Magnesium	**3000**	9.8	
7439-96-5	Manganese	**190**	2.0	
7440-02-0	Nickel	**16**	2.0	
7439-92-1	Lead	**130**	2.0	
7440-36-0	Antimony	ND	2.0	
7782-49-2	Selenium	ND	3.9	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**30**	2.0	
7440-66-6	Zinc	**580**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0030	Lab Sample ID:	AB68031
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**12000**	44	
7440-38-2	Arsenic	**12**	4.0	
7440-39-3	Barium	**530**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**3600**	20	
7440-43-9	Cadmium	**8.6**	2.0	
7440-48-4	Cobalt	**9.8**	4.0	
7440-47-3	Chromium	**66**	4.0	
7440-50-8	Copper	**530**	4.0	
7439-89-6	Iron	**40000**	8.0	
7439-95-4	Magnesium	**4300**	20	
7439-96-5	Manganese	**400**	4.0	
7440-02-0	Nickel	**93**	4.0	
7439-92-1	Lead	**1200**	4.0	
7440-36-0	Antimony	**5.2**	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	4.0	
7440-62-2	Vanadium	**180**	4.0	
7440-66-6	Zinc	**1500**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0031	Lab Sample ID:	AB68032
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	0.98	
7429-90-5	Aluminum	**11000**	22	
7440-38-2	Arsenic	**10**	2.0	
7440-39-3	Barium	**210**	2.0	
7440-41-7	Beryllium	ND	0.78	
7440-70-2	Calcium	**3500**	9.8	
7440-43-9	Cadmium	**5.0**	0.98	
7440-48-4	Cobalt	**7.0**	2.0	
7440-47-3	Chromium	**41**	2.0	
7440-50-8	Copper	**290**	2.0	
7439-89-6	Iron	**23000**	3.9	
7439-95-4	Magnesium	**4200**	9.8	
7439-96-5	Manganese	**280**	2.0	
7440-02-0	Nickel	**45**	2.0	
7439-92-1	Lead	**510**	2.0	
7440-36-0	Antimony	**2.8**	2.0	
7782-49-2	Selenium	ND	3.9	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**94**	2.0	
7440-66-6	Zinc	**1300**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0032	Lab Sample ID:	AB68033
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**12000**	44	
7440-38-2	Arsenic	**12**	4.0	
7440-39-3	Barium	**400**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**10000**	20	
7440-43-9	Cadmium	**9.5**	2.0	
7440-48-4	Cobalt	**10**	4.0	
7440-47-3	Chromium	**81**	4.0	
7440-50-8	Copper	**430**	4.0	
7439-89-6	Iron	**32000**	8.0	
7439-95-4	Magnesium	**4100**	20	
7439-96-5	Manganese	**320**	4.0	
7440-02-0	Nickel	**78**	4.0	
7439-92-1	Lead	**750**	4.0	
7440-36-0	Antimony	**5.5**	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	4.0	
7440-62-2	Vanadium	**80**	4.0	
7440-66-6	Zinc	**1600**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0033	Lab Sample ID:	AB68034
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**10000**	44	
7440-38-2	Arsenic	**13**	4.0	
7440-39-3	Barium	**330**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**4100**	20	
7440-43-9	Cadmium	**8.0**	2.0	
7440-48-4	Cobalt	**8.2**	4.0	
7440-47-3	Chromium	**52**	4.0	
7440-50-8	Copper	**1700**	4.0	
7439-89-6	Iron	**31000**	8.0	
7439-95-4	Magnesium	**3900**	20	
7439-96-5	Manganese	**290**	4.0	
7440-02-0	Nickel	**66**	4.0	
7439-92-1	Lead	**820**	4.0	
7440-36-0	Antimony	ND	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	4.0	
7440-62-2	Vanadium	**76**	4.0	
7440-66-6	Zinc	**2000**	4.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0034	Lab Sample ID:	AB68035
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	4
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	4.0	
7429-90-5	Aluminum	**10000**	88	
7440-38-2	Arsenic	**21**	8.0	
7440-39-3	Barium	**1200**	8.0	
7440-41-7	Beryllium	ND	3.2	
7440-70-2	Calcium	**34000**	40	
7440-43-9	Cadmium	**30**	4.0	
7440-48-4	Cobalt	**18**	8.0	
7440-47-3	Chromium	**120**	8.0	
7440-50-8	Copper	**890**	8.0	
7439-89-6	Iron	**80000**	16	
7439-95-4	Magnesium	**4000**	40	
7439-96-5	Manganese	**630**	8.0	
7440-02-0	Nickel	**95**	8.0	
7439-92-1	Lead	**3300**	8.0	
7440-36-0	Antimony	**11**	8.0	
7782-49-2	Selenium	ND	16	
7440-28-0	Thallium	ND	8.0	
7440-62-2	Vanadium	**35**	8.0	
7440-66-6	Zinc	**6000**	8.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0035	Lab Sample ID:	AB68036
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.0	
7429-90-5	Aluminum	**15000**	22	
7440-38-2	Arsenic	**9.6**	2.0	
7440-39-3	Barium	**73**	2.0	
7440-41-7	Beryllium	ND	0.80	
7440-70-2	Calcium	**3100**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**3.1**	2.0	
7440-47-3	Chromium	**28**	2.0	
7440-50-8	Copper	**58**	2.0	
7439-89-6	Iron	**14000**	4.0	
7439-95-4	Magnesium	**2300**	10	
7439-96-5	Manganese	**120**	2.0	
7440-02-0	Nickel	**11**	2.0	
7439-92-1	Lead	**110**	2.0	
7440-36-0	Antimony	ND	2.0	
7782-49-2	Selenium	ND	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**25**	2.0	
7440-66-6	Zinc	**240**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0036	Lab Sample ID:	AB68037
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**13000**	43	
7440-38-2	Arsenic	**12**	3.9	
7440-39-3	Barium	**300**	3.9	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**49000**	20	
7440-43-9	Cadmium	**9.7**	2.0	
7440-48-4	Cobalt	**8.7**	3.9	
7440-47-3	Chromium	**52**	3.9	
7440-50-8	Copper	**370**	3.9	
7439-89-6	Iron	**27000**	7.8	
7439-95-4	Magnesium	**5000**	20	
7439-96-5	Manganese	**370**	3.9	
7440-02-0	Nickel	**46**	3.9	
7439-92-1	Lead	**580**	3.9	
7440-36-0	Antimony	ND	3.9	
7782-49-2	Selenium	ND	7.8	
7440-28-0	Thallium	ND	3.9	
7440-62-2	Vanadium	**39**	3.9	
7440-66-6	Zinc	**1400**	3.9	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0037	Lab Sample ID:	AB68038
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.9	
7429-90-5	Aluminum	**14000**	22	
7440-38-2	Arsenic	**8.1**	2.0	
7440-39-3	Barium	**35**	2.0	
7440-41-7	Beryllium	ND	0.78	
7440-70-2	Calcium	**1600**	9.8	
7440-43-9	Cadmium	**2.0**	0.98	
7440-48-4	Cobalt	**3.6**	2.0	
7440-47-3	Chromium	**23**	2.0	
7440-50-8	Copper	**220**	2.0	
7439-89-6	Iron	**13000**	3.9	
7439-95-4	Magnesium	**2300**	9.8	
7439-96-5	Manganese	**150**	2.0	
7440-02-0	Nickel	**11**	2.0	
7439-92-1	Lead	**81**	2.0	
7440-36-0	Antimony	**2.7**	2.0	
7782-49-2	Selenium	ND	3.9	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**23**	2.0	
7440-66-6	Zinc	**320**	2.0	

Comments: The result for silver reported from a 3x dilution of 7/14/2017.

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0038	Lab Sample ID:	AB68039
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	5.0	
7429-90-5	Aluminum	**11000**	110	
7440-38-2	Arsenic	**21**	10	
7440-39-3	Barium	**1100**	10	
7440-41-7	Beryllium	ND	4.0	
7440-70-2	Calcium	**15000**	50	
7440-43-9	Cadmium	**32**	5.0	
7440-48-4	Cobalt	**26**	10	
7440-47-3	Chromium	**160**	10	
7440-50-8	Copper	**2800**	10	
7439-89-6	Iron	**85000**	20	
7439-95-4	Magnesium	**4600**	50	
7439-96-5	Manganese	**610**	10	
7440-02-0	Nickel	**140**	10	
7439-92-1	Lead	**3100**	10	
7440-36-0	Antimony	**12**	10	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	10	
7440-62-2	Vanadium	**44**	10	
7440-66-6	Zinc	**7300**	10	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0039	Lab Sample ID:	AB68040
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	0.96	
7429-90-5	Aluminum	**15000**	21	
7440-38-2	Arsenic	**7.3**	1.9	
7440-39-3	Barium	**72**	1.9	
7440-41-7	Beryllium	ND	0.77	
7440-70-2	Calcium	**5400**	9.6	
7440-43-9	Cadmium	**1.0**	0.96	
7440-48-4	Cobalt	**4.0**	1.9	
7440-47-3	Chromium	**41**	1.9	
7440-50-8	Copper	**34**	1.9	
7439-89-6	Iron	**12000**	3.8	
7439-95-4	Magnesium	**2700**	9.6	
7439-96-5	Manganese	**130**	1.9	
7440-02-0	Nickel	**12**	1.9	
7439-92-1	Lead	**100**	1.9	
7440-36-0	Antimony	**2.7**	1.9	
7782-49-2	Selenium	ND	3.8	
7440-28-0	Thallium	ND	1.9	
7440-62-2	Vanadium	**23**	1.9	
7440-66-6	Zinc	**270**	1.9	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0040	Lab Sample ID:	AB68041
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	5.0	
7429-90-5	Aluminum	**14000**	110	
7440-38-2	Arsenic	**18**	10	
7440-39-3	Barium	**670**	10	
7440-41-7	Beryllium	ND	4.0	
7440-70-2	Calcium	**10000**	50	
7440-43-9	Cadmium	**22**	5.0	
7440-48-4	Cobalt	**20**	10	
7440-47-3	Chromium	**200**	10	
7440-50-8	Copper	**1000**	10	
7439-89-6	Iron	**80000**	20	
7439-95-4	Magnesium	**4000**	50	
7439-96-5	Manganese	**510**	10	
7440-02-0	Nickel	**210**	10	
7439-92-1	Lead	**1800**	10	
7440-36-0	Antimony	**13**	10	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	10	
7440-62-2	Vanadium	**32**	10	
7440-66-6	Zinc	**7100**	10	

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	7/05/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Former Tombarello & Sons Property - Lawrence, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68023

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Antimony	100	ND	22.0	22	75 - 125
Arsenic	100	27.0	130	103	75 - 125
Barium	100	130	220	90	75 - 125
Beryllium	40.0	ND	40.0	101	75 - 125
Cadmium	50.0	11.0	60.0	97	75 - 125
Chromium	100	55.0	156	101	75 - 125
Cobalt	100	30.0	131	101	75 - 125
Copper	100	1200	575	R	75 - 125
Lead	100	420	595	R	75 - 125
Manganese	100	520	616	R	75 - 125
Nickel	100	150	256	106	75 - 125
Selenium	100	ND	101	101	75 - 125
Silver	20.0	ND	21.0	106	75 - 125
Thallium	100	ND	98.0	98	75 - 125
Vanadium	100	160	269	109	75 - 125
Zinc	100	790	880	R	75 - 125

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB68024

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aluminum	17000	16000	6.1	30
Antimony	ND	ND	NC	30
Arsenic	8.8	9.0	2.2	30
Barium	29.0	29.0	0	30
Beryllium	ND	ND	NC	30
Cadmium	ND	ND	NC	30
Calcium	830	840	1.2	30
Chromium	22.0	22.0	0	30
Cobalt	5.0	4.9	2.0	30
Copper	11.0	11.0	0	30
Iron	16000	16000	0	30
Lead	13.0	11.0	17	30
Magnesium	3100	3100	0	30
Manganese	230	230	0	30
Nickel	13.0	12.0	8.0	30
Selenium	ND	ND	NC	30
Silver	ND	ND	NC	30
Thallium	ND	ND	NC	30
Vanadium	32.0	29.0	9.8	30
Zinc	41.0	38.0	7.6	30

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	1000	1040	104	85 - 115
Antimony	1000	1050	105	85 - 115
Arsenic	1000	1000	100	85 - 115
Barium	1000	989	99	85 - 115
Beryllium	400	391	98	85 - 115
Cadmium	500	482	96	85 - 115
Calcium	10000	10200	102	85 - 115
Chromium	1000	1010	101	85 - 115
Cobalt	1000	985	99	85 - 115
Copper	1000	999	100	85 - 115
Iron	1000	999	100	85 - 115
Lead	1000	973	97	85 - 115
Magnesium	10000	10300	103	85 - 115
Manganese	1000	994	99	85 - 115
Nickel	1000	981	98	85 - 115
Selenium	1000	992	99	85 - 115
Silver	200	193	97	85 - 115
Thallium	1000	993	99	85 - 115
Vanadium	1000	1010	101	85 - 115
Zinc	1000	984	98	85 - 115

Comments:

Former Tombarello & Sons Property - Lawrence, MA

Solid Laboratory Control Sample (LCS) Results

PARAMETER	LCS RESULTS mg/Kg	CONTROL LIMITS mg/Kg
Aluminum	8680	3200 - 13000
Antimony	42.7	21.4 - 255
Arsenic	102	69.6 - 131
Barium	218	160 - 278
Beryllium	146	111 - 185
Cadmium	80.3	61.3 - 110
Calcium	6100	4430 - 7590
Chromium	103	74.3 - 144
Cobalt	122	91.4 - 160
Copper	169	125 - 213
Iron	12200	5270 - 23900
Lead	81.0	61.8 - 115
Magnesium	3070	1930 - 3940
Manganese	299	233 - 390
Nickel	49.4	34.4 - 67.3
Selenium	88.7	56.2 - 119
Silver	40.1	27.3 - 55.4
Thallium	57.9	37.1 - 79.2
Vanadium	133	97.8 - 181
Zinc	146	98.2 - 192

Comments:

Samples in Batch: AB68023, AB68024, AB68025, AB68026, AB68027, AB68028, AB68029, AB68030, AB68031, AB68032, AB68033, AB68034, AB68035, AB68036, AB68037, AB68038, AB68039, AB68040, AB68041

PN-17060047

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0022	SB-200A	Metals	Soil	6/27/2017	09:10	1	4 oz Jar	4 C	Y
	R01-161221TC-0022	SB-200A	PCB	Soil	6/27/2017	09:10	1	4 oz Jar	4 C	Y
	R01-161221TC-0023	SB-200B	PCB	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0023	SB-200B	Metals	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0024	SB-201A	PCB	Soil	6/27/2017	09:30	1	4 oz Jar	4 C	N
	R01-161221TC-0024	SB-201A	Metals	Soil	6/27/2017	09:30	1	4 oz Jar	4 C	N
	R01-161221TC-0025	SB-201B	PCB	Soil	6/27/2017	09:35	1	4 oz Jar	4 C	N
	R01-161221TC-0025	SB-201B	Metals	Soil	6/27/2017	09:35	1	4 oz Jar	4 C	N
	R01-161221TC-0026	SB-202A	PCB	Soil	6/27/2017	09:45	1	4 oz Jar	4 C	N
	R01-161221TC-0026	SB-202A	Metals	Soil	6/27/2017	09:45	1	4 oz Jar	4 C	N
	R01-161221TC-0027	SB-202B	Metals	Soil	6/27/2017	09:50	1	4 oz Jar	4 C	N
	R01-161221TC-0027	SB-202B	PCB	Soil	6/27/2017	09:50	1	4 oz Jar	4 C	N
	R01-161221TC-0028	SB-203A	PCB	Soil	6/27/2017	09:55	1	4 oz Jar	4 C	N
	R01-161221TC-0028	SB-203A	Metals	Soil	6/27/2017	09:55	1	4 oz Jar	4 C	N
	R01-161221TC-0029	SB-203B	PCB	Soil	6/27/2017	10:00	1	4 oz Jar	4 C	N
	R01-161221TC-0029	SB-203B	Metals	Soil	6/27/2017	10:00	1	4 oz Jar	4 C	N
	R01-161221TC-0030	SB-204A	Metals	Soil	6/27/2017	10:10	1	4 oz Jar	4 C	N
	R01-161221TC-0030	SB-204A	PCB	Soil	6/27/2017	10:10	1	4 oz Jar	4 C	N
	R01-161221TC-0031	SB-204B	Metals	Soil	6/27/2017	10:15	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6-28-17/1200	ESAT	6-28-17 12.00	

17060047 $PCBMS
17060047 $METMS_PE

PN:170C0047

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0031	SB-204B	PCB	Soil	6/27/2017	10:15	1	4 oz Jar	4 C	N
	R01-161221TC-0032	SB-205A	PCB	Soil	6/27/2017	10:25	1	4 oz Jar	4 C	N
	R01-161221TC-0032	SB-205A	Metals	Soil	6/27/2017	10:25	1	4 oz Jar	4 C	N
	R01-161221TC-0033	SB-205B	PCB	Soil	6/27/2017	10:30	1	4 oz Jar	4 C	N
	R01-161221TC-0033	SB-205B	Metals	Soil	6/27/2017	10:30	1	4 oz Jar	4 C	N
	R01-161221TC-0034	SB-206A	PCB	Soil	6/27/2017	10:40	1	4 oz Jar	4 C	N
	R01-161221TC-0034	SB-206A	Metals	Soil	6/27/2017	10:40	1	4 oz Jar	4 C	N
	R01-161221TC-0035	SB-206B	PCB	Soil	6/27/2017	10:45	1	4 oz Jar	4 C	N
	R01-161221TC-0035	SB-206B	Metals	Soil	6/27/2017	10:45	1	4 oz Jar	4 C	N
	R01-161221TC-0036	SB-207A	Metals	Soil	6/27/2017	10:55	1	4 oz Jar	4 C	N
	R01-161221TC-0036	SB-207A	PCB	Soil	6/27/2017	10:55	1	4 oz Jar	4 C	N
	R01-161221TC-0037	SB-207B	PCB	Soil	6/27/2017	11:00	1	4 oz Jar	4 C	N
	R01-161221TC-0037	SB-207B	Metals	Soil	6/27/2017	11:00	1	4 oz Jar	4 C	N
	R01-161221TC-0038	SB-208A	PCB	Soil	6/27/2017	11:05	1	4 oz Jar	4 C	N
	R01-161221TC-0038	SB-208A	Metals	Soil	6/27/2017	11:05	1	4 oz Jar	4 C	N
	R01-161221TC-0039	SB-208B	PCB	Soil	6/27/2017	11:10	1	4 oz Jar	4 C	N
	R01-161221TC-0039	SB-208B	Metals	Soil	6/27/2017	11:10	1	4 oz Jar	4 C	N
	R01-161221TC-0040	SB-209A	Metals	Soil	6/27/2017	11:20	1	4 oz Jar	4 C	N
	R01-161221TC-0040	SB-209A	PCB	Soil	6/27/2017	11:20	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	SAMPLES TRANSFERRED FROM
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6.28.17/1200	EST	6-28-17 12.00	

17060047 $PCBMS
17060047 $METMS_PE

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 01, 2017

Tom Condon - Mail Code OSRR02-2
Jerry Keefe - EIA / OEME
US EPA New England R1

Project Number: 17060048
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: Metals in Soil Medium Level by ICP
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 06/28/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8

Preparation and analysis SOP's are based on "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, Revision 2, Final Update III, Methods 3050B and 6010B," respectively. Samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

All sample results, except the results for AB68059, reported mg/kg, dry weight basis. The results for AB68059 reported mg/kg, as received.

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0041	Lab Sample ID:	AB68042
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**13000**	44	
7440-38-2	Arsenic	**11**	4.0	
7440-39-3	Barium	**480**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**7200**	20	
7440-43-9	Cadmium	**2.8**	2.0	
7440-48-4	Cobalt	ND	4.0	
7440-47-3	Chromium	**62**	4.0	
7440-50-8	Copper	**140**	4.0	
7439-89-6	Iron	**13000**	8.0	
7439-95-4	Magnesium	**2700**	20	
7439-96-5	Manganese	**140**	4.0	
7440-02-0	Nickel	**15**	4.0	
7439-92-1	Lead	**160**	4.0	J1
7440-36-0	Antimony	**7.1**	4.0	J1
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	4.0	
7440-62-2	Vanadium	**23**	4.0	
7440-66-6	Zinc	**2400**	4.0	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0042	Lab Sample ID:	AB68043
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	4
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	3.9	
7429-90-5	Aluminum	**11000**	86	
7440-38-2	Arsenic	**18**	7.8	
7440-39-3	Barium	**800**	7.8	
7440-41-7	Beryllium	ND	3.1	
7440-70-2	Calcium	**5600**	39	
7440-43-9	Cadmium	**22**	3.9	
7440-48-4	Cobalt	**13**	7.8	
7440-47-3	Chromium	**99**	7.8	
7440-50-8	Copper	**1100**	7.8	
7439-89-6	Iron	**51000**	16	
7439-95-4	Magnesium	**6300**	39	
7439-96-5	Manganese	**460**	7.8	
7440-02-0	Nickel	**110**	7.8	
7439-92-1	Lead	**1300**	7.8	
7440-36-0	Antimony	ND	7.8	
7782-49-2	Selenium	ND	16	
7440-28-0	Thallium	ND	7.8	
7440-62-2	Vanadium	**54**	7.8	
7440-66-6	Zinc	**4700**	7.8	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0043	Lab Sample ID:	AB68044
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	0.96	
7429-90-5	Aluminum	**17000**	21	
7440-38-2	Arsenic	**11**	1.9	
7440-39-3	Barium	**110**	1.9	
7440-41-7	Beryllium	ND	0.77	
7440-70-2	Calcium	**1900**	9.6	
7440-43-9	Cadmium	**3.3**	0.96	
7440-48-4	Cobalt	**3.0**	1.9	
7440-47-3	Chromium	**25**	1.9	
7440-50-8	Copper	**1300**	1.9	
7439-89-6	Iron	**14000**	3.8	
7439-95-4	Magnesium	**2600**	9.6	
7439-96-5	Manganese	**120**	1.9	
7440-02-0	Nickel	**12**	1.9	
7439-92-1	Lead	**77**	1.9	
7440-36-0	Antimony	**2.2**	1.9	
7782-49-2	Selenium	ND	3.8	
7440-28-0	Thallium	ND	1.9	
7440-62-2	Vanadium	**27**	1.9	
7440-66-6	Zinc	**530**	1.9	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0044	Lab Sample ID:	AB68045
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	6
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	6.0	
7429-90-5	Aluminum	**12000**	130	
7440-38-2	Arsenic	**22**	12	
7440-39-3	Barium	**960**	12	
7440-41-7	Beryllium	ND	4.8	
7440-70-2	Calcium	**12000**	60	
7440-43-9	Cadmium	**26**	6.0	
7440-48-4	Cobalt	**17**	12	
7440-47-3	Chromium	**190**	12	
7440-50-8	Copper	**4300**	12	
7439-89-6	Iron	**77000**	24	
7439-95-4	Magnesium	**5900**	60	
7439-96-5	Manganese	**570**	12	
7440-02-0	Nickel	**220**	12	
7439-92-1	Lead	**3300**	12	
7440-36-0	Antimony	**16**	12	
7782-49-2	Selenium	ND	24	
7440-28-0	Thallium	ND	12	
7440-62-2	Vanadium	**49**	12	
7440-66-6	Zinc	**9900**	12	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0045	Lab Sample ID:	AB68046
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.0	
7429-90-5	Aluminum	**16000**	22	
7440-38-2	Arsenic	**11**	2.0	
7440-39-3	Barium	**49**	2.0	
7440-41-7	Beryllium	ND	0.80	
7440-70-2	Calcium	**5000**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**3.2**	2.0	
7440-47-3	Chromium	**40**	2.0	
7440-50-8	Copper	**27**	2.0	
7439-89-6	Iron	**16000**	4.0	
7439-95-4	Magnesium	**2700**	10	
7439-96-5	Manganese	**120**	2.0	
7440-02-0	Nickel	**9.1**	2.0	
7439-92-1	Lead	**61**	2.0	
7440-36-0	Antimony	**3.0**	2.0	
7782-49-2	Selenium	ND	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**27**	2.0	
7440-66-6	Zinc	**62**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0046	Lab Sample ID:	AB68047
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	10
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	**14000**	220	
7440-38-2	Arsenic	**23**	20	
7440-39-3	Barium	**1500**	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	**13000**	100	
7440-43-9	Cadmium	**29**	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	**110**	20	
7440-50-8	Copper	**1200**	20	
7439-89-6	Iron	**82000**	40	
7439-95-4	Magnesium	**6700**	100	
7439-96-5	Manganese	**620**	20	
7440-02-0	Nickel	**180**	20	
7439-92-1	Lead	**2100**	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	**57**	20	
7440-66-6	Zinc	**11000**	20	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0047	Lab Sample ID:	AB68048
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.0	
7429-90-5	Aluminum	**14000**	22	
7440-38-2	Arsenic	**9.4**	2.0	
7440-39-3	Barium	**150**	2.0	
7440-41-7	Beryllium	ND	0.80	
7440-70-2	Calcium	**7200**	10	
7440-43-9	Cadmium	**2.2**	1.0	
7440-48-4	Cobalt	**3.7**	2.0	
7440-47-3	Chromium	**61**	2.0	
7440-50-8	Copper	**78**	2.0	
7439-89-6	Iron	**16000**	4.0	
7439-95-4	Magnesium	**3200**	10	
7439-96-5	Manganese	**140**	2.0	
7440-02-0	Nickel	**31**	2.0	
7439-92-1	Lead	**160**	2.0	
7440-36-0	Antimony	**4.7**	2.0	
7782-49-2	Selenium	ND	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**23**	2.0	
7440-66-6	Zinc	**730**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0048	Lab Sample ID:	AB68049
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	4.9	
7429-90-5	Aluminum	**12000**	110	
7440-38-2	Arsenic	**19**	9.8	
7440-39-3	Barium	**380**	9.8	
7440-41-7	Beryllium	ND	3.9	
7440-70-2	Calcium	**14000**	49	
7440-43-9	Cadmium	**22**	4.9	
7440-48-4	Cobalt	**20**	9.8	
7440-47-3	Chromium	**150**	9.8	
7440-50-8	Copper	**820**	9.8	
7439-89-6	Iron	**92000**	20	
7439-95-4	Magnesium	**4600**	49	
7439-96-5	Manganese	**670**	9.8	
7440-02-0	Nickel	**130**	9.8	
7439-92-1	Lead	**2700**	9.8	
7440-36-0	Antimony	ND	9.8	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	9.8	
7440-62-2	Vanadium	**63**	9.8	
7440-66-6	Zinc	**4200**	9.8	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0049	Lab Sample ID:	AB68050
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**5.7**	5.0	
7429-90-5	Aluminum	**11000**	110	
7440-38-2	Arsenic	**18**	10	
7440-39-3	Barium	**490**	10	
7440-41-7	Beryllium	ND	4.0	
7440-70-2	Calcium	**18000**	50	
7440-43-9	Cadmium	**18**	5.0	
7440-48-4	Cobalt	**21**	10	
7440-47-3	Chromium	**170**	10	
7440-50-8	Copper	**680**	10	
7439-89-6	Iron	**98000**	20	
7439-95-4	Magnesium	**4600**	50	
7439-96-5	Manganese	**690**	10	
7440-02-0	Nickel	**160**	10	
7439-92-1	Lead	**1600**	10	
7440-36-0	Antimony	**10**	10	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	10	
7440-62-2	Vanadium	**65**	10	
7440-66-6	Zinc	**4500**	10	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0050	Lab Sample ID:	AB68051
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**5.6**	4.9	
7429-90-5	Aluminum	**13000**	110	
7440-38-2	Arsenic	**21**	9.8	
7440-39-3	Barium	**470**	9.8	
7440-41-7	Beryllium	ND	3.9	
7440-70-2	Calcium	**13000**	49	
7440-43-9	Cadmium	**21**	4.9	
7440-48-4	Cobalt	**26**	9.8	
7440-47-3	Chromium	**220**	9.8	
7440-50-8	Copper	**960**	9.8	
7439-89-6	Iron	**110000**	20	
7439-95-4	Magnesium	**4600**	49	
7439-96-5	Manganese	**790**	9.8	
7440-02-0	Nickel	**200**	9.8	
7439-92-1	Lead	**2000**	9.8	
7440-36-0	Antimony	**13**	9.8	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	9.8	
7440-62-2	Vanadium	**70**	9.8	
7440-66-6	Zinc	**4300**	9.8	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0051	Lab Sample ID:	AB68052
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	3
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.9	
7429-90-5	Aluminum	**9500**	63	
7440-38-2	Arsenic	**12**	5.8	
7440-39-3	Barium	**270**	5.8	
7440-41-7	Beryllium	ND	2.3	
7440-70-2	Calcium	**6700**	29	
7440-43-9	Cadmium	**10**	2.9	
7440-48-4	Cobalt	**10**	5.8	
7440-47-3	Chromium	**72**	5.8	
7440-50-8	Copper	**370**	5.8	
7439-89-6	Iron	**49000**	12	
7439-95-4	Magnesium	**3200**	29	
7439-96-5	Manganese	**400**	5.8	
7440-02-0	Nickel	**70**	5.8	
7439-92-1	Lead	**950**	5.8	
7440-36-0	Antimony	ND	5.8	
7782-49-2	Selenium	ND	12	
7440-28-0	Thallium	ND	5.8	
7440-62-2	Vanadium	**36**	5.8	
7440-66-6	Zinc	**1600**	5.8	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0052	Lab Sample ID:	AB68053
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.0	
7429-90-5	Aluminum	**12000**	22	
7440-38-2	Arsenic	**8.4**	2.0	
7440-39-3	Barium	**35**	2.0	
7440-41-7	Beryllium	ND	0.80	
7440-70-2	Calcium	**3000**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**7.2**	2.0	
7440-47-3	Chromium	**29**	2.0	
7440-50-8	Copper	**13**	2.0	
7439-89-6	Iron	**11000**	4.0	
7439-95-4	Magnesium	**3700**	10	
7439-96-5	Manganese	**160**	2.0	
7440-02-0	Nickel	**30**	2.0	
7439-92-1	Lead	**20**	2.0	
7440-36-0	Antimony	ND	2.0	
7782-49-2	Selenium	ND	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**21**	2.0	
7440-66-6	Zinc	**35**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0053	Lab Sample ID:	AB68054
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	1.0	
7429-90-5	Aluminum	**13000**	22	
7440-38-2	Arsenic	**9.1**	2.0	
7440-39-3	Barium	**60**	2.0	
7440-41-7	Beryllium	ND	0.80	
7440-70-2	Calcium	**1800**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**3.6**	2.0	
7440-47-3	Chromium	**16**	2.0	
7440-50-8	Copper	**38**	2.0	
7439-89-6	Iron	**13000**	4.0	
7439-95-4	Magnesium	**2300**	10	
7439-96-5	Manganese	**130**	2.0	
7440-02-0	Nickel	**14**	2.0	
7439-92-1	Lead	**58**	2.0	
7440-36-0	Antimony	ND	2.0	
7782-49-2	Selenium	ND	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**22**	2.0	
7440-66-6	Zinc	**500**	2.0	

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0054	Lab Sample ID:	AB68055
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	3.0	
7429-90-5	Aluminum	**17000**	22	
7440-38-2	Arsenic	**8.7**	2.0	
7440-39-3	Barium	**29**	2.0	
7440-41-7	Beryllium	ND	0.80	
7440-70-2	Calcium	**850**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**5.0**	2.0	
7440-47-3	Chromium	**18**	2.0	
7440-50-8	Copper	**11**	2.0	
7439-89-6	Iron	**16000**	4.0	
7439-95-4	Magnesium	**3100**	10	
7439-96-5	Manganese	**230**	2.0	
7440-02-0	Nickel	**11**	2.0	
7439-92-1	Lead	**11**	2.0	
7440-36-0	Antimony	ND	2.0	
7782-49-2	Selenium	ND	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**29**	2.0	
7440-66-6	Zinc	**39**	2.0	

Comments: The result for silver reported from a 3x dilution of 7/14/2017.

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Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0055	Lab Sample ID:	AB68056
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	5
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**7.2**	4.9	
7429-90-5	Aluminum	**11000**	110	
7440-38-2	Arsenic	**18**	9.8	
7440-39-3	Barium	**400**	9.8	
7440-41-7	Beryllium	ND	3.9	
7440-70-2	Calcium	**17000**	49	
7440-43-9	Cadmium	**19**	4.9	
7440-48-4	Cobalt	**19**	9.8	
7440-47-3	Chromium	**160**	9.8	
7440-50-8	Copper	**730**	9.8	
7439-89-6	Iron	**96000**	20	
7439-95-4	Magnesium	**4600**	49	
7439-96-5	Manganese	**650**	9.8	
7440-02-0	Nickel	**130**	9.8	
7439-92-1	Lead	**1600**	9.8	
7440-36-0	Antimony	ND	9.8	
7782-49-2	Selenium	ND	20	
7440-28-0	Thallium	ND	9.8	
7440-62-2	Vanadium	**62**	9.8	
7440-66-6	Zinc	**4500**	9.8	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0058	Lab Sample ID:	AB68059
Date of Collection:	6/27/2017	Matrix:	Lab Sand
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	**5.8**	1.0	
7429-90-5	Aluminum	**2000**	22	
7440-38-2	Arsenic	**40**	2.0	
7440-39-3	Barium	**5.8**	2.0	
7440-41-7	Beryllium	**13**	0.80	
7440-70-2	Calcium	**4900**	10	
7440-43-9	Cadmium	ND	1.0	
7440-48-4	Cobalt	**28**	2.0	
7440-47-3	Chromium	**15**	2.0	
7440-50-8	Copper	**15**	2.0	
7439-89-6	Iron	**4300**	4.0	
7439-95-4	Magnesium	**390**	10	
7439-96-5	Manganese	**31**	2.0	
7440-02-0	Nickel	ND	2.0	
7439-92-1	Lead	**5.7**	2.0	
7440-36-0	Antimony	**19**	2.0	
7782-49-2	Selenium	**9.7**	4.0	
7440-28-0	Thallium	ND	2.0	
7440-62-2	Vanadium	**41**	2.0	
7440-66-6	Zinc	**4.6**	2.0	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0059	Lab Sample ID:	AB68060
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/17/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**12000**	22	
7440-38-2	Arsenic	**14**	4.0	
7440-39-3	Barium	**240**	4.0	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**5700**	20	
7440-43-9	Cadmium	**7.6**	2.0	
7440-48-4	Cobalt	**11**	4.0	
7440-47-3	Chromium	**71**	4.0	
7440-50-8	Copper	**810**	4.0	
7439-89-6	Iron	**41000**	8.0	
7439-95-4	Magnesium	**3700**	20	
7439-96-5	Manganese	**500**	4.0	
7440-02-0	Nickel	**83**	4.0	
7439-92-1	Lead	**680**	4.0	
7440-36-0	Antimony	**6.1**	4.0	
7782-49-2	Selenium	ND	8.0	
7440-28-0	Thallium	ND	4.0	
7440-62-2	Vanadium	**63**	4.0	
7440-66-6	Zinc	**1600**	4.0	

Former Tombarello & Sons Property - Lawrence, MA

Metals in Soil Medium Level by ICP

Client Sample ID:	R01-161221TC-0060	Lab Sample ID:	AB68061
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	2
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
7440-22-4	Silver	ND	2.0	
7429-90-5	Aluminum	**9900**	43	
7440-38-2	Arsenic	**18**	3.9	
7440-39-3	Barium	**280**	3.9	
7440-41-7	Beryllium	ND	1.6	
7440-70-2	Calcium	**4700**	20	
7440-43-9	Cadmium	**8.8**	2.0	
7440-48-4	Cobalt	**9.9**	3.9	
7440-47-3	Chromium	**77**	3.9	
7440-50-8	Copper	**430**	3.9	
7439-89-6	Iron	**41000**	7.8	
7439-95-4	Magnesium	**3300**	20	
7439-96-5	Manganese	**450**	3.9	
7440-02-0	Nickel	**85**	3.9	
7439-92-1	Lead	**1400**	3.9	
7440-36-0	Antimony	**16**	3.9	
7782-49-2	Selenium	ND	7.8	
7440-28-0	Thallium	ND	3.9	
7440-62-2	Vanadium	**68**	3.9	
7440-66-6	Zinc	**1600**	3.9	

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	7/06/2017	Amount Prepared:	N/A
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Former Tombarello & Sons Property - Lawrence, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68042

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Antimony	100	7.1	42.0	35	75 - 125
Arsenic	100	11.0	114	103	75 - 125
Barium	100	480	800	R	75 - 125
Beryllium	40.0	ND	41.0	102	75 - 125
Cadmium	50.0	2.8	51.0	96	75 - 125
Chromium	100	62.0	165	103	75 - 125
Cobalt	100	ND	103	103	75 - 125
Copper	100	140	244	104	75 - 125
Lead	100	160	228	68	75 - 125
Manganese	100	140	241	101	75 - 125
Nickel	100	15.0	116	101	75 - 125
Selenium	100	ND	101	101	75 - 125
Silver	20.0	ND	20.0	98	75 - 125
Thallium	100	ND	99.0	99	75 - 125
Vanadium	100	23.0	126	103	75 - 125
Zinc	100	2400	2720	R	75 - 125

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB68043

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aluminum	11000	11000	0	30
Antimony	ND	ND	NC	30
Arsenic	18.0	16.0	12	30
Barium	800	740	7.8	30
Beryllium	ND	ND	NC	30
Cadmium	22.0	20.0	9.5	30
Calcium	5600	5600	0	30
Chromium	99.0	90.0	9.5	30
Cobalt	13.0	14.0	7.4	30
Copper	1100	1400	24	30
Iron	51000	55000	7.5	30
Lead	1300	1400	7.4	30
Magnesium	6300	6200	1.6	30
Manganese	460	470	2.2	30
Nickel	110	120	8.7	30
Selenium	ND	ND	NC	30
Silver	ND	ND	NC	30
Thallium	ND	ND	NC	30
Vanadium	54.0	52.0	3.8	30
Zinc	4700	4600	2.2	30

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	1000	1030	103	85 - 115
Antimony	1000	1030	103	85 - 115
Arsenic	1000	988	99	85 - 115
Barium	1000	983	98	85 - 115
Beryllium	400	388	97	85 - 115
Cadmium	500	480	96	85 - 115
Calcium	10000	10200	102	85 - 115
Chromium	1000	999	100	85 - 115
Cobalt	1000	981	98	85 - 115
Copper	1000	993	99	85 - 115
Iron	1000	986	99	85 - 115
Lead	1000	967	97	85 - 115
Magnesium	10000	10100	101	85 - 115
Manganese	1000	977	98	85 - 115
Nickel	1000	979	98	85 - 115
Selenium	1000	977	98	85 - 115
Silver	200	192	96	85 - 115
Thallium	1000	980	98	85 - 115
Vanadium	1000	1010	101	85 - 115
Zinc	1000	990	99	85 - 115

Comments:

Former Tombarello & Sons Property - Lawrence, MA

Solid Laboratory Control Sample (LCS) Results

PARAMETER	LCS RESULTS mg/Kg	CONTROL LIMITS mg/Kg
Aluminum	7330	3200 - 13000
Antimony	38.9	21.4 - 255
Arsenic	93.7	69.6 - 131
Barium	197	160 - 278
Beryllium	138	111 - 185
Cadmium	77.7	61.3 - 110
Calcium	5470	4430 - 7590
Chromium	97.8	74.3 - 144
Cobalt	117	91.4 - 160
Copper	161	125 - 213
Iron	11300	5270 - 23900
Lead	81.2	61.8 - 115
Magnesium	2800	1930 - 3940
Manganese	286	233 - 390
Nickel	46.6	34.4 - 67.3
Selenium	83.6	56.2 - 119
Silver	38.0	27.3 - 55.4
Thallium	53.8	37.1 - 79.2
Vanadium	127	97.8 - 181
Zinc	137	98.2 - 192

Comments:

Samples in Batch: AB68042, AB68043, AB68044, AB68045, AB68046, AB68047, AB68048, AB68049, AB68050, AB68051, AB68052, AB68053, AB68054, AB68055, AB68056, AB68059, AB68060, AB68061

PN: 17060048

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0050	SB-214A	PCB	Soil	6/27/2017	14:45	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	PCB	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	Metals	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	PCB	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	Metals	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	Metals	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	PCB	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	PCB	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	Metals	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	PCB	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	Metals	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0056	RB-200	PCB	Rinsate Blank	6/27/2017	15:10	2	1 Liter amber	4 C	N
	R01-161221TC-0056	RB-200	Metals	Rinsate Blank	6/27/2017	15:10	1	500 ml poly	HNO3 pH<2	N
	R01-161221TC-0057	AS1884	PCB	Lab Sand	6/27/2017	15:15	1	2 oz Jar	4 C	N
	R01-161221TC-0058	IS7513	Metals	Lab Sand	6/27/2017	15:20	1	2 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	PCB	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	Metals	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	Metals	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	PCB	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6-28-17/1200	ESAT	6-28-17 12:00	

17060048 $PCBW
17060048 $METW_PE
17060048 $METMS_PE
17060048 $PCBMS

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 01, 2017

Tom Condon - Mail Code OSRR02-2
Jerry Keefe - EIA / OEME
US EPA New England R1

Project Number: 17060048
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: Total Recoverable Metals in Water by ICP
EPA Chemist: Janet Paquin

Date Samples Received by the Laboratory: 06/28/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-OPTIMAS0.

Samples were prepared following the EPA Region I SOP, EIASOP-INGMETALSPREP8

The sample preparation and analysis SOP's are based on Methods 3010A or 3005A and 6010B as stated in "Test Methods for Evaluating Solid Waste, 3rd ed., Final Update III, 7/92 and 12/96."

The samples were analyzed using a Perkin Elmer Dual View Inductively Coupled Plasma - Optical Emission Spectrometer.

Samples were prepared and analyzed by ESAT contractors working at the USEPA New England Laboratory.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Former Tombarello & Sons Property - Lawrence, MA

Total Recoverable Metals in Water by ICP

Client Sample ID:	R01-161221TC-0056	Lab Sample ID:	AB68057
Date of Collection:	6/27/2017	Matrix:	Rinsate Blank
Date of Preparation:	7/03/2017	Amount Prepared:	50 mL
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	50 mL	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Reagent Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Rinsate Blank
Date of Preparation:	7/03/2017	Amount Prepared:	50 mL
Date of Analysis:	7/14/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	<2
Volume Extracted:	50 mL	GPC Factor:	N/A
Final Volume:	50 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
7440-22-4	Silver	ND	10	
7429-90-5	Aluminum	ND	220	
7440-38-2	Arsenic	ND	20	
7440-39-3	Barium	ND	20	
7440-41-7	Beryllium	ND	8.0	
7440-70-2	Calcium	ND	100	
7440-43-9	Cadmium	ND	10	
7440-48-4	Cobalt	ND	20	
7440-47-3	Chromium	ND	20	
7440-50-8	Copper	ND	20	
7439-89-6	Iron	ND	40	
7439-95-4	Magnesium	ND	100	
7439-96-5	Manganese	ND	20	
7440-02-0	Nickel	ND	20	
7439-92-1	Lead	ND	20	
7440-36-0	Antimony	ND	20	
7782-49-2	Selenium	ND	40	
7440-28-0	Thallium	ND	20	
7440-62-2	Vanadium	ND	20	
7440-66-6	Zinc	ND	20	

Former Tombarello & Sons Property - Lawrence, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68057

PARAMETER	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC	QC LIMITS (% REC)
Aluminum	500	ND	551	110	75 - 125
Antimony	500	ND	540	108	75 - 125
Arsenic	500	ND	519	104	75 - 125
Barium	500	ND	499	100	75 - 125
Beryllium	200	ND	198	99	75 - 125
Cadmium	250	ND	249	100	75 - 125
Chromium	500	ND	516	103	75 - 125
Cobalt	500	ND	510	102	75 - 125
Copper	500	ND	510	102	75 - 125
Iron	500	ND	516	103	75 - 125
Lead	500	ND	498	100	75 - 125
Manganese	500	ND	504	101	75 - 125
Nickel	500	ND	509	102	75 - 125
Selenium	500	ND	512	102	75 - 125
Silver	100	ND	100	100	75 - 125
Thallium	500	ND	518	104	75 - 125
Vanadium	500	ND	517	103	75 - 125
Zinc	500	ND	512	102	75 - 125

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB68057

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aluminum	ND	ND	NC	20
Antimony	ND	ND	NC	20
Arsenic	ND	ND	NC	20
Barium	ND	ND	NC	20
Beryllium	ND	ND	NC	20
Cadmium	ND	ND	NC	20
Calcium	ND	150	NC	20
Chromium	ND	ND	NC	20
Cobalt	ND	ND	NC	20
Copper	ND	ND	NC	20
Iron	ND	ND	NC	20
Lead	ND	ND	NC	20
Magnesium	ND	ND	NC	20
Manganese	ND	ND	NC	20
Nickel	ND	ND	NC	20
Selenium	ND	ND	NC	20
Silver	ND	ND	NC	20
Thallium	ND	ND	NC	20
Vanadium	ND	ND	NC	20
Zinc	ND	ND	NC	20

Comments: The RPD for calcium could not be calculated (NC) since the sample result is nondetect (ND).

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aluminum	500	545	109	85 - 115
Antimony	500	528	106	85 - 115
Arsenic	500	517	103	85 - 115
Barium	500	498	100	85 - 115
Beryllium	200	197	99	85 - 115
Cadmium	250	248	99	85 - 115
Calcium	5000	5190	104	85 - 115
Chromium	500	516	103	85 - 115
Cobalt	500	509	102	85 - 115
Copper	500	510	102	85 - 115
Iron	500	518	104	85 - 115
Lead	500	493	99	85 - 115
Magnesium	5000	5240	105	85 - 115
Manganese	500	500	100	85 - 115
Nickel	500	507	101	85 - 115
Selenium	500	501	100	85 - 115
Silver	100	101	101	85 - 115
Thallium	500	514	103	85 - 115
Vanadium	500	517	103	85 - 115
Zinc	500	507	101	85 - 115

Comments:

Samples in Batch: AB68057

PN: 17060048

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0050	SB-214A	PCB	Soil	6/27/2017	14:45	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	PCB	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	Metals	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	PCB	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	Metals	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	Metals	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	PCB	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	PCB	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	Metals	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	PCB	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	Metals	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0056	RB-200	PCB	Rinsate Blank	6/27/2017	15:10	2	1 Liter amber	4 C	N
	R01-161221TC-0056	RB-200	Metals	Rinsate Blank	6/27/2017	15:10	1	500 ml poly	HNO3 pH<2	N
	R01-161221TC-0057	AS1884	PCB	Lab Sand	6/27/2017	15:15	1	2 oz Jar	4 C	N
	R01-161221TC-0058	IS7513	Metals	Lab Sand	6/27/2017	15:20	1	2 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	PCB	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	Metals	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	Metals	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	PCB	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6-28-17/1200	ESAT	6-28-17 12:00	

17060048 $PCBW
17060048 $METW_PE
17060048 $METMS_PE
17060048 $PCBMS

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

August 01, 2017

Tom Condon - Mail Code OSRR02-2
Jerry Keefe - EIA / OEME
US EPA New England R1

Project Number: 17060048
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: PCBs Medium Level in Soils and Sediments
EPA Chemist: Aaron Zimmer

Date Samples Received by the Laboratory: 06/28/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-PESTSOIL4.

The SOP is based on EPA SW-846 Method 8082A

The analysis was performed using high resolution capillary column gas chromatography equipped with dual electron capture detectors. The 30 meter dual capillary column system consists of a J&W DB-5 and J&W DB-1701,

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

Results relate only to the items tested or to the samples as received by the Laboratory. This analytical report shall not be reproduced except in full, without written approval of the laboratory.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0041	Lab Sample ID:	AB68042
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	76%
Dry Weight Prepared:	6.719 grams	Extract Dilution:	1
Wet Weight Prepared:	8.840 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.07	
11104-28-2	Aroclor-1221	ND	0.07	
11141-16-5	Aroclor-1232	ND	0.07	
53469-21-9	Aroclor-1242	ND	0.07	
12672-29-6	Aroclor-1248	ND	0.07	
11097-69-1	Aroclor-1254	ND	0.07	
11096-82-5	Aroclor-1260	**0.10**	0.07	
37234-23-5	Aroclor-1262	ND	0.07	
11100-14-4	Aroclor-1268	ND	0.07	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	76	36 - 131
Decachlorobiphenyl	92	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0042	Lab Sample ID:	AB68043
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	92%
Dry Weight Prepared:	6.504 grams	Extract Dilution:	50
Wet Weight Prepared:	7.060 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.8	
11104-28-2	Aroclor-1221	ND	3.8	
11141-16-5	Aroclor-1232	ND	3.8	
53469-21-9	Aroclor-1242	ND	3.8	
12672-29-6	Aroclor-1248	ND	3.8	
11097-69-1	Aroclor-1254	ND	3.8	
11096-82-5	Aroclor-1260	**34**	3.8	
37234-23-5	Aroclor-1262	ND	3.8	
11100-14-4	Aroclor-1268	ND	3.8	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0043	Lab Sample ID:	AB68044
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	74%
Dry Weight Prepared:	5.534 grams	Extract Dilution:	1
Wet Weight Prepared:	7.522 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	ND	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	80	36 - 131
Decachlorobiphenyl	96	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0044	Lab Sample ID:	AB68045
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	89%
Dry Weight Prepared:	6.261 grams	Extract Dilution:	100
Wet Weight Prepared:	7.031 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	8.0	
11104-28-2	Aroclor-1221	ND	8.0	
11141-16-5	Aroclor-1232	ND	8.0	
53469-21-9	Aroclor-1242	ND	8.0	
12672-29-6	Aroclor-1248	ND	8.0	
11097-69-1	Aroclor-1254	ND	8.0	
11096-82-5	Aroclor-1260	**59**	8.0	
37234-23-5	Aroclor-1262	ND	8.0	
11100-14-4	Aroclor-1268	ND	8.0	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0045	Lab Sample ID:	AB68046
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	73%
Dry Weight Prepared:	5.809 grams	Extract Dilution:	1
Wet Weight Prepared:	7.953 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	ND	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	79	36 - 131
Decachlorobiphenyl	97	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0046	Lab Sample ID:	AB68047
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	90%
Dry Weight Prepared:	6.527 grams	Extract Dilution:	100
Wet Weight Prepared:	7.286 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	7.7	
11104-28-2	Aroclor-1221	ND	7.7	
11141-16-5	Aroclor-1232	ND	7.7	
53469-21-9	Aroclor-1242	ND	7.7	
12672-29-6	Aroclor-1248	ND	7.7	
11097-69-1	Aroclor-1254	ND	7.7	
11096-82-5	Aroclor-1260	**57**	7.7	
37234-23-5	Aroclor-1262	ND	7.7	
11100-14-4	Aroclor-1268	ND	7.7	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0047	Lab Sample ID:	AB68048
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	79%
Dry Weight Prepared:	5.754 grams	Extract Dilution:	1
Wet Weight Prepared:	7.292 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.09	
11104-28-2	Aroclor-1221	ND	0.09	
11141-16-5	Aroclor-1232	ND	0.09	
53469-21-9	Aroclor-1242	ND	0.09	
12672-29-6	Aroclor-1248	ND	0.09	
11097-69-1	Aroclor-1254	ND	0.09	
11096-82-5	Aroclor-1260	ND	0.09	
37234-23-5	Aroclor-1262	ND	0.09	
11100-14-4	Aroclor-1268	ND	0.09	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	70	36 - 131
Decachlorobiphenyl	79	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0048	Lab Sample ID:	AB68049
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	81%
Dry Weight Prepared:	6.155 grams	Extract Dilution:	50
Wet Weight Prepared:	7.571 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	4.1	
11104-28-2	Aroclor-1221	ND	4.1	
11141-16-5	Aroclor-1232	ND	4.1	
53469-21-9	Aroclor-1242	ND	4.1	
12672-29-6	Aroclor-1248	ND	4.1	
11097-69-1	Aroclor-1254	**21**	4.1	
11096-82-5	Aroclor-1260	**25**	4.1	
37234-23-5	Aroclor-1262	ND	4.1	
11100-14-4	Aroclor-1268	ND	4.1	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0049	Lab Sample ID:	AB68050
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	83%
Dry Weight Prepared:	5.905 grams	Extract Dilution:	25
Wet Weight Prepared:	7.080 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	2.1	
11104-28-2	Aroclor-1221	ND	2.1	
11141-16-5	Aroclor-1232	ND	2.1	
53469-21-9	Aroclor-1242	ND	2.1	
12672-29-6	Aroclor-1248	ND	2.1	
11097-69-1	Aroclor-1254	**13**	2.1	
11096-82-5	Aroclor-1260	**11**	2.1	
37234-23-5	Aroclor-1262	ND	2.1	
11100-14-4	Aroclor-1268	ND	2.1	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0050	Lab Sample ID:	AB68051
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	84%
Dry Weight Prepared:	6.850 grams	Extract Dilution:	25
Wet Weight Prepared:	8.140 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	1.8	
11104-28-2	Aroclor-1221	ND	1.8	
11141-16-5	Aroclor-1232	ND	1.8	
53469-21-9	Aroclor-1242	ND	1.8	
12672-29-6	Aroclor-1248	ND	1.8	
11097-69-1	Aroclor-1254	**15**	1.8	
11096-82-5	Aroclor-1260	**8.5**	1.8	
37234-23-5	Aroclor-1262	ND	1.8	
11100-14-4	Aroclor-1268	ND	1.8	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0051	Lab Sample ID:	AB68052
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	85%
Dry Weight Prepared:	7.438 grams	Extract Dilution:	50
Wet Weight Prepared:	8.720 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.4	
11104-28-2	Aroclor-1221	ND	3.4	
11141-16-5	Aroclor-1232	ND	3.4	
53469-21-9	Aroclor-1242	ND	3.4	
12672-29-6	Aroclor-1248	ND	3.4	
11097-69-1	Aroclor-1254	**14**	3.4	
11096-82-5	Aroclor-1260	**17**	3.4	
37234-23-5	Aroclor-1262	ND	3.4	
11100-14-4	Aroclor-1268	ND	3.4	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0052	Lab Sample ID:	AB68053
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	92%
Dry Weight Prepared:	6.941 grams	Extract Dilution:	1
Wet Weight Prepared:	7.535 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.07	
11104-28-2	Aroclor-1221	ND	0.07	
11141-16-5	Aroclor-1232	ND	0.07	
53469-21-9	Aroclor-1242	ND	0.07	
12672-29-6	Aroclor-1248	ND	0.07	
11097-69-1	Aroclor-1254	ND	0.07	
11096-82-5	Aroclor-1260	ND	0.07	
37234-23-5	Aroclor-1262	ND	0.07	
11100-14-4	Aroclor-1268	ND	0.07	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	77	36 - 131
Decachlorobiphenyl	95	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0053	Lab Sample ID:	AB68054
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	83%
Dry Weight Prepared:	6.986 grams	Extract Dilution:	1
Wet Weight Prepared:	8.466 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.07	
11104-28-2	Aroclor-1221	ND	0.07	
11141-16-5	Aroclor-1232	ND	0.07	
53469-21-9	Aroclor-1242	ND	0.07	
12672-29-6	Aroclor-1248	ND	0.07	
11097-69-1	Aroclor-1254	ND	0.07	
11096-82-5	Aroclor-1260	**0.081**	0.07	
37234-23-5	Aroclor-1262	ND	0.07	
11100-14-4	Aroclor-1268	ND	0.07	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	87	36 - 131
Decachlorobiphenyl	93	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0054	Lab Sample ID:	AB68055
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	80%
Dry Weight Prepared:	6.920 grams	Extract Dilution:	1
Wet Weight Prepared:	8.663 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.07	
11104-28-2	Aroclor-1221	ND	0.07	
11141-16-5	Aroclor-1232	ND	0.07	
53469-21-9	Aroclor-1242	ND	0.07	
12672-29-6	Aroclor-1248	ND	0.07	
11097-69-1	Aroclor-1254	ND	0.07	
11096-82-5	Aroclor-1260	ND	0.07	
37234-23-5	Aroclor-1262	ND	0.07	
11100-14-4	Aroclor-1268	ND	0.07	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	84	36 - 131
Decachlorobiphenyl	94	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0055	Lab Sample ID:	AB68056
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/21/2017	Percent Solids:	84%
Dry Weight Prepared:	6.432 grams	Extract Dilution:	25
Wet Weight Prepared:	7.687 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	1.9	
11104-28-2	Aroclor-1221	ND	1.9	
11141-16-5	Aroclor-1232	ND	1.9	
53469-21-9	Aroclor-1242	ND	1.9	
12672-29-6	Aroclor-1248	ND	1.9	
11097-69-1	Aroclor-1254	**12**	1.9	
11096-82-5	Aroclor-1260	**9.6**	1.9	
37234-23-5	Aroclor-1262	ND	1.9	
11100-14-4	Aroclor-1268	ND	1.9	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0057	Lab Sample ID:	AB68058
Date of Collection:	6/27/2017	Matrix:	Lab Sand
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	100%
Dry Weight Prepared:	5.057 grams	Extract Dilution:	1
Wet Weight Prepared:	5.081 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.10	
11104-28-2	Aroclor-1221	ND	0.10	
11141-16-5	Aroclor-1232	ND	0.10	
53469-21-9	Aroclor-1242	ND	0.10	
12672-29-6	Aroclor-1248	ND	0.10	
11097-69-1	Aroclor-1254	**0.84**	0.10	
11096-82-5	Aroclor-1260	ND	0.10	
37234-23-5	Aroclor-1262	ND	0.10	
11100-14-4	Aroclor-1268	ND	0.10	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	90	36 - 131
Decachlorobiphenyl	98	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0059	Lab Sample ID:	AB68060
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	93%
Dry Weight Prepared:	7.523 grams	Extract Dilution:	50
Wet Weight Prepared:	8.112 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.3	
11104-28-2	Aroclor-1221	ND	3.3	
11141-16-5	Aroclor-1232	ND	3.3	
53469-21-9	Aroclor-1242	ND	3.3	
12672-29-6	Aroclor-1248	ND	3.3	
11097-69-1	Aroclor-1254	**11**	3.3	
11096-82-5	Aroclor-1260	**17**	3.3	
37234-23-5	Aroclor-1262	ND	3.3	
11100-14-4	Aroclor-1268	ND	3.3	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

PCBs Medium Level in Soils and Sediments

Client Sample ID:	R01-161221TC-0060	Lab Sample ID:	AB68061
Date of Collection:	6/27/2017	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	93%
Dry Weight Prepared:	7.511 grams	Extract Dilution:	50
Wet Weight Prepared:	8.068 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	3.3	
11104-28-2	Aroclor-1221	ND	3.3	
11141-16-5	Aroclor-1232	ND	3.3	
53469-21-9	Aroclor-1242	ND	3.3	
12672-29-6	Aroclor-1248	ND	3.3	
11097-69-1	Aroclor-1254	**13**	3.3	
11096-82-5	Aroclor-1260	**24**	3.3	
37234-23-5	Aroclor-1262	ND	3.3	
11100-14-4	Aroclor-1268	ND	3.3	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	NA	36 - 131
Decachlorobiphenyl	NA	30 - 165

Comments: Surrogates are not reported due to the dilution.

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Blank

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Soil
Date of Preparation:	7/11/2017	Amount Prepared:	N/A
Date of Analysis:	7/20/2017	Percent Solids:	100%
Dry Weight Prepared:	5.117 grams	Extract Dilution:	1
Wet Weight Prepared:	5.118 grams	pH:	N/A
Volume Extracted:	N/A	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration mg/Kg	RL mg/Kg	Qualifier
12674-11-2	Aroclor-1016	ND	0.10	
11104-28-2	Aroclor-1221	ND	0.10	
11141-16-5	Aroclor-1232	ND	0.10	
53469-21-9	Aroclor-1242	ND	0.10	
12672-29-6	Aroclor-1248	ND	0.10	
11097-69-1	Aroclor-1254	ND	0.10	
11096-82-5	Aroclor-1260	ND	0.10	
37234-23-5	Aroclor-1262	ND	0.10	
11100-14-4	Aroclor-1268	ND	0.10	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	48	36 - 131
Decachlorobiphenyl	56	30 - 165

Former Tombarello & Sons Property - Lawrence, MA

MATRIX SPIKE (MS) RECOVERY

Sample ID: AB68061

PARAMETER	SPIKE ADDED mg/Kg	SAMPLE CONCENTRATION mg/Kg	MS CONCENTRATION mg/Kg	MS % REC	QC LIMITS (% REC)
Aroclor-1254	0.40	13.0	R	R	34 - 152

Qualifier (R): No recovery was reported since the analyte concentration is greater than four times the spike level.

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB68061

PARAMETER	SAMPLE RESULT mg/Kg	SAMPLE DUPLICATE RESULT mg/Kg	PRECISION RPD %	QC LIMITS
Aroclor-1016	ND	ND	NC	50
Aroclor-1221	ND	ND	NC	50
Aroclor-1232	ND	ND	NC	50
Aroclor-1242	ND	ND	NC	50
Aroclor-1248	ND	ND	NC	50
Aroclor-1254	13.0	9.3	33	50
Aroclor-1260	24.0	16.0	40	50
Aroclor-1262	ND	ND	NC	50
Aroclor-1268	ND	ND	NC	50

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED mg/Kg	LFB RESULT mg/Kg	LFB RECOVERY %	QC LIMITS %
Aroclor-1016	0.54	0.57	106	70 - 130
Aroclor-1260	0.54	0.64	119	70 - 130

Comments:

Samples in Batch: AB68042, AB68043, AB68044, AB68045, AB68046, AB68047, AB68048, AB68049, AB68050, AB68051, AB68052, AB68053, AB68054, AB68055, AB68056, AB68058, AB68060, AB68061

PN: 17060048

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0050	SB-214A	PCB	Soil	6/27/2017	14:45	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	PCB	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	Metals	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	PCB	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	Metals	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	Metals	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	PCB	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	PCB	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	Metals	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	PCB	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	Metals	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0056	RB-200	PCB	Rinsate Blank	6/27/2017	15:10	2	1 Liter amber	4 C	N
	R01-161221TC-0056	RB-200	Metals	Rinsate Blank	6/27/2017	15:10	1	500 ml poly	HNO3 pH<2	N
	R01-161221TC-0057	AS1884	PCB	Lab Sand	6/27/2017	15:15	1	2 oz Jar	4 C	N
	R01-161221TC-0058	IS7513	Metals	Lab Sand	6/27/2017	15:20	1	2 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	PCB	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	Metals	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	Metals	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	PCB	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6-28-17/1200	ESAT	6-28-17 12:00	

17060048 $PCBW
17060048 $METW_PE
17060048 $METMS_PE
17060048 $PCBMS

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

July 24, 2017

Tom Condon - Mail Code OSRR02-2
Jerry Keefe - EIA / OEME
US EPA New England R1

Project Number: 17060048
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: PCBs in Water Low Level
EPA Chemist: Paul Carroll

Date Samples Received by the Laboratory: 06/28/2017

Analytical Procedure:

All samples were received and logged in by the laboratory according to the USEPA New England Laboratory SOP for Sample Log-in.

Sample preparation and analysis was done following the EPA Region I SOP, EIASOP-PESWALL7.

The SOP is based on "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, Method 608 - Organochlorine Pesticides and PCBS".

The analysis was carried out using high resolution capillary column chromatography. The 30 meter dual capillary system consists of J&W DB-5 and J&W DB-1701 columns both with a 0.25 mm ID.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

RL = Reporting limit
ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Former Tombarello & Sons Property - Lawrence, MA

PCBs in Water Low Level

Client Sample ID:	R01-161221TC-0056	Lab Sample ID:	AB68057
Date of Collection:	6/27/2017	Matrix:	Rinsate Blank
Date of Preparation:	6/29/2017	Amount Prepared:	1000 mL
Date of Analysis:	6/30/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	5.4
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	69	40 - 106
Decachlorobiphenyl	60	27 - 128

Former Tombarello & Sons Property - Lawrence, MA

Blank for PCBs Water

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Rinsate Blank
Date of Preparation:	6/29/2017	Amount Prepared:	1000 mL
Date of Analysis:	6/30/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	6.1
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	65	40 - 106
Decachlorobiphenyl	50	27 - 128

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB68057

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aroclor-1016	ND	ND	NC	50
Aroclor-1221	ND	ND	NC	50
Aroclor-1232	ND	ND	NC	50
Aroclor-1242	ND	ND	NC	50
Aroclor-1248	ND	ND	NC	50
Aroclor-1254	ND	ND	NC	50
Aroclor-1260	ND	ND	NC	50
Aroclor-1262	ND	ND	NC	50
Aroclor-1268	ND	ND	NC	50

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aroclor-1016	3.0	2.4	80	46 - 113
Aroclor-1260	3.0	2.9	97	66 - 118

Comments:

Samples in Batch: AB68057

PN: 17060048

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0050	SB-214A	PCB	Soil	6/27/2017	14:45	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	PCB	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	Metals	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	PCB	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	Metals	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	Metals	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	PCB	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	PCB	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	Metals	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	PCB	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	Metals	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0056	RB-200	PCB	Rinsate Blank	6/27/2017	15:10	2	1 Liter amber	4 C	N
	R01-161221TC-0056	RB-200	Metals	Rinsate Blank	6/27/2017	15:10	1	500 ml poly	HNO3 pH<2	N
	R01-161221TC-0057	AS1884	PCB	Lab Sand	6/27/2017	15:15	1	2 oz Jar	4 C	N
	R01-161221TC-0058	IS7513	Metals	Lab Sand	6/27/2017	15:20	1	2 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	PCB	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	Metals	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	Metals	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	PCB	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6-28-17/1200	ESAT	6-28-17 12:00	

17060048 $PCBW
17060048 $METW_PE
17060048 $METMS_PE
17060048 $PCBMS

United States Environmental Protection Agency
Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431

Laboratory Report

July 24, 2017

Tom Condon - Mail Code OSRR02-2
Jerry Keefe - EIA / OEME
US EPA New England R1

Project Number: 17060048
Project: Former Tombarello & Sons Property - Lawrence, MA
Analysis: PCBs in Water Low Level
EPA Chemist: Paul Carroll

Date Samples Received by the Laboratory: 06/28/2017

Analytical Procedure:

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The analysis was carried out using high resolution capillary column chromatography. The 30 meter dual capillary system consists of J&W DB-5 and J&W DB-1701 columns both with a 0.25 mm ID.

Data were reviewed in accordance with the internal verification procedures described in the EPA New England Quality Manual for NERL.

If you have any questions please call me at 617-918-8340 .

Sincerely,

Qualifiers:

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ND = Not Detected above Reporting limit
NA = Not Applicable due to high sample dilutions or sample interferences
NC = Not calculated since analyte concentration is ND.
J = Estimated value
J1 = Estimated value due to MS recovery outside accceptance criteria
J2 = Estimated value due to LFB result outside acceptance criteria
J3 = Estimated value due to RPD result outside acceptance criteria
J4 = Estimated value due to LCS result outside acceptance criteria
E = Estimated value exceeds the calibration range
L = Estimated value is below the calibration range
B = Analyte is associated with the lab blank or trip blank contamination. Values are qualified when the observed concentration of the contamination in the sample extract is less than 10 times the concentration in the blank.
R = No recovery was calculated since the analyte concentration is greater than four times the spike level.
P = The confirmation value exceeded 35% difference and is less than 100%. The lower value is reported.
C = The identification has been confirmed by GC/MS.
A = Suspected Aldol condensation product.
N = Tentatively identified compound.

Former Tombarello & Sons Property - Lawrence, MA

PCBs in Water Low Level

Client Sample ID:	R01-161221TC-0056	Lab Sample ID:	AB68057
Date of Collection:	6/27/2017	Matrix:	Rinsate Blank
Date of Preparation:	6/29/2017	Amount Prepared:	1000 mL
Date of Analysis:	6/30/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	5.4
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	69	40 - 106
Decachlorobiphenyl	60	27 - 128

Former Tombarello & Sons Property - Lawrence, MA

Blank for PCBs Water

Client Sample ID:	N/A	Lab Sample ID:	N/A
Date of Collection:	N/A	Matrix:	Rinsate Blank
Date of Preparation:	6/29/2017	Amount Prepared:	1000 mL
Date of Analysis:	6/30/2017	Percent Solids:	N/A
Dry Weight Prepared:	N/A	Extract Dilution:	1
Wet Weight Prepared:	N/A	pH:	6.1
Volume Extracted:	1000 mL	GPC Factor:	N/A
Final Volume:	5 mL		

CAS Number	Compound	Concentration ug/L	RL ug/L	Qualifier
12674-11-2	Aroclor-1016	ND	0.50	
11104-28-2	Aroclor-1221	ND	0.50	
11141-16-5	Aroclor-1232	ND	0.50	
53469-21-9	Aroclor-1242	ND	0.50	
12672-29-6	Aroclor-1248	ND	0.50	
11097-69-1	Aroclor-1254	ND	0.50	
11096-82-5	Aroclor-1260	ND	0.50	
37324-23-5	Aroclor-1262	ND	0.50	
11100-14-4	Aroclor-1268	ND	0.50	

Surrogate Compounds	Recoveries (%)	QC Ranges
2,4,5,6-Tetrachloro-m-xylene	65	40 - 106
Decachlorobiphenyl	50	27 - 128

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Duplicate Results

Sample ID: AB68057

PARAMETER	SAMPLE RESULT ug/L	SAMPLE DUPLICATE RESULT ug/L	PRECISION RPD %	QC LIMITS
Aroclor-1016	ND	ND	NC	50
Aroclor-1221	ND	ND	NC	50
Aroclor-1232	ND	ND	NC	50
Aroclor-1242	ND	ND	NC	50
Aroclor-1248	ND	ND	NC	50
Aroclor-1254	ND	ND	NC	50
Aroclor-1260	ND	ND	NC	50
Aroclor-1262	ND	ND	NC	50
Aroclor-1268	ND	ND	NC	50

Former Tombarello & Sons Property - Lawrence, MA

Laboratory Fortified Blank (LFB) Results

PARAMETER	LFB AMOUNT SPIKED ug/L	LFB RESULT ug/L	LFB RECOVERY %	QC LIMITS %
Aroclor-1016	3.0	2.4	80	46 - 113
Aroclor-1260	3.0	2.9	97	66 - 118

Comments:

Samples in Batch: AB68057

PN: 17060048

Weston Solutions, Inc
Region 1 START IV
Fmr Tombarello & Sons

CHAIN OF CUSTODY RECORD
Site #: R01-161221TC
Contact Name: Tom Condon
Contact Phone: 617-680-5465

No: 1-062717-164907-0002
Lab: OEME
Lab Phone: 617-918-8490
DateShipped: 6/28/2017

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	R01-161221TC-0050	SB-214A	PCB	Soil	6/27/2017	14:45	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	PCB	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0051	SB-214B	Metals	Soil	6/27/2017	14:50	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	PCB	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0052	SB-215A	Metals	Soil	6/27/2017	14:20	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	Metals	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0053	SB-215B	PCB	Soil	6/27/2017	14:25	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	PCB	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0054	SB-222B	Metals	Soil	6/27/2017	09:15	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	PCB	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0055	SB-233B	Metals	Soil	6/27/2017	15:00	1	4 oz Jar	4 C	N
	R01-161221TC-0056	RB-200	PCB	Rinsate Blank	6/27/2017	15:10	2	1 Liter amber	4 C	N
	R01-161221TC-0056	RB-200	Metals	Rinsate Blank	6/27/2017	15:10	1	500 ml poly	HNO3 pH<2	N
	R01-161221TC-0057	AS1884	PCB	Lab Sand	6/27/2017	15:15	1	2 oz Jar	4 C	N
	R01-161221TC-0058	IS7513	Metals	Lab Sand	6/27/2017	15:20	1	2 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	PCB	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0059	SB-216A	Metals	Soil	6/27/2017	14:30	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	Metals	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N
	R01-161221TC-0060	SB-216B	PCB	Soil	6/27/2017	14:35	1	4 oz Jar	4 C	N

Special Instructions: Please email results to condon.tom@epa.gov	**SAMPLES TRANSFERRED FROM**
	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
		6-28-17/1200	ESAT	6-28-17 12:00	

17060048 $PCBW
17060048 $METW_PE
17060048 $METMS_PE
17060048 $PCBMS