Partial Massachusetts Contingency Plan, Phase IV Remedy Implementation Plan, Part 3

Version: Draft for Public Comment

Former Varian Facility Site, 150 Sohier Road, Beverly, Massachusetts 01915
MassDEP Site # 3-0485

November 7, 2023

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Acronyms and Abbreviations

°C	degree(s) Celsius
%	percent
μg/L	microgram(s) per liter
bgs	below ground surface
Building 3 complex	Buildings 1, 2, 3, 4, and 6
Building 5 complex	Buildings 5, 5A, 8, and 10
CAC	colloidal activated carbon
cis-1,2-DCE	cis-1,2-dichloroethene
CMR	*Code of Massachusetts Regulations*
CPI	Communications & Power Industries, Inc.
CSA	Comprehensive Site Assessment
CVOC	chlorinated volatile organic compound
CY	cubic yard(s)
DNAPL	dense nonaqueous phase liquid
DO	dissolved oxygen
ft^2	square foot (feet)
GAC RCM	granular activated carbon reactive core mat
gpd	gallon(s) per day
HASP	Health and Safety Plan
HDPE	high-density polyethylene
HRT	hydraulic residence time
ISB	in situ bioremediation
ISCO	in situ chemical oxidation
ISCR	in situ chemical reduction
ISTR	in situ thermal remediation
lb	pound(s)
LSP	Licensed Site Professional
MassDEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
mg/m^3	milligram(s) per cubic meter
mV	millivolt(s)
N/A	not applicable
NAPL	nonaqueous phase liquid
OB	overburden
OHM	oil and/or hazardous material
OMM	operation, maintenance, and/or monitoring
ORP	oxidation-reduction potential
PAZ	permeable adsorptive zone
PCE	tetrachloroethene

Phase IV Plan	Phase IV Implementation of the Selected Remedial Alternative Report
PID	photoionization detector
PIP	Public Involvement Plan
ppmv	part(s) per million by volume
PSL	Potential Source Location
PVC	polyvinyl chloride
RAA	remedial action alternative
RAP	Remedial Action Plan
S mZVI PRZ	sulfidated micro zero-valent iron permeable reactive zone
SBGR	subgrade biogeochemical reactor
Site	any place or area where oil and/or hazardous material (OHM) from Varian’s former facility located at 150 Sohier Road in Beverly, Massachusetts have come to be located
SPCC	spill prevention, control, and countermeasures
SVE	soil vapor extraction
TCE	trichloroethene
TOC	total organic carbon
TTZ	target treatment zone
USEPA	United States Environmental Protection Agency
Varian	Varian Medical Systems, Inc.
VC	vinyl chloride
VOC	volatile organic compound
ZOI	zone of influence
ZVI	zero-valent iron

1. Introduction

Jacobs Solutions Inc. (Jacobs) has prepared this Phase IV Implementation of the Selected Remedial Alternative Report (Phase IV Plan) on behalf of Varian Medical Systems, Inc. (Varian) in accordance with the Massachusetts Contingency Plan (MCP) (Title 310 *Code of Massachusetts Regulations* [CMR] 40.0870) for the Former Varian Facility located at 150 Sohier Road in Beverly, Massachusetts (Site). Within this report, the term "Site" is used, in accordance with the MCP, for any place or area where oil and/or hazardous material (OHM) from Varian's former facility have come to be located. The "facility" refers to Varian's former facility property. The Site location is shown on Figure 1-1. The Site has been the subject of multiple assessment activities, which have indicated that a release of OHM has occurred at the Former Varian Facility. The Site is listed as a Disposal Site under the MCP and was assigned Release Tracking Number 3-0485 by the Massachusetts Department of Environmental Protection (MassDEP).

The purpose of this Phase IV Plan is to present plans for the implementation of the selected remedial action alternative (RAA) for the Potential Source Location (PSL) 10 area. Specifically, this plan is referred to as the Phase IV Plan, Part 3. The Phase IV Plan, Part 1, submitted in March 2023, presented plans for the implementation of the RAAs for addressing the Building 3 source area and two downgradient areas of the Site, one along the groundwater flow pathway at Tozer Road and the other at two identified groundwater seeps along Stream A (Aptim 2023b). The Phase IV Plan, Part 2, submitted in September 2023, presented plans for the implementation of the RAAs for the Building 5 overburden and bedrock areas (Jacobs 2023). Additional information on the nature and extent of contamination at PSL10 was presented in the Phase IV Plan, Part 2, but a remedy implementation plan was not included at that time, because additional data were being collected at PSL10. These data, along with additional assessment data, are presented in Section 3.1.

As required by the MCP, this Phase IV Plan, Part 3, is being submitted electronically to MassDEP concurrently with a completed Comprehensive Response Action Transmittal Form (BWSC-108). A copy of the BWSC-108 form is provided as Appendix A. As required in the Public Involvement Plan (PIP) established for the Site under the MCP (Aptim 2022), this report will be presented at a public meeting and will undergo a 20--day public comment period.

1.1 Disposal Site Name, Location, and Locus Map

Varian's former facility was located at 150 Sohier Road in Beverly, Essex County, Massachusetts. The property at 150 Sohier Road has the Universal Transverse Mercator coordinates of North 4,715,075 meters and East 345,475 meters; Longitude 70° 52′ 57″ West; and Latitude 42° 34′ 28″ North. Figure 1-2, the Expanded Site Plan, identifies the location of 150 Sohier Road and the surrounding area.

The facility is located on approximately 24 acres of land and contains four large complexes of buildings covering approximately 250,000 square feet (ft^2). The facility's southern portion includes an open field and a paved parking area. The central portion of the facility includes a building complex (Buildings 5, 5A, 8, and 10) (referred to as the Building 5 complex). North of the Building 5 complex is a paved parking area, and to the northwest is another building complex (Buildings 1, 2, 3, 4, and 6) (referred to as the Building 3 complex). Northeast of the Building 3 complex is a wastewater treatment plant in Building 9. West of the Building 3 complex is former Building 7, which is now operated as Kelly Classics and Restoration.

Presently, Communications & Power Industries, Inc. (CPI) owns and operates Buildings 1 through 6, 8, 9, and 10, and other structures at the 150 Sohier Road property.

1.2 Regulatory Reporting

On October 7, 2022, a Public Comment Draft Phase II Comprehensive Site Assessment (CSA) Addendum was submitted to MassDEP. The October 2022 Phase II CSA comprehensively assessed current Site conditions, including the nature and extent of chlorinated volatile organic compounds (CVOCs), which were identified as the primary compounds released at the Site, and provided an updated evaluation of risk based on these current Site conditions. A public meeting to present the October 2022 Phase II CSA took place on November 9, 2022. Comments were received during the public comment period, which ended on November 29, 2022, and responses to comments were provided on December 7, 2022. The Final Phase II CSA Addendum was submitted to MassDEP on March 10, 2023 (Aptim 2023a).

On December 7, 2022, a Public Comment Draft Phase III Remedial Action Plan (RAP) was submitted to MassDEP. A public meeting to present the Phase III RAP was held on January 24, 2023. Comments were received during the public comment period, which ended on February 14, 2023, and responses to comments were provided on March 16, 2023.

A Revised Phase III RAP was submitted to MassDEP on March 17, 2023 (Aptim 2023c). This report was presented at a public meeting on June 7, 2023. Comments were received during the public comment period, which ended on June 27, 2023, and responses to comments were provided on July 27, 2023. No changes to the Revised Phase III RAP were made as a result of the comments, and the document is considered final.

The Final Phase III RAP included the selected RAAs shown in Table 1-1.

Table 1-1. Selected Remedial Action Alternatives

Area	Selected Remedial Action Alternative
Building 3 Overburden Source Area	In situ thermal remediation (ISTR), In Situ Bioremediation (ISB) Polish, and Continued Soil Vapor Extraction (SVE) System Operation
Building 5 Overburden Source Area	ISB and Continued SVE System Operation
Bedrock	In Situ Chemical Oxidation (ISCO)
PSL10 Source Area	Reactive Treatment Zone
Downgradient Plume	Sulfidated Micro Zero-Valent Iron Permeable Reactive Zone (S mZVI PRZ) for Tozer Road and Granular Activated Carbon Reactive Core Mat (GAC RCM) for the Seep Areas

Along with the Revised Phase III RAP, a Public Comment Draft for the Phase IV Plan, Part 1 (*Partial Massachusetts Contingency Plan Phase IV Remedy Implementation Plan*), was submitted to MassDEP on March 17, 2023 (Aptim 2023b). This report included remedy implementation plans for the Building 3 Overburden Source Area (ISTR, ISB Polish, and Continued SVE System Operation) and the downgradient plume (Tozer Road S mZVI PRZ and Stream A Seep GAC RCM). The public meeting to present the Phase IV Plan, Part 1, was also held on June 7, 2023. Comments were received during the public comment period, which ended on June 27, 2023, and responses to comments were provided on July 27, 2023. No changes to the Phase IV Plan, Part 1, were made as a result of the comments, and the document is considered final.

A Public Comment Draft for the Phase IV Plan, Part 2 (*Partial Massachusetts Contingency Plan Phase IV Remedy Implementation Plan*), was submitted to MassDEP on September 20, 2023 (Jacobs 2023). This report included remedy implementation plans for the Building 5 Overburden Source Area (ISB and Continued SVE System Operation) and the bedrock (ISCO). A public meeting to present the Phase IV Plan, Part 2, is scheduled for November 14, 2023.

This Phase IV Plan, Part 3, sets forth the remedy implementation plan for PSL10, which includes establishing a treatment zone, in alignment with the remedy proposed in the Phase III RAP. As discussed in Section 3.3 of this report, language in the Revised Phase III RAP provided that the PSL10 remedy might include a reactive treatment zone, such as in situ chemical reduction (ISCR) (for example, zero-valent iron [ZVI]) or a combination of ISCR and other amendments, supplemented with shallow soil excavation, as appropriate, based on the results of additional investigation activities that were planned (Aptim 2023c). Based on investigation results presented in Section 3.1, the PSL10 remedy will consist of a subgrade biogeochemical reactor (SBGR), as further detailed in this report.

A public meeting to present the Phase IV Plan, Part 2 and Part 3, is scheduled for November 14, 2023, followed by a 20-day public comment period, which will end on December 4, 2023.

1.3 Statement of Purpose

In accordance with the MCP (310 CMR 40.0872), the purpose of the Phase IV Plan is to accomplish the following:

1. Sufficiently develop the information, plans, and reports related to the design, construction, and implementation of the selected remedial alternative, and provide documentation to support the implementation of the Comprehensive Remedial Alternative.
2. Confirm that, following initial implementation, the Comprehensive Remedial Alternative meets design and performance specifications.
3. Meet the Response Action Performance Standard for the design, construction, and implementation of the Comprehensive Remedial Action, as described in 310 CMR 40.0191.

1.4 Report Organization

The report has been developed in accordance with 310 CMR 40.0874(3) of the MCP to present the design, construction, and monitoring associated with the implementation of selected RAAs. The report organization is shown in Table 1-2.

Table 1-2. Report Organization

310 CMR 40.0874 (3)	Description of Section	Report Section
(a)	Relevant Project Contacts	Section 2.0
(b)(1)	Remedial Action Goals	Section 3.2
(b)(2)	Significant Changes/New Information	Section 3.1
(b)(3)	Disposal Site Maps	Section 3.1
(b)(4)	Environmental Media/Materials to be Treated or Otherwise Managed	Section 3.1
(b)(5)	Conceptual Plan of Remedial Activities	Section 3.3
(b)(6)	Design and Operation Parameters	Section 3.5
(b)(7)	Spill, Accidental Discharge, or System Malfunction Control	Section 3.6
(b)(8)	Waste Material Management –Disposal Methods	Section 3.7
(b)(9)	Site-specific Characteristics	Section 3.4
(b)(10)	Adverse Impact Mitigation	Section 3.8
(b)(11)	RAA Inspections and Monitoring	Section 3.9
(c)(1)	Construction Plans and Specifications	Section 4.0 (and Figures 3-6 to 3-8)
(c)(2)	Schedule	Section 3.12
(d)	OMM Plan	Section 3.9
(e)	HASP	Section 5.0
(f)	Permits, Licenses, and Approvals	Section 3.10
(g)	Property Access Issues	Section 3.11
N/A	Public Involvement	Section 6.0

HASP = Health and Safety Plan
N/A = not applicable
OMM = operation, maintenance, and/or monitoring

2. Project Contacts

In accordance with 310 CMR 40.0874(3)(a), the Phase IV Plan must include a list of contacts, including the responsible party, the licensed site professional (LSP), and the party that will own, operate, and/or maintain the selected RAA during and following construction.

2.1 Responsible Party

Matthew Gillis
Environmental Affairs Program Manager
Varian Medical Systems, Inc.
801 Pennsylvania Avenue NW
Washington, DC, 20004
Phone: 410-459-1710

2.2 Licensed Site Professional

Matthew E. Hackman, P.E.
LSP Number 9456
CHMM, Inc.
97 Asylum Road
Warwick, Rhode Island, 02886-8001
Office Phone: 401-737-9211

2.3 Owner/Operator of the Selected Remedial Action Alternative

Matthew Gillis
Environmental Affairs Program Manager
Varian Medical Systems, Inc.
801 Pennsylvania Avenue NW
Washington, DC, 20004
Phone: 410-459-1710

3. PSL10 Source Area – Subgrade Biogeochemical Reactor

This section provides a detailed description of the SBGR remedy to be implemented in the PSL10 Source Area.

3.1 Nature and Extent of Contamination (310 CMR 40.0874(3)(b)(4))

The PSL10 Source Area is located at 150 Sohier Road beneath a portion of a parking lot south of Building 5 and bordered to the west by the 32 Tozer Road property. Waste liquids were reported to have been historically disposed of in this area (IT 2000). In accordance with the Revised Phase III RAP (Aptim 2023c), the target treatment zone (TTZ) for the PSL10 area was defined as the 7,200-ft^2 area that includes both the source area and downgradient plume, bounded by CL10-S, CL10-DO, and MW-2_32-Tozer to the west and including the ISCO injection wells AP-19, AP-20, AP-21, and AP-22 (Figure 3-1). Based on the defined TTZ area, it was estimated in the Revised Phase III RAP that the overburden has approximately 100 pounds (lb) of CVOCs (85 lb adsorbed to saturated and unsaturated soils and 15 lb dissolved in groundwater). Results from subsequent investigations implemented in 2023, including a soil gas survey and follow up soil sampling, were used to refine the nature and extent of CVOCs presented in the Final Phase II CSA Addendum (Aptim 2023a) and Revised Phase III RAP (Aptim 2023c).

3.1.1 Recent Groundwater Data

Recent groundwater sampling data from existing wells in the PSL10 Source Area are summarized in Table 3-1. CVOC concentrations in groundwater at PSL10 are lower relative to other source areas. The concentrations in shallower wells CL10-S, AP-20, and AP-22, have exhibited seasonal fluctuations in CVOC concentrations, especially tetrachloroethene (PCE), that suggest the presence of vadose soil CVOCs that are mobilized and transported vertically downward to groundwater during seasonal groundwater table fluctuations or surficial precipitation recharge.

Table 3-1. May 2022 through May 2023 Groundwater Concentrations in PSL10 Area Monitoring Wells

Well	Unit	Screen Interval (feet bgs)	Date	Ground-water Elevation (feet)	PCE	TCE	cis-1,2-DCE	VC
					Concentrations shown in milligrams per liter (mg/L)			
AP-19	Deep OB	25–30	5/2022	69.44	<0.002	<0.002	0.013	<0.002
			12/2022	68.02	0.023	0.009	0.004	<0.002
			5/2023	68.96	<0.002	<0.002	0.005	<0.002
AP-20	Shallow OB	15–20	5/2022	70.22	0.12	0.02	0.12	<0.002
			11/2022	67.73	4.9	0.3	2	0.49
			5/2023	69.75	0.4	0.049	0.17	<0.002
AP-21	Deep OB	25–30	5/2022	69.26	<0.002	<0.002	<0.002	<0.002
			12/2022	67.47	0.031	0.012	0.003	<0.002
			5/2023	69.13	0.005	<0.002	<0.002	<0.002
AP-22	Shallow OB	15–20	5/2022	67.91	0.18	0.065	0.087	<0.002
			11/2022	64.71	1.6	0.54	0.82	<0.01
			5/2023	67.20	0.41	0.057	0.19	<0.002

Table 3-1. May 2022 through May 2023 Groundwater Concentrations in PSL10 Area Monitoring Wells

Well	Unit	Screen Interval (feet bgs)	Date	Groundwater Elevation (feet)	PCE	TCE	cis-1,2-DCE	VC
					Concentrations shown in milligrams per liter (mg/L)			
CL-10-S	Shallow OB	6–16	5/2022	68.02	0.27	0.009	0.01	<0.002
			11/2022	66.89	0.022	<0.002	<0.002	<0.002
			5/2023	68.11	0.31	0.011	0.012	<0.002
CL-10-DO	Deep OB	27–37	5/2022	67.73	2.9	1.3	0.15	<0.01
			12/2022	66.23	1.8	1.3	0.18	<0.02
			5/2023	67.77	2.1	1.7	0.22	<0.02
CL-10-BR	Bedrock	37–47	5/2022	68.27	<0.002	<0.002	<0.002	<0.002
			5/2023	69.55	<0.002	0.008	<0.002	<0.002
MW-1_32-Tozer	Shallow OB	15–20	5/2023	NM	NM	NM	NM	NM
MW-2_32-Tozer	Shallow OB	15–20	5/2022	65.19	0.011	0.013	0.015	<0.002
			12/2022	63.35	0.75	0.13	0.73	0.12
			5/2023	65.30	0.002	<0.002	0.003	<0.002
MW-4_32-Tozer	Shallow OB	-	5/2023	NC*	0.0003 J	0.00019 J	<0.001	<0.001
MW-5_32-Tozer	Shallow OB	-	5/2023	NC**	0.002	0.018	0.018	0.00072 J
OB-16-S	Shallow OB	7.5–17.5	5/2023	60.47	0.00049 J	0.00076 J	<0.001	<0.001
OB-24-S	Shallow OB	0–3	5/2023	43.28	< 0.001	0.00044 J	0.00037 J	< 0.001

< = less than
cis-1,2-DCE = cis-1,2-dichloroethene
bgs = below ground surface
J = concentration is estimated
mg/L = milligram(s) per liter
- = not available (well installed by others)
NC* = not calculated, top of casing not surveyed, depth to water was 5.48 feet below top of casing
NC** = not calculated, top of casing not surveyed, depth to water was 5.68 feet below top of casing
NM = not measured, well could not be accessed during most recent sampling event
OB = overburden
TCE = trichloroethene
VC = vinyl chloride

Historical groundwater data from well MW-032, an overburden well located just south of the PSL10 Source Area (Figure 3-1), have shown non-detect concentrations of CVOCs. In addition, historical groundwater sampling data from bedrock well CL10-BR2, located within the PSL10 treatment area (Figure 3-1), have indicated TCE and PCE concentrations ranging from non-detect to 0.004 mg/L.

3.1.2 2023 Soil Gas Survey

To further evaluate the area for residual CVOC impacts in the vadose zone, a soil gas survey was conducted in August 2023 over an area of approximately 160 feet by 60 feet (Figure 3-2). The presence of dense vegetation and utilities (including overhead power lines, a gas line, and two water lines [Figure 3-2] near wells AP-19, AP-20, AP-21, and AP-22) limited the survey area to the parking lot east of these wells. The soil gas survey area was divided into 20 foot by 20 foot grid squares, with soil gas samples collected in each grid square. The target depth was 5 feet bgs; however, with the exception of PSL10-A4, soil gas samples could not be collected at this depth because of the tightness of the soils. The remainder of the locations were sampled at a depth of 2 to 3 feet bgs. A total of 18 soil gas samples were collected in the PSL10 area. Soil vapor sample locations A3, B4, D2, and G1 had negligible gas recovery, so samples were not collected at these locations.

Results from the soil gas sampling are shown on Figure 3-2 and summarized in Table 3-2. The highest soil vapor concentrations were detected at soil vapor point D4, with 2,050 parts per million by volume (ppmv) of PCE and 30.9 ppmv of TCE. Soil vapor point D4 is located approximately 60 feet northeast of well AP-20, which is the well with the highest PCE groundwater concentration reported in December 2022. Soil vapor samples collected from points 20 feet northwest (C4), northeast (D3), and southeast (E4) of soil vapor point D4 had detections of PCE ranging from 0.0501 ppmv (soil vapor point E4) to 35.8 ppmv (soil vapor point C4).

Table 3-2. PSL10 Area Soil Vapor Investigation Results

Location	Sample Date	PCE		TCE		cis-1,2-DCE		VC	
		mg/m^3	ppmv	mg/m^3	ppmv	mg/m^3	ppmv	mg/m^3	ppmv
PSL10-A2	08/21/2023	0.141	0.0208	< 0.00107	< 0.000199	< 0.000793	< 0.0002	< 0.000511	< 0.0002
PSL10-A4	08/18/2023	11.2	1.65	0.379	0.0706	0.0168	0.00424	< 0.00861	< 0.00336
PSL10-B2	08/18/2023	8.95	1.32	0.454	0.0845	0.825	0.208	0.0131	0.00512
PSL10-B3	08/21/2023	0.854	0.126	0.0209	0.00389	0.0156	0.00394	< 0.00124	< 0.000484
PSL10-C2	08/21/2023	4.7	0.693	0.0967	0.018	0.698	0.176	< 0.00424	< 0.00166
PSL10-C3	08/21/2023	205	30.2	0.575	0.107	0.241	0.0609	< 0.0286	< 0.0112
PSL10-C4	08/18/2023	243	35.8	3.13	0.583	1.170	0.295	< 0.284	< 0.111
PSL10-D3	08/21/2023	82.7	12.2	0.623	0.116	0.948	0.239	< 0.0391	< 0.0153
PSL10-D4	08/18/2023	13,900	2,050	166	30.9	289.0	73.0	< 6.39	< 2.5
PSL10-E2	08/21/2023	0.0279	0.00412	< 0.00107	< 0.000199	0.00136	0.000343	< 0.000511	< 0.0002
PSL10-E3	08/21/2023	0.780	0.115	0.00951	0.00177	0.00698	0.00176	< 0.00119	< 0.000465
PSL10-E4	08/21/2023	0.340	0.0501	0.00683	0.00127	0.00531	0.00134	< 0.000511	< 0.0002
PSL10-F2	08/21/2023	0.787	0.0116	< 0.00107	< 0.000199	< 0.000793	< 0.0002	< 0.000511	< 0.0002
PSL10-F3	08/21/2023	8.68	1.28	0.048	0.00894	< 0.0104	< 0.00263	< 0.0067	< 0.00262
PSL10-F4	08/21/2023	1.59	0.235	0.00623	0.00116	< 0.00243	< 0.000614	< 0.00156	< 0.000609
PSL10-G2	08/21/2023	0.0248	0.00366	< 0.00107	< 0.000199	< 0.000845	0.000213	< 0.000511	< 0.0002
PSL10-G3	08/21/2023	0.0139	0.0205	< 0.00107	< 0.000199	< 0.000793	< 0.0002	< 0.000511	< 0.0002
PSL10-G4	08/21/2023	1.04	0.153	0.0105	0.00196	< 0.00595	< 0.0015	< 0.00383	< 0.0015

mg/m^3 = milligram(s) per cubic meter
< = The analyte was analyzed for, but was not detected above, the reportable detection limit

3.1.3 2023 Soil Sampling and Monitoring Well Installation

To confirm the results of the soil gas survey, five soil borings (OB-61, OB-62, OB-63, OB-64, and OB-65) were advanced in September 2023 at locations co-located with select soil gas survey locations (Figure 3-2). The soil borings were advanced using hollow stem auger and drive-and-wash methods. Split-spoon samples were collected at regular intervals in each boring. Soil samples that were collected were described, noting grain size and sedimentary features, and photoionization detector (PID) headspace screening was conducted. The highest recorded PID readings and associated depths at each location are shown on Figure 3-2. Soil samples were obtained from each boring at select intervals based on elevated PID readings. These soil samples were collected using Terracore samplers and submitted for laboratory analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency's (USEPA's) Method 8260. Soil boring logs are included in Appendix B, and complete laboratory analytical reports are provided in Appendix C.

OB-61 was advanced near soil gas probe location D4 (Figure 3-2), which had the highest soil vapor concentrations. During drilling at OB-61, an elevated PID headspace reading, >15,000 ppmv, was noted in the soil interval 13 to 15 feet bgs. A Sudan Dye Test was performed on soils from this interval to evaluate the potential presence of nonaqueous phase liquid (NAPL). The results were negative, suggesting that NAPL was not present. Additionally, based on the elevated PID readings recorded within the breathing zone while drilling in this interval, drilling was stopped. Fans were implemented as engineering controls to reduce potential exposure to workers; even with this extra ventilation, elevated breathing zone conditions continued to be observed, and drilling at this location was stopped. Drilling and well installation were eventually completed at this location after steps were taken to provide additional engineering controls to limit potential worker exposure.

Drilling was conducted at other locations in the PSL10 area, and elevated PID readings were not noted in the breathing zone. PID soil headspace readings at borings OB-62 through OB-65 were considerably lower (maximum of 226 ppmv in the 25 to 27 feet bgs interval from OB-63).

Soil analytical results are summarized in Table 3-3 and shown on Figure 3-2. The highest soil sample concentration was 297 milligrams per kilogram (mg/kg) of PCE at OB-61, collected from the interval 13 to 15 feet bgs where the highest PID readings were also observed. Lower or non-detect concentrations were reported for soil samples from the other borings. An additional evaluation of these data is provided in Section 3.1.4.

The soil borings OB-61, OB-62, OB-63, OB-64, and OB-65 were completed as overburden groundwater monitoring wells. Monitoring well construction details are summarized in Table 3-4, and monitoring well construction logs are provided in Appendix B. The monitoring wells were sampled in late October and early November 2023, but validated results were not available before submission of this report. The results will be considered during the final design of the PSL10 area remedy and included in a Phase IV Status Report submitted before remedy implementation.

Table 3-3. September 2023 PSL10 Area Soil Sample Results

Boring	Depth (feet bgs)	Date	PID Headspace (ppmv)	PCE	TCE	cis-1,2-DCE	VC
				Concentrations shown in mg/kg			
OB-61	13–15	9/20/2023	>15,000	297	0.0849	< 0.00087	< 0.0017
	19–20	9/21/2023	7.96[a]	6.04	0.616	0.0351	< 0.0016
OB-62	16–17	9/22/2023	6.6	< 0.0016	< 0.0008	< 0.0008	< 0.0016
OB-63	25–27	9/28/2023	226	1.29	2.22	0.37	< 0.0017
OB-64	20–22	9/26/2023	0.7	< 0.0022	0.0031	< 0.0011	< 0.0022
OB-65	15–16	9/27/2023	7.9	< 0.0023	< 0.0011	< 0.0011	< 0.0023
	25–26	9/27/2023	0.0	0.003	0.0133	< 0.0011	< 0.0023
	30–32	9/27/2023	17.4	0.0847	0.466	0.0031	< 0.0019

[a] PID headspace in 17 to 19 feet bgs interval, just above 19 to 20 feet bgs sample interval, was 3,632 ppmv.

> = greater than
< = The analyte was analyzed for but was not detected above the reportable detection limit

Table 3-4. PSL10 Area Monitoring Well Construction Details

Monitoring Well ID	Unit	Total Depth (feet bgs)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Well Material	Diameter (inches)	Screen Size (inches)
OB-61-S	Shallow OB	19	9	19	Sch 40 PVC	2	0.01
OB-62-S	Shallow OB	35	20	35	Sch 40 PVC	2	0.01
OB-63-S	Shallow OB	35	20	35	Sch 40 PVC	2	0.01
OB-64-S	Shallow OB	31	16	31	Sch 40 PVC	2	0.01
OB-65-S	Shallow OB	32	17	32	Sch 40 PVC	2	0.01

ID = identification number
PVC = polyvinyl chloride
Sch = schedule

3.1.4 Updated Nature and Extent

Recent soil and groundwater results are summarized on Figure 3-2 and shown in cross-section view on Figures 3-3 and 3-4. Cross-section locations are depicted on Figure 3-1. Soil headspace and soil analytical results indicate that the highest concentrations of TCE and PCE are found in the parking lot area near OB-61, with the highest concentrations found just above the water table at depths of 13 to 15 feet bgs (depths to water measured in October 2023 at nearby OB-63 and OB-65 were about 15.5 feet bgs). Based on soil headspace readings greater than 100 ppmv, the highest impacts are present from about 9 feet bgs to 19 feet bgs at OB-61 (into the saturated zone). Corresponding soil data indicate PCE was detected at a concentration of 297 mg/kg from 13 to 15 feet bgs and 6.04 mg/kg from 19 to 20 feet bgs.

East of OB-61, soil headspace readings were greater than 100 ppmv in the 19 to 21-feet bgs and 25 to 27 feet bgs intervals at OB-63. Corresponding soil data indicate PCE was detected at a concentration of 1.29 mg/kg in the 25 to 27 feet bgs interval at OB-63, indicating lesser impacts in this direction. Based on the lower soil gas results in the transect east of OB-63 and a regional westerly groundwater flow direction, it is expected that soil concentrations will be lower east of OB-63.

The northern extent of soil impacts is defined by OB-62 and OB-64, where soil headspace readings were much lower than at OB-61 (maximum of 6.6 ppmv and 1.8 ppmv, respectively), and PCE and TCE were non-detect or very low. The southern extent is defined by OB-65, where soil headspace readings were lower than at OB-61 (maximum of 17.4 ppmv in the 30 to 32 feet bgs interval); deeper soil samples at OB-65 from 25 to 26 feet bgs and 30 to 32 feet bgs also showed lower concentrations of PCE (0.003 mg/kg and 0.0847 mg/kg, respectively) relative to those at OB-61.

The soil impacts are believed to extend west toward well AP-20. A 1999 soil sample (150 SOH-2) collected hydraulically upgradient of AP-20 had a reported PCE concentration of 1.8 mg/kg at 2 feet bgs (IT 2000); it is expected that soil concentrations in this area have declined since 1999 as a result of natural attenuation processes, but the results indicate vadose zone impacts were historically present in this area. Soil samples could not be collected from the area between OB-61 and the AP well series (AP-19 to AP-22) during the September 2023 investigation because of the presence of two underground water lines, a suspected underground gas line, and overhead electric lines (Figure 3-2). Evaluation of vadose zone CVOC concentrations in this area west of the utilities and near AP-20 will be conducted as part of remedy implementation to assess whether treatment of vadose zone soils in this area is required.

The presence of NAPL has not been observed in the PSL10 Source Area. Although CVOC concentrations in soil suggest NAPL may be present in the vicinity of OB-61 (297 mg/kg PCE; PID >15,000 ppmv at 13 to 15 feet bgs), Sudan dye tests of soil from 17 to 19 feet bgs (soil headspace of 3,632 ppmv) and 19 to 21 feet bgs (soil headspace of 7.96 ppmv) at this location did not indicate the presence of NAPL. Subsequent gauging and sampling of groundwater at OB-61 will be evaluated to assess the potential for NAPL presence near this well.

Because groundwater samples were collected from OB-61 through OB-65 in late October and early November 2023, validated analytical groundwater data within the parking lot for the new wells (OB-61 through OB-65) were not available at the time this document was submitted. The results will help refine the nature and extent of contamination in the area. Recent groundwater results (December 2022 and May 2023) from existing wells to the west (downgradient) indicate the following (refer to Figures 3-1 and 3-2):

- Highest groundwater concentrations of CVOCs (4.9 mg/L PCE, 0.3 mg/L TCE, and 2 mg/L cis-1,2-DCE) were observed in the shallow overburden at AP-20, southwest and hydraulically downgradient of

OB-61. The presence of cis-1,2-DCE indicates some reductive dechlorination is occurring between the source area to the east and this well.

- PCE (1.6 mg/L), TCE (0.54 mg/L), and cis-1,2-DCE (0.82 mg/L) concentrations in the shallow overburden at well AP-22 to the north indicate that groundwater impacts extend at least this far north.
- At AP-19 through AP-21, PCE groundwater concentrations are one to two orders of magnitude greater in the more shallowly screened wells, AP-20 and AP-22, than at the more deeply screened wells AP-19 and AP-21, indicating PCE groundwater impacts in this area are shallow.
- Groundwater concentrations within the deep overburden well CL-10-DO, located west (downgradient) of AP-19 through AP-22, were 2.1 mg/L of PCE, 1.7 mg/L of TCE, and 0.22 mg/L of cis-1,2-DCE in May 2023, similar to the concentrations observed at AP-20 in December 2022 (4.9 mg/L of PCE, 0.3 mg/L of TCE, and 2 mg/L of cis-1,2-DCE). These are an order of magnitude higher than concentrations at the associated shallow overburden well CL-10-S, indicating some downward migration of CVOCs to the west, consistent with hydraulic gradients. Further to the west, at overburden well MW-2_32-Tozer, CVOCs were close to the laboratory reporting limits from May 2022.
- Groundwater concentrations within the bedrock at CL-10-BR show very limited detected concentrations of CVOCs, indicating little migration to bedrock in this area.

As detailed in the Phase II CSA, six rounds of indoor air and soil vapor sampling were completed at 32 Tozer Road from 2013 to 2015 (CB&I 2014, 2015a, 2015b). A risk evaluation in accordance with the MCP was completed using the first four rounds of data (May 2013, October 2013, February 2014, and April 2014) that indicated a condition of No Significant Risk existed at this property. The last two rounds of indoor air sampling in October 2014 and April 2015 had lower indoor air and sub-slab soil vapor concentrations than those used in the risk evaluation; therefore, it was concluded that the condition of No Significant Risk was maintained (CB&I 2015a, 2015b). As such, indoor air sampling is no longer required at 32 Tozer Road; however, groundwater concentrations continued to be monitored. At the time of the indoor air sampling with the highest concentrations at 32 Tozer Road (April 2014), the highest concentrations in shallow groundwater near the building were observed at MW-2_32-Tozer (PCE at 4.9 mg/L, TCE at 0.97 mg/L, and cis-1,2-DCE at 2.2 mg/L). In the past 2 years, the highest concentrations in shallow groundwater near 32 Tozer Road were at MW-2_32-Tozer in December 2022 (0.75 mg/L PCE, 0.13 mg/L TCE, and 0.73 mg/L cis-1,2-DCE). CVOC levels at MW-2_32-Tozer decreased in May 2023 to near the laboratory reporting limits. The lower concentrations of CVOCs detected in shallow groundwater near the 32 Tozer Road building in December 2022 and May 2023, compared to those detected in April 2014 during the 2013 to 2015 indoor air sampling at 32 Tozer Road, are an additional line of evidence that the groundwater to indoor air exposure pathway does not present a Significant Risk to the occupants at 32 Tozer Road.

3.2 Remedial Goals (310 CMR 40.0874(3)(b)(1))

The general remedial objectives for the Site are as follows: (1) source elimination/control, (2) migration control of groundwater and vapor, (3) dense nonaqueous phase liquid (DNAPL) removal, and (4) groundwater concentration reduction. Regarding these objectives for the PSL10 area, the following are noted:

- Source Elimination/Control – The planned SBGR in the PSL10 Source Area is designed to eliminate or reduce sources of contamination through excavation of impacted shallow soils during installation of the SBGR.
- Migration Control – The PSL10 SBGR will be designed to control the potential migration of dissolved-phase CVOCs by focusing treatment on the reduction of the residual contaminant sources

that remain in saturated and unsaturated soils following SBGR installation. The SBGR will include groundwater recirculation within the source treatment area to improve the effectiveness of groundwater remediation.

- DNAPL Removal – Although no DNAPL was observed during investigation activities, the PSL10 SBGR will include the following:
    - Source area excavation that will remove potential DNAPL present within the excavation area.
    - Recirculation of treated and amended groundwater through the remaining source treatment area that will further reduce groundwater concentrations. By reducing groundwater concentrations, the concentration differential between adsorbed CVOCs in the soil matrix and CVOC concentrations in groundwater will be increased, increasing the driving force for dissolving adsorbed CVOCs and potential residual DNAPL. Therefore, the operation of the SBGR will increase the remediation of residual DNAPL, if present, to the extent feasible.
- Groundwater Concentration Reduction – The PSL10 SBGR will be designed to reduce CVOC concentrations in soil through desorption/removal and in groundwater through treatment by biogeochemical reductive dechlorination processes. The goal is to reduce the levels of CVOCs such that the PSL10 area is no longer a continuing source of CVOCs to downgradient groundwater.

In accordance with 310 CMR 40.0874(3)(b)(1), the Phase IV Plan must document the goals of the remedial action, including performance requirements of the remedial systems, the requirements for achieving a Permanent or Temporary Solution (whichever is applicable) under 310 CMR 40.1000, and the projected timeframe, based on available information, for achieving the Permanent or Temporary Solution.

3.2.1 Performance Standards for PSL10 SBGR

The following performance standards apply to the PSL10 RAA:

- A decrease in CVOC groundwater concentrations within and downgradient of the TTZ, as measured in samples from monitoring wells and extraction wells.
- If future data suggest the presence of DNAPL, then reduction in concentrations that eliminate/control the potential for DNAPL to act as a continuing source of CVOC migration to groundwater.
- Reduction of CVOC groundwater concentrations downgradient of the PSL10 Source Area to levels that eliminate the potential for future vapor intrusion risk at 32 Tozer Road.

To achieve the performance standards, the treatment goals for the PSL10 Source Area are proposed in Table 3-5 and were developed based on the following criteria:

- For the overall groundwater plume, no numerical treatment goals were established. Success will be based on stable or decreasing CVOC concentrations within the PSL10 groundwater plume relative to “baseline” conditions (defined as pre-SBGR concentrations observed between 2022 and the time of SBGR installation). It is anticipated that, within the TTZ (SBGR and groundwater recirculation zone), the groundwater concentrations will decrease, and concentrations within the wider PSL10 groundwater plume are expected to remain stable or decrease as a result of upgradient treatment.
- Although DNAPL has not been observed at PSL10, PCE groundwater concentrations detected at AP-20 (4.9 mg/L in November 2022) and CL-10-DO (2.9 mg/L in May 2022 and 2.1 mg/L in May 2023) have exceeded the 1% solubility “rule of thumb” for PCE (2 mg/L) and suggest the potential presence of DNAPL (Kueper and Davies 2009). Therefore, a goal is to reduce groundwater concentrations in the source area to eliminate, to the extent feasible, the potential for DNAPL (if present) to act as a

continuing source of CVOC migration in groundwater. The treatment goal is proposed to be half of the 1% solubility rule of thumb to provide a safety factor for PCE, TCE, and cis-1,2-DCE groundwater concentrations (the most likely CVOCs to be present in DNAPL form).

- For vapor intrusion, the treatment goal is proposed to be set at 50% of the highest groundwater concentrations detected in groundwater upgradient of the 32 Tozer Road building and within 15 feet of the ground surface during the indoor air sampling that was completed at 32 Tozer Road in April 2014 (refer to Section 3.1.4). Shallow groundwater concentrations near the 32 Tozer Road building in April 2014 were highest at MW-2_32-Tozer Road.

Table 3-5. Proposed Treatment Goals for PSL10 Area Groundwater

Goal	Area Applicable	Description	PCE	TCE	cis-1,2-DCE	VC
Groundwater Impacts	PSL10 Source Area	Decreasing Groundwater Concentrations as compared to baseline[a]	N/A	N/A	N/A	N/A
	PSL10 Downgradient Plume	Stable or Decreasing Groundwater Concentrations as compared to baseline[a]	N/A	N/A	N/A	N/A
DNAPL Reduction	PSL10 Source Area	Aqueous Solubility (at 25°C, mg/L)[b]	200	1,100	3,500	N/A
		0.5% of Solubility Limit (Treatment Goal) (mg/L)	1.0	5.5	17.5	N/A
Vapor Intrusion	Groundwater upgradient of 32 Tozer Road building and within 15 feet of ground surface	April 2014 concentration at MW-2_32-Tozer (mg/L)	4.9	0.97	2.2	ND
		50% of MW-2_32-Tozer April 2014 Concentration	2.4	0.48	1.1	0.25[c]

[a] Baseline concentrations defined as pre-SBGR concentrations observed between 2022 and the time of SBGR installation

[b] Solubility values are from MassDEP soil-to-groundwater leaching calculations found in the MCP Numerical Standards Development Spreadsheets (MassDEP 2014), which are based on USEPA's 1996 Soil Screening Guidance (USEPA 1996).

[c] VC was non-detect in April 2014 indoor air and groundwater sample; therefore, 50% of the highest 2022-2023 groundwater concentration (0.49 mg/L at AP-20) is the treatment goal for VC.

Note: VC is N/A for DNAPL reduction because VC (chloroethene) is a gas at standard/ambient temperature and pressure conditions.

°C = degree(s) Celsius
ND = VC was not detected in groundwater samples in April 2014.

3.2.2 Requirements for Achieving a Permanent or Temporary Solution

To achieve a Temporary or Permanent Solution at PSL10, the requirements defined in 310 CMR 40.1000 must be met (Table 3-6).

Table 3-6. Requirements for Achieving a Temporary or Permanent Solution at PSL10 Area

Item	Permanent Solution Requirement	Temporary Solution Requirement	Current Status	Expected Post-remediation Status
No Substantial Hazard	Not needed if No Significant Risk exists and Site meets requirements for a Permanent Solution	Documented In Temporary Solution Statement	Achieved (refer to Phase II CSA Addendum)	Achieved
No Significant Risk	Documented in Permanent Solution Statement	Documented in Temporary Solution Statement	Achieved (refer to Phase II CSA Addendum)	Achieved
Solution Statement Submitted	Permanent Solution Statement Submitted	Temporary Solution Statement Submitted	Not submitted	Will be submitted once Permanent Solution requirements met
Unpermitted releases of OHM contamination	Eliminated	Eliminated	Achieved	Achieved
OHM Contaminant Sources	Eliminated or eliminated to the extent feasible and controlled	Eliminated or controlled to the extent feasible	Not Achieved	Sources eliminated to the extent feasible and controlled
Plumes of dissolved OHM in groundwater and vapor-phase OHM in the Vadose Zone	Stable or contracting	Stable or contracting, or otherwise controlled or mitigated to the extent feasible	Stability of dissolved-phase plume at and downgradient of PSL10 not established; stability of vapor-phase OHM 32 Tozer Road building established; stability of vapor-phase OHM at PSL10 Source Area not established	Dissolved and vapor-phase plumes stable or contracting
Non-stable NAPL not present	Not present under current Site conditions and for the foreseeable future	Removed and/or controlled to the extent feasible if present	Non-stable NAPL not observed	Monitoring data show non-stable NAPL not present
NAPL with microscale mobility	Removed to the extent feasible if present	Removed and/or controlled to the extent feasible if present	NAPL with microscale mobility not observed but may be present	NAPL with microscale mobility removed to the extent feasible if present

3.2.3 Timeframe to Achieve Permanent or Temporary Solution

A Temporary Solution requires the implementation of measures that will eliminate substantial hazards presented by the Site until a Permanent Solution is achieved. The Site is expected to achieve a Temporary Solution by February 18, 2024, as specified by the MassDEP.

The selected RAA is designed to achieve a Permanent Solution at PSL10. A Permanent Solution with Conditions may be required if groundwater concentrations within the PSL10 area achieved through the selected RAA (SBGR) remain greater than MCP GW-2 standards post-remediation. Note that the GW-2 standard for PCE is being reduced from 50 micrograms per liter (µg/L) in the current MCP to 20 µg/L in the March 2024 MCP.

3.3 Conceptual Plan (310 CMR 40.0874(3)(b)(5))

The remedy to be implemented includes excavation of the residual source, followed by backfilling the excavation with treatment media that supports groundwater remediation. In accordance with the Revised Phase III RAP, the proposed RAA for the PSL10 area was a colloidal activated carbon (CAC) permeable adsorptive zone (PAZ) or ISCO (Table 1-1). The RAP allowed for an adjustment of the remedy, based on investigation results, to use an alternative approach such as ISCR (for example, ZVI) or a combination of ISCR and other amendments, supplemented with shallow soil excavation if appropriate.

ISCO has been implemented at PSL10 in the past and was successful at treating dissolved-phase CVOCs in groundwater. However, ISCO reagent volumes were limited because of the tight glacial till present at PSL10. As a result, distribution throughout the treatment area was limited. Additionally, although ISCO injections were initially successful at reducing groundwater concentrations, rebounds were observed within the treatment areas, in part because of the adsorbed CVOC within the low-permeability till soils continuing to desorb slowly. Specifically, rebounding concentrations were observed at AP-20 in November 2022. Concentrations also remain elevated at AP-22 and CL-10-S/-DO as of May 2023 (Table 3-1). The rebounding conditions indicate that either a source area remains in the vadose zone or a portion of the CVOCs are tied up in the tight glacial till and continues to “back diffuse” out into groundwater over time. The other alternative proposed in the Revised Phase II RAP was a CAC PAZ, wherein CAC would be injected to promote adsorption and reductive dechlorination to treat CVOCs.

Based on the results of the 2023 pre-design investigation at PSL10, a residual CVOC source exists onsite in the vadose zone near OB-61 and will be addressed through removal via a shallow soil excavation.

This Phase IV Plan includes the conceptual design for an SBGR at PSL10 to remove the vadose zone source area and provide sustained treatment for the groundwater plume. The SBGR will establish a reactive zone to address groundwater impacts via anaerobic biological (reductive dechlorination) and abiotic degradation. A depiction of a typical SBGR is provided on Figure 3-5.

The SBGR remedy at PSL10 will include the following elements:

- Excavation of source area vadose zone soils
- Backfilling excavated area with mulch and/or other amendments that promote biotic and abiotic degradation of CVOCs (reactor)
- Installing extraction wells and conveyance piping downgradient of the reactor to withdraw amended groundwater and recirculate amended groundwater through the reactor for treatment

The excavation will remove source area soils above and into the water table and will be backfilled with SBGR treatment media. The treatment media is designed to facilitate complete degradation of CVOCs through biogeochemical processes using native microbial populations. The treatment media typically includes various organic amendments to support microbial community growth, ZVI to support abiotic degradation, pH buffer, and sand or gravel to support porosity enhancements. An SBGR will only be constructed on the east side of the underground utilities. If test pitting results indicate high CVOC concentrations are present in the vadose zone west of the utilities, soils excavated west of the utilities will be backfilled with clean fill.

Impacted groundwater will be pumped from extraction wells placed downgradient of the SBGR and within the CVOC plume. Extracted groundwater will percolate through the SBGR, where treatment will occur, and treated groundwater will infiltrate back into the aquifer, carrying with it dissolved-phase amendments that will expand the reactive zone beyond the limits of the backfilled area. Through the process of extraction and infiltration, a groundwater recirculation cell is created that increases pore water flushing through the impacted area. Jacobs has successfully designed, installed, and operated SBGRs in other silt (low hydraulic conductivity) environments; the extraction/recirculation rates are typically low (<1 gallon per minute), and infiltration through the more permeable SBGR supports recirculation in the tighter soils.

The SBGR extraction wells are intended to be operated with solar pumps. The fluctuations in groundwater levels within the SBGR that is provided by solar pumping (with no extraction at night) will help promote a more robust microbial population. SBGR recirculation will be carried out until remedial goals (Section 3.2), specifically treatment goals (Table 3-5), are reached within the extraction wells. If necessary, additional extraction wells may be added to enhance treatment performance. Soil excavation and operation of the SBGR are expected to result in considerable CVOC mass reduction. Once active treatment (recirculation) is permanently shut off, the SBGR will remain in place to continue to support a passive treatment zone within the aquifer to further reduce residual CVOCs. This continued passive treatment may be paired with natural attenuation following active treatment to achieve the treatment goals required for a Permanent Solution.

Remedial activities at PSL10 will include the following:

- Gathering of additional design data, including groundwater results from monitoring wells installed in 2023 and aquifer testing at existing monitoring wells to provide insight on extraction rates
- Installation of extraction and monitoring wells, as required for SBGR operation and monitoring
- Baseline groundwater sampling at existing and planned monitoring and extraction wells to provide a baseline for remedy performance
- Test pitting and excavation of source area vadose zone soils with confirmation sampling
- Backfill excavations with SBGR treatment media (east of utilities) and clean fill (west of utilities)
- Installation of groundwater pumps, infiltration and conveyance piping, and instrumentation
- Startup and operation of the SBGR recirculation system
- Post-installation monitoring to assess the performance of the SBGR

3.4 Site-specific Characteristics (310 CMR 40.0874(3)(b)(9))

This section provides information on Site-specific characteristics that may affect or be affected by the design, construction, or operation of the selected treatment.

3.4.1 PSL10 Area Use During Treatment

The PSL10 area includes a parking lot south of the CPI buildings and underground utilities, including a storm sewer, water lines, gas line, and overhead electrical lines along the west side of the parking lot (Figure 3-2). Operations at 32 Tozer Road will not be disrupted during installation or operation of the selected treatment. Work is planned to take place on the 150 Sohier Road property, east of 32 Tozer Road, with the exception of groundwater sample collection at existing wells located on the 32 Tozer Road property. Access agreements are in place with CPI (150 Sohier Road) and the property owner at 32 Tozer Road.

Before starting work, vegetative clearing may be performed west of the parking lot to facilitate access for construction.

During installation and the first 2 years of operation of the SBGR system, a portion of the parking lot will be closed off to facilitate construction and operation. During excavation and backfill of the SBGR, a larger area of the parking lot may be used to stage SBGR treatment media and excavated soils, as required. Following completion of the installation of the SBGR, the footprint of the SBGR will remain unpaved and will not be suitable for vehicle traffic to drive over for the first 2 years. Once final settlement has occurred (2-year timeframe), the SBGR footprint will be restored to allow for vehicular traffic, in coordination with the property owner, CPI.

Prior to any subsurface activities, a utility location program, including ground-penetrating radar, will be performed to identify utilities that may conflict with proposed excavation areas, conveyance pipe trenching, and/or well locations. If there are known or suspected utilities within 5 feet of subsurface work, then hand-clearance by hand auger or air knifing will be performed to below the depth of the utility. Additionally, proper setbacks or shielding requirements for the overhead power lines will be established before starting work.

3.4.2 Drainage Features

The PSL10 area includes a parking lot on the east (150 Sohier Road), a vegetated slope on the west, and a driveway/parking lot further west (on the 32 Tozer property). Surface topography in the parking lot slopes gently to the west. Storm water runoff from the pavement in the PSL10 treatment area flows to vegetated areas located to the west. Surficial runoff from the other paved areas outside of the PSL10 area enters a storm sewer grate; the closest is located to the north of the PSL10 treatment area. Portions of the bituminous (asphalt) concrete pavement in the parking lot are degraded and lower in elevation, with standing water observed following rain events. As warranted, erosion/sedimentation controls will be implemented to manage silt runoff during construction.

3.4.3 Natural Resource Areas and Local Planning and Development Issues

As required by the City of Beverly, an application for the soil disturbance work, along with an erosion/sedimentation control and materials management plan, will be developed for the work.

No natural resource issues have been identified in the PSL10 area.

3.4.4 Soil and Groundwater Characteristics

Soil and groundwater characteristics that may affect remedy implementation are summarized in this section. Soils at OB-61, OB-62, OB-63, OB-64, and OB-65 are predominantly poorly graded fine sands with varying amounts of silt and gravel and are described as dry to slightly moist and medium dense to very dense. The soils are interpreted to be glacial till with low hydraulic conductivity.

Weathered granitic bedrock was observed at 32 feet bgs at OB-65, 34 feet bgs at CL10-BR, and 39 feet at CL10-BR2. However, the depth to bedrock may be greater than 45 feet at OB-63.

The most recent depth to water and geochemical information available for monitoring wells in the PSL10 area are summarized in Table 3-7. Geochemical information indicates generally aerobic and oxidative conditions with neutral pH; anaerobic and reducing conditions were indicated in field parameters collected from new monitoring well OB-62. Depth to water in the western portion (32 Tozer property) of PSL10 generally ranges from 3.7 to 8 feet bgs. Depth to water data in the newly installed monitoring wells at the

150 Sohier Road parking lot, which is about 10 feet higher in elevation than the 32 Tozer Road portion of PSL10, ranged from about 10 to 15.5 feet bgs in October 2023. Groundwater flow direction in the overburden is generally to the west. The shallower water table near OB-64 may be an anomaly or could indicate there may be localized groundwater mounding in this area. An area of degraded and missing sections of pavement with ponded water was observed near this well in September and October 2023. Groundwater flow directions will be evaluated once additional groundwater level data have been collected and the new monitoring wells have been surveyed to establish measuring point elevations (typically top of well casing). Vertical gradients observed at wells CL-10-S, CL-10-DO, and CL-10-BR indicate downward vertical gradients from shallow to deep overburden but an upward vertical gradient between the deep overburden and bedrock.

Table 3-7. Groundwater Geochemical Data at PSL10 Area

Well	Unit	Depth to Water (feet bgs)a	Date	DO (mg/L)	ORP (mV)	pH	TOC (mg/L)	Methane (µg/L)	Ethane µg/L)	Ethene (µg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)
AP-19	Shallow	6.83 to 14.1	12/2022	1.14	103.2	7.53	-	-	-	-	-	-
CL10-DO	Deep	3.77 to 7.05	12/2022	3.86	243.3	7.85	-	-	-	-	-	-
MW-2_32-Tozer	Shallow	3.65 to 8.1	12/2022	1.95	47.3	7.05	-	-	-	-	-	-
MW-4_32-Tozer	Shallow	5.47 to 6.78	5/2023	2.39	-48.6	6.2	3.14	-	-	-	0.151	6.10
MW-5_32-Tozer	Shallow	5.68 to 6.53	5/2023	0.74	74.5	6.49	3.28	119	<0.5	1.38	0.942	17.1
OB-16-S	Shallow	7.22	5/2023	3.72	168.2	6.36	1.69	-	-	-	0.0221 J	43.7
OB-62-DO	Shallow	13.78	10/2023	0.18	-255.6	8.39	-	-	-	-	-	-
OB-63-DO	Shallow	15.25	10/2023	2.38	31.9	8.06	-	-	-	-	-	-
OB-64-DO	Shallow	9.72	10/2023	1.50	53.6	7.81	-	-	-	-	-	-
OB-65-DO	Shallow	15.49	10/2023	5.82	52.7	7.28	-	-	-	-	-	-

[a] Depth to water ranges from 2018 to 2023.

DO = dissolved oxygen
J = concentration is estimated
mV = millivolt(s)
- = not available
ORP = oxidation-reduction potential
TOC = total organic carbon

3.5 Design and Operation Parameters (310 CMR 40.0874(3)(b)(6))

This section provides additional information related to the SBGR design and operation parameters.

3.5.1 Target Treatment Zones

The target treatment zones include soil and groundwater as further described below.

3.5.1.1 Soil

Based on the results of the 2023 investigations, the residual source area includes a relatively limited area of vadose zone, smear zone, and saturated soils within the parking lot area near OB-61. The TTZ for soils was defined by PID soil headspace readings greater than 100 ppmv in the vadose zone during soil boring activities and elevated soil gas results (>20 ppmv) where soil boring data were not collected (Figure 3-2). The current prediction of the excavation zone for soils is approximately 30 feet by 20 feet (600 ft^2) centered around OB-61 and bounded by OB-63 (east), OB-62 (northeast), OB-64 (northwest), OB-65 (southeast) and a utility corridor (southwest). The excavation zone extends to the water table and may be extended slightly below the water table (up to 3 feet, to a total depth of up to 18 feet bgs) if dewatering is not needed during excavation. Conceptual layouts are presented on Figures 3-6 to 3-8.

Due to the presence of the utility corridor to the southwest, soils west of the utilities and east of AP-19 through AP-22 have not been recently investigated. However, based on the observed rebound of CVOC groundwater concentrations, historical reports of surface dumping, and a shallow soil sample analyzed in 1999 showing CVOC impacts, vadose zone and capillary fringe soils in this area may be impacted. As such, these soils will be assessed and may also be excavated. For purposes of this document, the excavation in this area is assumed to be approximately 20 feet by 30 feet, down to a depth of approximately 10 feet bgs, based on water levels at the nearby AP well series (AP-19 to AP-22; Figures 3-6 to 3-8).

3.5.1.2 Groundwater

Based on the November 2022 and May 2023 groundwater concentrations in the PSL10 area overburden wells (Table 3-1), wells AP-20, AP-22, and CL10-DO have recently indicated concentrations of PCE above the proposed treatment goal of 1 mg/L. Additionally, although groundwater concentration data has not been received to date within the SBGR excavation area, elevated groundwater concentrations are anticipated based on soil analytical and soil headspace results. The TTZ for groundwater is shown on Figures 3-6 through 3-8. The groundwater TTZ will be adjusted based on sampling results from the new monitoring wells.

To prevent future vapor intrusion from groundwater at 32 Tozer Road, the treatment goal is a 50% reduction of the highest groundwater concentrations that were detected in monitoring well samples upgradient of the 32 Tozer Road building during the indoor air sampling that was completed at 32 Tozer Road in April 2014; the highest concentrations were observed at MW-2_32-Tozer (Figure 3-1). Based on the November 2022 and May 2023 groundwater concentrations in the PSL10 area, the proposed 50% reduction treatment goal is currently being met at all monitoring well locations. Removal of upgradient impacted vadose zone soils and treatment of groundwater via the SBGR are expected to result in an additional reduction in groundwater concentrations near the 32 Tozer Road building.

3.5.2 SBGR Treatment Media and Treatment Mechanisms

SBGRs utilize three main treatment mechanisms to address contaminants in soil and groundwater:

- Physical removal of soil source mass

- Treatment of groundwater through anaerobic biological and abiotic process
- Increased porewater flushing to help mobilize contaminants in the dissolved phase which are then captured and treated in the SBGR

Before the installation of SBGR treatment media, residual source mass will be removed through excavation with offsite disposal. The excavation will target the vadose zone and capillary fringe soil areas where the highest CVOC concentrations have been detected. The removal of the vadose zone source material is necessary to remove the contamination that serves as a continued source to the groundwater plume.

The treatment media will include organic amendments to support microbial community growth, such as mulch; soybean oil; and locally sourced, non-refined products such a compost, spent brewery grain, local produce, or hay/straw. This organic media is mixed with sand or clean gravel, which provides porosity enhancement, allowing infiltration water to evenly distribute throughout the reactor. Additional amendments include ZVI and/or iron pyrite sand to support abiotic dechlorination. Exact proportions of each amendment will be identified before remedy implementation.

The SBGR treatment media is designed to support a diverse microbial community that supports the entire dechlorination and biodegradation processes. Therefore, bioaugmentation (the intentional addition of a unique microbial culture) is not required. The reducing and anerobic conditions established within the sustainable SBGR are used to promote growth of a robust biological community that treats CVOCs through biological reductive dechlorination.

Groundwater recirculation is performed by extracting groundwater down/cross-gradient of the SBGR and infiltrating the groundwater through the reactor for treatment. Treated groundwater is then reintroduced to the aquifer through natural infiltration out from the sides/bottom of the reactor (refer to Figure 3-5). Because of infiltration of the extracted groundwater, water levels within the SBGR are maintained higher than those of the groundwater table. As a result, the SBGR creates an increased hydraulic head to facilitate infiltration and increased gradients between the SBGR and the extraction wells. The recirculation of groundwater increases pore volume flushing across the recirculation zone, which can help decrease cleanup timeframes. Additionally, groundwater that passes through the SBGR becomes geochemically amended (anaerobic conditions, reducing conditions, increased carbon content, presence of dissolved iron, etc.) to help support further treatment outside the limits of the SBGR. By recirculating this amended groundwater, a zone of influence (ZOI) is established that further promotes treatment within the aquifer outside the SBGR limits.

3.5.3 Additional Design Data

Before completion of the final design for the SBGR, additional design data will be collected at the Site. As mentioned in Section 3.1.3, groundwater samples were collected in October 2023 at the four newly installed monitoring wells at PSL10; however, validated analytical data were not available at the time of this report submission. Once the fifth well, OB-61, is installed, a groundwater sample will also be collected, and the results of all these groundwater samples will be used to finalize the size of the excavation area/SBGR.

Additionally, aquifer pumping tests and/or slug testing will be completed at up to three of the newly installed or existing monitoring wells at PSL10. The goal of the aquifer pumping tests and/or slug testing data is to define the hydraulic conductivity of the aquifer and estimate extraction rates that may be obtained during recirculation. The data will be used to finalize the number of extraction wells and size of the SBGR.

The groundwater results and aquifer testing data will be included in a Phase IV Status Report submitted before remedy implementation.

3.5.4 Baseline Groundwater Sampling

Before installation of the SBGR, baseline groundwater sampling will be performed at existing overburden monitoring wells near the PSL10 area. Additionally, as they are installed, the new extraction wells and SBGR piezometer (Section 3.5.7) will be sampled before SBGR recirculation startup. The groundwater data will provide information on the groundwater geochemistry and CVOC concentration distribution before startup of the SBGR.

Groundwater samples will be collected using low-flow sampling procedures, and field parameters, including depth to water, pH, ORP, specific conductivity, turbidity, temperature, and DO, will be recorded along with visual observations. Groundwater samples at all locations will be analyzed by a laboratory for VOCs. Select locations within and downgradient of the SBGR recirculation area (up to 12 locations) will be analyzed for dissolved gases (methane, ethane, and ethene), and TOC.

3.5.5 Test Pitting and Soil Excavation

Before any intrusive activities begin, including test pitting and soil excavation, a Dig Safe utility locate and a third-party utility locate will be conducted.

3.5.5.1 **Excavation East of Utilities**

Based on the current understanding of the soil excavation zone, the soil excavation would target an area of 30 feet by 20 feet to depths up to 18 feet bgs, as shown on Figures 3-6 through 3-8.

To facilitate excavation, the existing asphalt will be saw cut and removed. The excavation will be carried out via standard excavation methods. Existing wells within the excavation area will be removed. The excavation sidewalls will likely be stabilized via shoring, but setbacks, trench boxes, sheet pile, or other methods in accordance with the contractor preference; Site feasibility; and safety considerations may be employed.

Excavated soils will be divided between potentially clean vadose zone soil (0 to 10 feet bgs) and impacted soils (greater than 10 feet bgs) for waste management and disposal purposes. Excavated soils will be stockpiled or loaded into roll-offs, sampled/characterized, and stored at PSL10 before disposal/subsequent management. During excavations, any soils that exceed 25 ppmv via the PID (calibrated to respond as ppmv isobutylene) soil headspace sampling will be stockpiled as impacted soils. Soil samples will be collected from stockpiled soils (minimum of one sample per 250 cubic yards [CY]) to identify appropriate onsite or offsite reuse or disposal in accordance with MassDEP policies. Clean soils may be reused onsite if PID readings are less than 25 ppmv and laboratory analytical sample results indicate that the analytes are below the MCP Method 1 risk-based cleanup standards. Characterization of clean soil will be completed before deciding if it will be reused or transported offsite for appropriate management. It is anticipated that a total of 225 CY of clean soils and 175 CY of impacted soils will be excavated (total of 400 CY).

During excavation, soil will be screened with a PID in the soil headspace to assess potential CVOC impact. Because shoring methods will likely be required to safely excavate the soils, it likely will not be feasible to collect sidewall samples. Leaching from any remaining impacts in the vicinity of the excavation (including under the utilities that cannot be excavated) will be addressed via groundwater treatment in the SBGR. Once excavation is completed, backfill will be completed in accordance with methods described in Section 3.5.6.

The vertical extent of excavation will target the removal of soils exhibiting PID readings greater than 100 ppmv but removal of these soils may be limited by the presence of groundwater (approximately15 feet bgs) or physical site or excavation equipment constraints. If feasible based on excavation depth (if completed above the water table), confirmation samples will be taken from the bottom of the excavation. Dewatering may be required to remove precipitation that collects in the excavation. If generated, this water would be containerized in drums or other storage containers for characterization and offsite disposal. Note that residual contamination underneath the SBGR excavation will be treated by the groundwater recirculation system, which will expand the reactive zone within the groundwater beyond the physical extent of the SBGR.

3.5.5.2 Test Pitting and Excavation West of Utilities

An additional second excavation may be completed to the west of the utility lines and east of the AP well series (AP-19 to AP-22). Before starting excavation, the potential presence of vadose zone impacts in this area will be investigated via test pitting (up to six test pits). It is anticipated the test pitting will be completed west of the edge of the parking lot pavement. Test pits will be completed to depths up to 10 feet bgs using an excavator. During test pitting, soils will be headspace screened with a PID to confirm the presence/absence of soil impacts. If PID headspace readings greater than 100 ppmv are detected, then the test pit area will ultimately be expanded into an excavation. If PID headspace readings less than 100 ppmv are detected, then the test pit will be backfilled with the excavated soils and no excavation will occur in the vicinity of that test pit.

The test pit results will be used to determine the excavation methods and extent west of the utilities and will consider Site-specific limit such as the line of AP wells (AP-19 to AP-22), the 150 Sohier Road property line, utilities, or other considerations. Depending on the depth of excavation, setbacks, trench boxes, sheet pile, or shoring methods in accordance with the contractor preference; Site feasibility; and safety considerations may be employed. Note that saturated zone residual contamination remaining outside the excavation limits will be treated by the SBGR groundwater recirculation system. The excavations will be advanced downward until PID readings are less than 100 ppmv or the excavation reaches the water table (approximately 10 to 15 feet bgs). If feasible based on excavation sidewall stabilization method and final excavation depth (if completed above the water table), sidewall and bottom confirmation samples will be taken. Once the excavation is complete, the excavation will be backfilled with clean fill material, which may include clean soils excavated both east and west of the utilities at PSL10.

Excavated soils will be stockpiled separately based on PID readings (greater or less than 25 ppmv). Soil samples will be collected from stockpiled soils (minimum of one sample per 250 CY) to identify appropriate onsite or offsite reuse or disposal in accordance with MassDEP policies. Soils with PID readings less than 25 ppmv and laboratory analytical soil stockpile samples that show that the analytes are below the MCP Method 1 risk-based cleanup standards may be reused onsite. It is anticipated that up to 225 CY of soil will be excavated and transported offsite for appropriate disposal. Dewatering, if needed to remove precipitation that collects in the excavation, will be conducted as described for the excavations east of the utilities.

3.5.6 Subgrade Biogeochemical Reactor Installation

Following completion of the excavation activities east of the utilities, the excavation will be backfilled with SBGR treatment media.

The various amendments selected for the SBGR treatment media will be delivered to the Site separately and then mixed together onsite. Once mixed, the SBGR media will be backfilled into the excavation to a depth of approximately 5 feet bgs. During placement, the media will be gently compacted with the excavator bucket to reduce the occurrence of large voids or bridging.

The remainder of the excavation from ground surface to 5 feet bgs will be backfilled with gravel. A geotextile liner will be placed between the top of the SBGR treatment media and the gravel to maintain separation between the two materials.

Within the gravel layer, at approximately 4 feet bgs (below the frost line), infiltration piping will be installed. The infiltration piping will be constructed of 1- to 2-inch high-density polyethylene (HDPE) piping, slotted to allow for even distribution of infiltrated water across the SBGR. Multiple infiltration pipes will be used, as required to evenly distribute flow.

It is anticipated that the SBGR will remain unpaved for 2 years to allow settlement of the SBGR treatment media to occur. During this time, traffic will not be allowed to drive over the SBGR. The SBGR will be finished at grade with a low permeable material to help limit infiltration, such as an HDPE liner or clay layer, and mounded above the top of pavement to promote surface water flow away from the SBGR. Following the 2-year period, the SBGR will be brought down to existing grade and paved to allow for vehicular traffic, in coordination with CPI. The SBGR material will remain in place indefinitely.

3.5.7 Well and Piezometer Installation

Up to four extraction wells will be installed for groundwater extraction and recirculation through the SBGR. The extraction wells will be placed cross-gradient and/or downgradient of the SBGR within the highest concentration areas of the plume. At a minimum, extraction wells will be placed adjacent or downgradient (west) of AP-19 through AP-22 and upgradient (east) of the CL-10 well cluster. Additionally, a cross-gradient extraction well may be installed if deemed necessary based on observed groundwater impacts in relation to the SBGR reactor (that is, if there are groundwater impacts north, south, or east of the SBGR, an extraction well may be installed to distribute amended groundwater in those directions). Extraction well screen depths will be placed to target the zone of greatest contamination, based on concentrations in nearby monitoring wells. Based on current groundwater data, the proposed screen intervals would target the interval covered by the AP wells (AP-19 to AP-22; 15 to 30 feet bgs). The extraction wells will be constructed of a minimum of 4-inch-diameter PVC well casing with 15-foot wire wrapped screens. The extraction wells will be completed in a shallow well vault to allow for access during SBGR operations.

One piezometer will be installed within the completed SBGR. The piezometer will be completed as a drive point piezometer to a total depth at the bottom of the SBGR. The piezometer will be constructed using 1-inch stainless-steel casing with a 5-foot screen. The piezometer will be completed at ground surface in a flush-mounted casing.

3.5.8 Recirculation System Installation

The recirculation system installation will include equipment, instrumentation, and components required to allow for groundwater to be pumped from the extraction wells and infiltrated back into the SBGR, as follows:

- Groundwater extraction pumps – Groundwater extraction pumps will be installed within each extraction well. The pumps will be solar powered, which will allow for the system to operate during daylight hours. The pumps will be outfitted with low- and high-level controls that signal when the pump turns on and shuts off based on groundwater levels within each extraction well and the SBGR.
- Extraction well flow control – Each extraction pump discharge will be fitted with a flow-control valve, flow totalizer, and instantaneous flow meter. This will allow for flow rates to be adjusted as needed and for operational data to be collected. The flow-control equipment and discharge pipe connections will be housed within a vault at each extraction well. Each extraction well will also include a sample port for groundwater sample collection. Equipment will be insulated to maintain system operation during cold weather.
- Conveyance piping – Conveyance piping will be installed from each extraction well to a piping header that combines the flows into one pipe that will convey water to a vault next to the SBGR. The

conveyance piping will be installed below the frost line and will be constructed of 1- to 2-inch-diameter HDPE piping. Final conveyance piping routes will be established before installation.

- Infiltration flow control – The infiltration system will be fitted with a main line flow totalizer and instantaneous flow meter, to measure operational data for the total volume treated. Additionally, an infiltration line manifold will be installed, as needed, to allow for flow to be split evenly among the infiltration lines. Each line of the manifold will be outfitted with a flow totalizer, instantaneous flow meter, and pressure gauge. Equipment will be housed in a main infiltration vault and insulated to maintain operations of the system during cold weather.
- High-level shutoff switch –A high-level shutoff switch will be installed within the SBGR to maintain the water level in the SBGR below the infiltration piping. This switch will be used to shut down pump operations during periods of high water in the SBGR and to restart pump operations once water levels have dropped.

Once components are installed, the system will be pressure tested to confirm no leaks are present in the system.

3.5.9 Groundwater Recirculation

Following installation of the SBGR and associated equipment, groundwater recirculation will be conducted.

To achieve successful treatment within the SBGR, a hydraulic residence time (HRT) of greater than 5 days and no more than 120 days should be maintained throughout operation. Based on the anticipated soil excavation volume, approximately 300 CY of SBGR treatment media would be placed. To achieve a target HRT between 5 and 120 days, the volume of groundwater to be recirculated should exceed 170 gallons per day (gpd) but should not exceed 4,100 gpd.

Pump operation is subject to variability based on solar power during any given day. Likewise, pumps will only be operated during an average of 12 hours per day, during daylight hours. The pumps will turn on when water levels in the SBGR are below the level of the high-level shutoff switch. The pumps will continue pumping until water is drawn down in the extraction well to the depth of the low-level shutoff switch or until the high-water level switch is triggered within the SBGR.

Assuming four extraction wells are installed that pump for 12 hours a day, a target flow rate between 0.06 and 1.4 gallons per minute is required for each extraction well to maintain HRT goals. Each extraction well will be fitted with a flow-control valve to help adjust flow rates, as needed, to meet system requirements.

3.6 Spill, Accidental Discharge, and System Malfunction Controls (310 CMR 40.0874 (3)(b)(7))

Soil excavation and the SBGR treatment media storage, mixing, and placement are the primary items that require design features to control accidental spills or discharges of the treatment media. The SBGR treatment media components will be delivered to the Site as bulk materials and stored in stockpiles. The upper 10 feet of soil excavated will also be stockpiled onsite. The stockpiles will be covered, and the area will be bermed to control surface water flow into and out of the stockpile area. Specific storage requirements for the following media components will be required:

- **ZVI:** ZVI will be stored at temperatures below 95 degrees Fahrenheit in accordance with manufacturer guidance. The ZVI will be stored separately from potentially incompatible materials, such as oxidants or acids.

- **Soybean oil**: Soybean oil will be brought onsite as containerized liquid and stored on pallets with secondary containment in a secure area in its original, tightly closed containers until used. The oil will be protected from freezing. If the volume of soybean oil needed to be stored onsite is over 1,320 gallons, a Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed and implemented before delivery of oil to the Site. The SPCC Plan will detail storage and secondary-containment requirements for the oil and specific actions to contain and control spills during media mixing and backfill placement activities.

It is expected that the soil excavated from below 10-foot depth will be live loaded into vacuum dewatering boxes and transported offsite for disposal. This soil will not be stockpiled onsite.

If excavation dewatering is needed, the water will be pumped into drums or other suitable containers for offsite disposal. The dewatering pumping system, piping, and containers will be placed within secondary containment. As warranted, groundwater storage containers will be stored inside covered secondary containment awaiting transport for offsite disposal.

During remedy implementation, spill control materials will be maintained near the work areas, near the stockpiles, and at the waste storage area. Spill response equipment, including sorbents and a shop vacuum, will be kept onsite near the excavation site. Because the work will be conducted proximate to a building and parking lot in active use, traffic control measures may be implemented as appropriate.

Temporary work zones will be established around the remediation areas to allow access only to authorized personnel. These exclusion zones will be clearly marked with cones and/or caution tape. Spill control will be set up around the excavation, trenching, and well installation areas to contain potential spills, including protection of nearby storm sewer grates.

During operation of the SBGR recirculation system, leaks are not expected but may develop. As detailed in Section 3.9.3, inspections of the system will be carried out routinely. Additionally, the system will be designed to shut down the pump if water levels within the SBGR are too high, using the high-water level switch, helping control the potential for daylighted material within the SBGR. If leaks are observed within the extraction and/or infiltration vault or if sustained water is observed at the ground surface near the footprint of the SBGR, then recirculation will be shut down and the identified issue will be addressed before returning to normal operation.

Water that daylights or flows out of the SBGR will be cleaned up with adsorbent pads, a shop vacuum, or other means as needed. If need be, recovered groundwater in vaults will be collected for offsite disposal. Steps will be taken to identify the source of the leak and repair the leak before restarting the recirculation system.

3.7 Waste Material Management – Disposal Methods (310 CMR 40.0874(3)(b)(8))

Efforts will be made to limit the amount of waste generated during remedy implementation. Material disposal and waste generation will be conducted in accordance with the general procedures described in this section.

Wastes are expected to be soil, groundwater, and personal protective equipment. They will be characterized. Each waste will be managed and disposed of in accordance with state and federal regulations.

It is expected that SBGR treatment media will be mixed and applied such that no waste SBGR treatment media is generated. If there are remaining SBGR treatment media, the material will be disposed of in accordance with state and federal regulations.

3.8 Deleterious Impact Mitigation (310 CMR 40.0874(3)(b)(10))

Environmental impact mitigation measures will be implemented to avoid deleterious impact on environmental receptors. The SBGR treatment media amendments are nontoxic and commonly found materials.

An erosion and sedimentation control and materials management plan will be developed during the planning of the work. As warranted, the plan will be approved by the City of Beverly and submitted as part of the application process for approval of the work.

Most of the treatment system will be below the frost line. Aboveground piping will be located within secondary containment.

3.9 Inspections and Monitoring

This section provides a general description of inspections and monitoring to document adequate construction and performance of the RAA. It also provides the basis of the OMM Plan that will be further developed once the design is complete.

3.9.1 Inspections and Monitoring During Excavations and Backfill

During test pitting and excavations, the following items will be inspected to confirm that the excavation is carried out in accordance with the design:

- PID headspace screening of soil will be carried out during test pitting west of the utilities to assess if contamination may be present. The PID will be equipped with an 11.7-electron-volt lamp and calibrated to respond as ppmv isobutylene. Test pitting will be carried out up to 10 feet bgs. The test pits will be backfilled with spoils. If contamination is present, based on PID soil headspace readings of 100 ppmv or greater and/or field observations (visual, olfactory, or staining) of impacts, than the test pits will be included in the excavation areas, and excavated soils will be stockpiled for offsite disposal.
- PID screening of vadose zone soils along the sidewalls and bottom will be carried out during excavation to identify the limits of excavation, where feasible, based on excavation sidewall stabilization methods and depth of excavation (if completed above the water table). In the area west of the utility corridor, excavation will continue vertically until the water table is reached, or PID readings of soil headspace are <100 ppmv and/or field observations (visual, olfactory, or staining) indicate no impacts, whichever is shallower. In the area east of the utility corridor, excavation will continue vertically to 18 feet bgs (3 feet below the water table).
- During excavations, soils will be screened with a PID to confirm whether they will be stockpiled as impacted (PID >25 ppmv) or potentially clean (PID <25 ppmv). Potentially clean stockpiled soils will be sampled (minimum one sample per 250 CY) for laboratory analysis to confirm analytes are below the MCP Method 1 risk-based cleanup standards before reuse onsite.
- Once the limits of excavation have been reached, sidewall and/or bottom confirmation samples may be collected for laboratory analysis of VOCs, where feasible, based on excavation sidewall stabilization methods and final depth of excavation (if completed above the water table). If collected, samples will be analyzed for VOCs.
- Methods used to stabilize the sidewalls during excavation (shoring, setbacks) will be inspected for compliance with regulations to confirm excavations remain open during removal.
- Before backfilling, the final depths of excavation will be recorded.

During SBGR treatment media preparation and backfill, the following items will be inspected:

- The volume and condition of all SBGR treatment media components brought onsite will be inspected upon delivery. The source and amount of each media component will be documented.
- During mixing of SBGR treatment media, visual confirmation will be used to confirm treatment media is well mixed and all materials are added, in accordance with the design. If media is mixed in batches, then the volume of each component added to each batch will be recorded to document that the SBGR treatment media is consistent with the design specifications.
- During placement of the SBGR treatment media, visual inspections will be performed to confirm media is placed within the excavation and slightly compacted to limit bridging during placement. The final elevation of the top of the SBGR treatment media placement will be measured.
- To confirm that the SBGR is completed to ground surface in accordance with the design, quantities and types of all materials placed will be documented, including the following:
    - Separation geotextile at the top of the SBGR treatment media.
    - Clean gravel placed from the geotextile to groundwater surface.
    - At 4 feet bgs, within the gravel layer, the infiltration pipe will be installed on the horizontal (no slope in either direction). Confirm infiltration pipe is perforated in accordance with the design.
    - Separation geotextile is placed at the top of the gravel layer.
    - A low-permeability cover, mounded to promote sheet flow away from the SBGR, is placed at ground surface.

Field monitoring equipment, including air monitoring equipment, will be calibrated daily, and calibration data will be recorded in a field book. Photographs will be taken before, during, and after installation activities.

3.9.2 Inspections and Monitoring During Well and Groundwater Recirculation System Installation

During the installation of wells, including monitoring wells, extraction wells, and piezometers, the following items will be inspected:

- The quantity, material, and condition of all well materials brought onsite upon delivery.
- Soil boring data will be logged during installation in accordance with Site practices.
- Well construction details will be documented, including final depths, well materials, depths of well components (screen, filter pack, bentonite plug, etc.), and surface completion type.
- Wells developed in accordance with Site practices.
- Wells surveyed by a Massachusetts professional land surveyor.

During the installation of the recirculation system components, the following actions will be conducted:

- Verify the quantity, material or part number, and condition of materials and equipment brought onsite upon delivery.
- Verify system components and equipment are installed in accordance with the design within the extraction well vaults and infiltration vault.
- Verify the conveyance piping is installed in accordance with the design and at a depth below the frost line. Piping runs may be surveyed to document final system layout.
- Once all components are installed, perform pressure testing on all piping to confirm there are no leaks in the system.

- Confirm that equipment is functional and calibrated to meet the requirements of the design. Functionality testing should include the solar panel, the groundwater pump, the high-level switch in the SBGR, and the low-level shutoffs at each extraction well. Flow totalizers and instantaneous flow meters will be tested for accuracy.
- Confirm system shut-down triggers are working, including high-level shutoff in the SBGR and low-level shutoff in the extraction wells.

Field monitoring equipment, including air monitoring equipment, will be calibrated daily, and calibration data will be recorded in a field book. Photographs will be taken before, during, and after installation activities.

3.9.3 Inspections and Monitoring During SBGR Operation

The system will be operated for the first week as a startup period, during which operations monitoring will be conducted and system controls will be adjusted to dial in steady-state operations of the system. During the startup, extraction wells will be brought online one by one, and assessment of possible leaks will be made. Flow valves on each extraction well will be adjusted as required to maintain flow rates within the target goal on a per day basis and not result in leaks.

Following the startup week, operations monitoring and leak inspections will take place twice per week for two weeks, weekly for 2 weeks, biweekly for 4 weeks, and then monthly thereafter. Frequencies may be adjusted, as needed, based on Site-specific needs. The system will be visually inspected by onsite operators during each visit to confirm extraction wells are pumping and no leaks are observed. Systems operation will continue until treatment goals are met at the extraction wells.

Operations monitoring will include collection of the following system parameters:

- Water levels will be recorded at monitoring wells near and downgradient of the SBGR, extraction wells, and the SBGR piezometer. Water levels will be used to identify groundwater flow patterns as a result of the SBGR operations. Water level locations and frequency of monitoring will be adjusted based on system operation.
- Flow totals and instantaneous flow rates will be collected at each extraction well, the main infiltration line, and the infiltration manifold lines. These data will be used to calculate the total volume treated by the system, confirm HRT within the SBGR, distribute flow evenly between infiltration lines, and assess extraction conditions.
- Pressure readings will be taken from pressure gauges on the infiltration manifold lines to confirm water is being infiltrated under gravity conditions.
- Groundwater field parameters will be collected at select monitoring wells near the SBGR, the extraction wells, and the SBGR piezometer. Groundwater field parameters will be used to track whether reducing conditions are established within and downgradient of the SBGR. The locations and frequency of field parameter monitoring will be adjusted based on system operation.
- Confirmation will be made that each extraction pump is cycling on and off by confirming pump operation via the flow meter.
- Visual inspection will be conducted to confirm that equipment is operating as designed and no leaks are identified.

3.9.4 Groundwater Performance Monitoring

Groundwater performance monitoring will consist of baseline sampling before SBGR installation and periodic post-installation monitoring.

3.9.4.1 Baseline

A round of baseline groundwater sampling and water level measurements will be collected before the SBGR is constructed from a selected network of monitoring wells, as detailed in Section 3.5.4. Additional samples will be collected from extraction wells and the SBGR piezometer once they are installed, before startup of the SBGR recirculation system. The well network will include locations upgradient, within, and downgradient of the SBGR recirculation system. Depending on monitoring location, groundwater samples may be analyzed for VOCs, dissolved gases, and/or TOC.

3.9.4.2 Post-installation Monitoring

Periodic groundwater monitoring will be performed following startup of the SBGR recirculation system to monitor the changes in groundwater flow patterns and concentrations and to decide if and when recirculation is no longer required. At a minimum, this will include quarterly sampling for VOCs in compliance with requirements in the MCP.

Initially, following startup of the SBGR recirculation, groundwater monitoring is proposed monthly for 4 months at select locations within or near the influence of the SBGR recirculation zone. Each monitoring event will include groundwater elevation measurements to evaluate groundwater flow patterns and calculate hydraulic gradients. These locations will be sampled for laboratory analysis of VOCs, and field parameters will also be collected at the time of sampling. Additionally, during the third month’s sampling event, samples will be collected for TOC and dissolved gases. Within the first 3 months, reducing conditions are anticipated to develop within the SBGR and potential impacts downgradient may be observed, including increased TOC, decreased ORP, and increased dissolved gases production.

Following the first 4 months, groundwater monitoring will be completed at 6 months and then at a minimum of quarterly each year thereafter. Each monitoring event will include groundwater elevation measurements to evaluate groundwater flow patterns and calculate hydraulic gradients. During semiannual events, a larger network of wells may be sampled for VOCs to better understand impacts of the remedial action on the broader groundwater plume within PSL10. Additionally, TOC and dissolved gases will be collected from select locations during the quarterly sampling events.

Performance monitoring will be carried out for the first 2 years of operation, as detailed previously. Following the first 2 years of operation, optimization of the performance monitoring program will be reassessed based on results. Once the recirculation system is taken offline, the SBGR-related sampling will be integrated into the Sitewide monitoring program. Groundwater monitoring data will be evaluated as follows:

- Upgradient monitoring well data will be assessed for potential changes in CVOC concentrations that may not be related to the remediation activities in the PSL10 area.
- Groundwater data within the treatment zone will be evaluated for changes in groundwater concentrations, both temporally and spatially, as well as changes in geochemistry, such as pH, ORP, TOC, and dissolved gases, indicating favorable conditions for reductive dechlorination. These data will also be assessed to evaluate whether the ZOI has been established outside the SBGR, within the recirculation zone.
- Extraction well data will be analyzed to evaluate if asymptotic results have been achieved to decide if continued extraction is required.
- Groundwater data downgradient of the treatment zone will be evaluated for changes in CVOC concentrations and geochemical conditions, including in the vicinity of the 32 Tozer Road building.

Groundwater data also will be evaluated graphically and statistically, once sufficient data are collected, to verify the overall stability of the PSL10 overburden plume.

The monitoring results will be reported in semiannual Phase IV or Phase V Status Reports and include an evaluation of overall remedial performance and any recommendations for remedy optimization, such as changes to the pump regiment or taking extraction wells offline.

3.10 Permits, Licenses, and Approvals (310 CMR 40.0874(3)(f))

A Massachusetts-certified well driller will be required to install monitoring and extraction wells.

Installation of the SBGR recirculation system proposed under this plan is not anticipated near the sensitive receptors listed in the MCP under 310 CMR 40.0046(3). Therefore, prior approval from MassDEP is not required for construction to occur.

Approval of excavation work is required from the City of Beverly (City of Beverly Code Chapter 249-6).

3.11 Property Access Issues (310 CMR 40.0874(3)(g))

All work is planned to take place on the 150 Sohier Road property, east of the 32 Tozer Road property, with the exception of groundwater sample collection at existing wells located on the 32 Tozer Road property. An access agreement is in place with the property owner at 32 Tozer Road to allow for groundwater sampling.

An access agreement is already in place with the 150 Sohier Road property owner (CPI). The proposed SBGR will require excavation of a portion of the parking lot and backfilling with treatment media. Because of settlement concerns, the excavation will not be paved immediately after filling, but will be allowed to settle for several years before additional backfilling (if necessary) and repaving. Access to the excavation area and blocking off the area for a period of several years will be coordinated with the property owner.

3.12 Design/Construction Schedule (310 CMR 40.0874(3)(c)(2))

The anticipated schedule for the PSL10 area overburden activities includes the following:

- Phase IV Comment Period and Responses: November and December 2023
- Phase IV Status Report: January 27, 2024
- Aquifer testing on existing wells and system design: winter to spring 2024
- Phase IV Status Report: July 27, 2024
- Excavation and installation of the SBGR (with piping) and installation of extraction wells: summer to fall 2024
- Baseline sampling and system startup: fall 2024
- Post-installation performance monitoring: monthly (fall 2024 to winter 2025), quarterly (winter 2025 to winter 2027), then optimization of the monitoring network after 2 years

4. Construction Plans and Specifications

In accordance with 310 CMR 40.0874 (3)(c)(1), the Phase IV Plan will include construction plans that will be prepared in conformance with appropriate engineering and construction standards and practices, and regulations applicable to construction plans and activities. As discussed in Section 3.5, additional data will be used to refine the design of the SBGR remedy. Plans illustrating the potential location of the SBGR, groundwater recirculation system, and monitoring wells are provided on Figures 3-6 through 3-8. Details of the SBGR remedy are also provided in Section 3.5. Additional construction details and drawings will be provided in a subsequent Phase IV Status Report.

5. Health and Safety Plan

In accordance with 310 CMR 40.0874(3)(e), the Phase IV Plan shall include a HASP. A copy of the Site-specific HASP is presented in Appendix D. The HASP will be updated as needed based on each final design and the associated work scope to implement and operate the RAAs.

6. Public Involvement (310 CMR 40.0880)

In accordance with the MCP and the Site PIP, the following public involvement activities will be completed relevant to Phase IV:

- The Chief Municipal Officer and Board of Health will be notified of the availability of the Phase IV Plan, Part 3, including information about how local officials may obtain a copy of the report.
- A copy of the Phase IV Plan, Part 3, will be sent to the information repository established in the PIP for the Former Varian Facility Site.
- A public meeting will be held on November 14, 2023, to present this document, followed by a 20-day public comment period to solicit public comments.

Copies of the PIP notices are included in Appendix E.

7. References

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Massachusetts Department of Environmental Protection (MassDEP). 2014. *MCP Numerical Standards Development Spreadsheets.* https://www.mass.gov/lists/risk-assessment-information.

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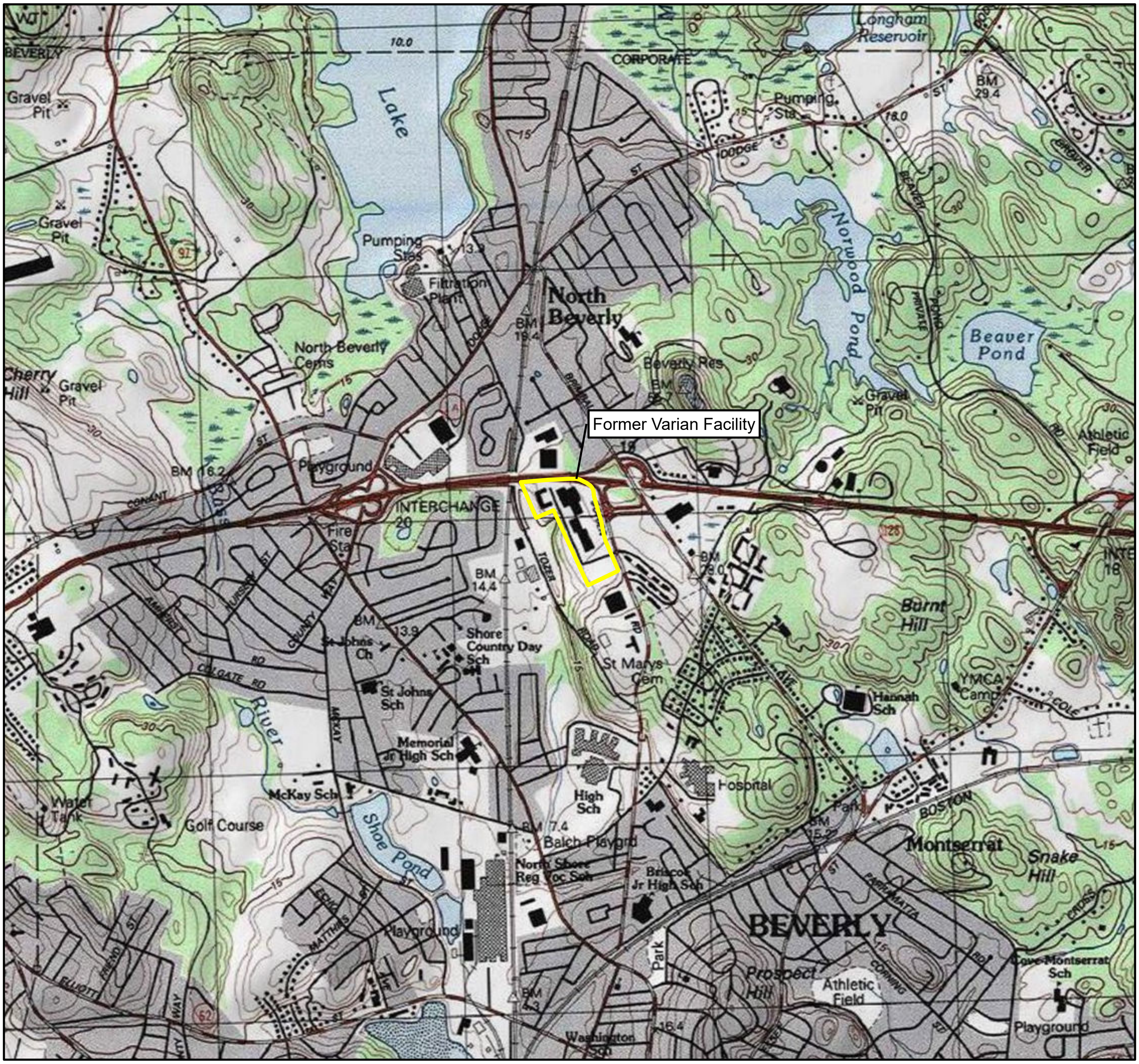
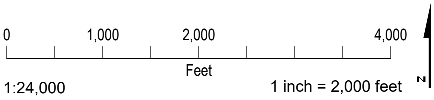
Figures



LEGEND

🟨 Former Varian Facility



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USA_Topo_Maps: Copyright:© 2013 National Geographic Society, i-cubed

FIGURE 1-1
Site Location Map
Phase IV Remedy Implementation Plan
Beverly, Massachusetts

Jacobs

FIGURE 1-2
Expanded Site Plan
Phase IV Remedy Implementation Plan
Beverly, Massachusetts

Service Layer Credits: Light Gray Reference: Esri Community Maps Contributors, MassGIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Human Geography Base: Esri Community Maps Contributors, MassGIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, World Street Map: Esri, HERE, Garmin, NGA, USGS, NPS, Human Geography Detail: Esri Community Maps Contributors, MassGIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Human Geography Label: Esri Community Maps Contributors, MassGIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Light Gray Base: Esri Community Maps Contributors, MassGIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

LEGEND

- ● Abandoned or Destroyed Well
- ● Monitoring Well (MW)
- ● Monitoring Well – not sampled in past 5 years
- ▲ Hand Auger Sample Location (HA) Adjacent to a Stream (STRHA)
- ▲ Surface Water Stream (STR) Sample Location
- ⊙ 2023 Soil Boring/Monitoring Well Location
- — Approximate Location of Stream in Culvert
- — Approximate Stream Location
- ☐ Phase II Proposed Target Treatment Zone
- ☐ Approximate Building Location
- ☐ Groundwater TTZ
- ☐ Soil TTZs
- — Cross-Section Line

Notes:
TTZ = target treatment zone
1. Soil Boring Locations are approximate and subject to survey

0 27.5 55 110
Feet
1:660
1 inch = 55 feet
N

Service Layer Credits: World Street Map: Esri, HERE, Garmin, NGA, USGS, NPS; World Imagery: Maxar, Microsoft

VICINITY MAP

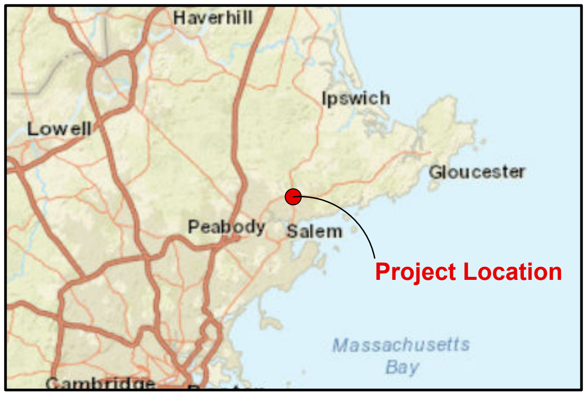

FIGURE 3-1
PSL 10 Area Map
Phase IV Remedy Implementation Plan
Beverly, Massachusetts

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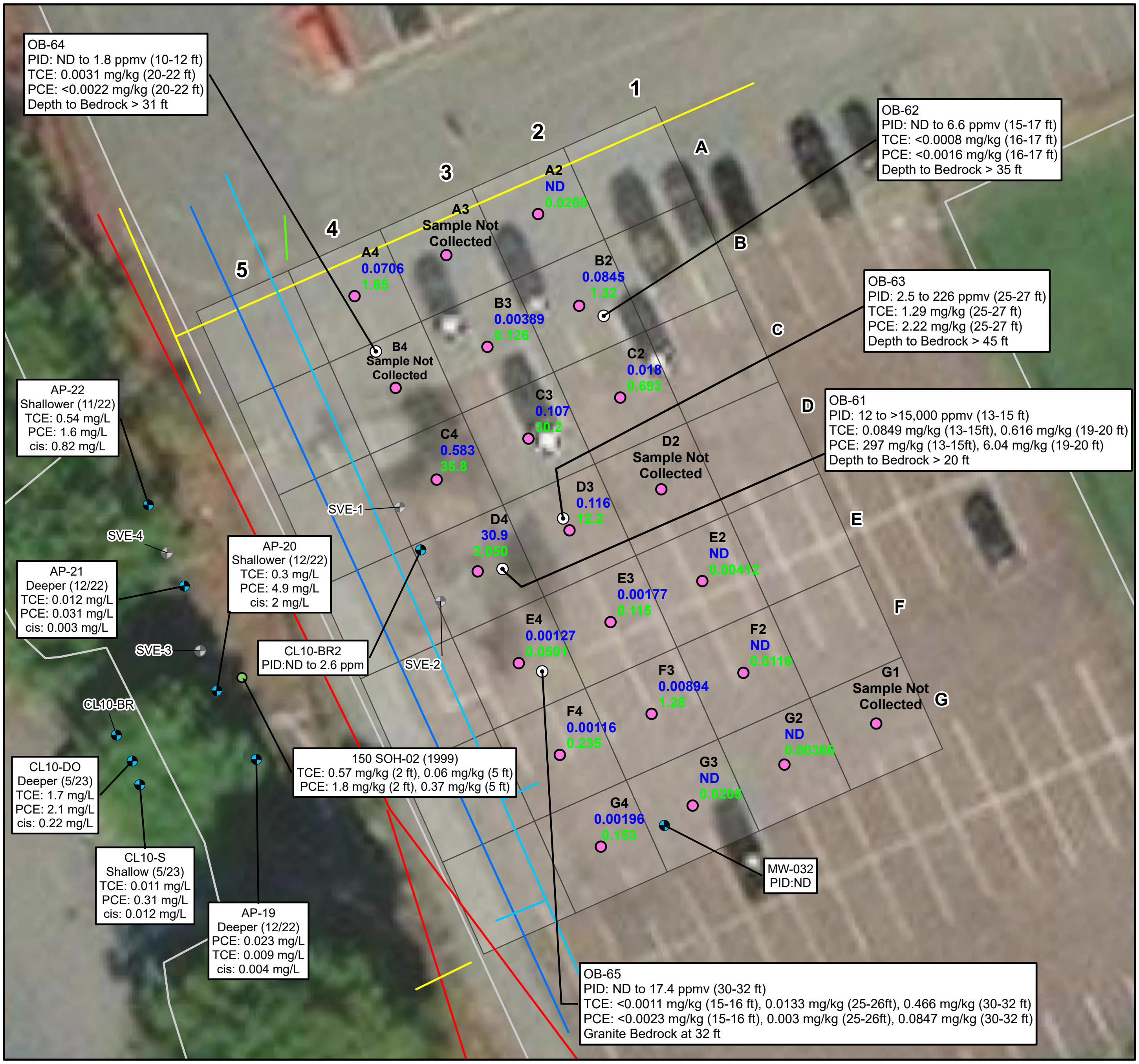
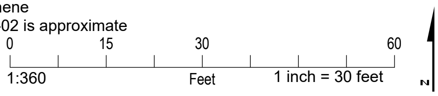
Jacobs



LEGEND

- ⊙ Soil Boring Location (2023)
- ● Soil Vapor Sampling Point (2023)
- ● Soil Sampling Point (1999)
- ◐ Abandoned or Destroyed Well
- ◐ Monitoring Well (MW)
- — Underground Storm/Sewer
- — Underground 30" Water Line
- — Underground 6" Water Line
- — Underground Gas Line
- — Overhead Electric

Notes:
TCE in soil vapor (ppmv)
PCE in soil vapor (ppmv)
ND = non-detect
ppmv = parts per million by volume
ppm = parts per million
PID = photoionization detector
ft = feet
mg/L = milligrams per liter (groundwater result; highest from 11/2022, 12/2022, or 5/2023 samples)
mg/kg = milligrams per kilogram (soil result)
TCE = trichloroethene
PCE = tetrachloroethene
cis = cis-1,2-dichloroethene
1. Location of 150SOH-02 is approximate



VICINITY MAP

FIGURE 3-2
2023 PSL 10 Area Soil Vapor Survey, Soil and Groundwater Results

Phase IV Remedy Implementation Plan

Beverly, Massachusetts

Jacobs

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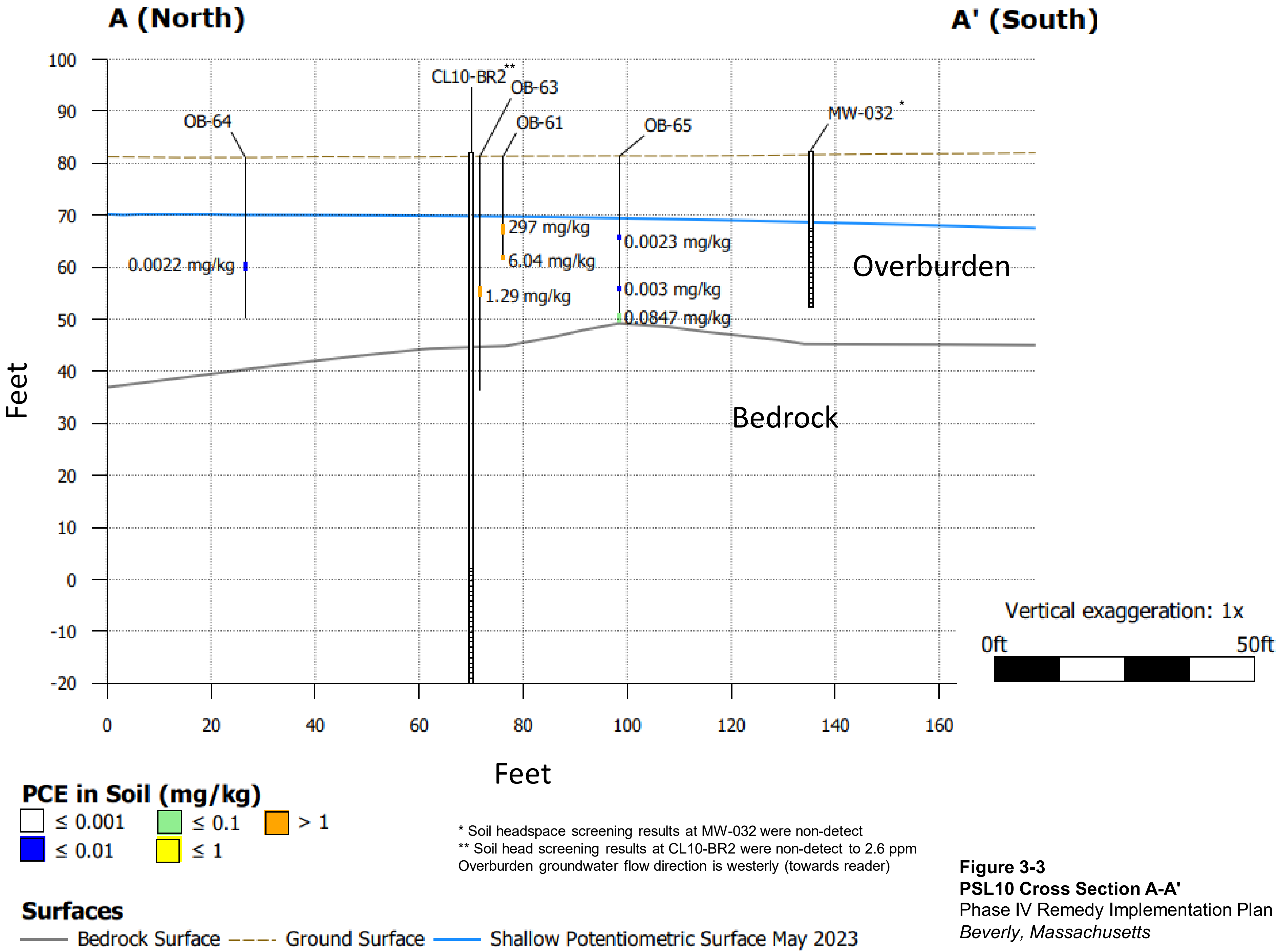
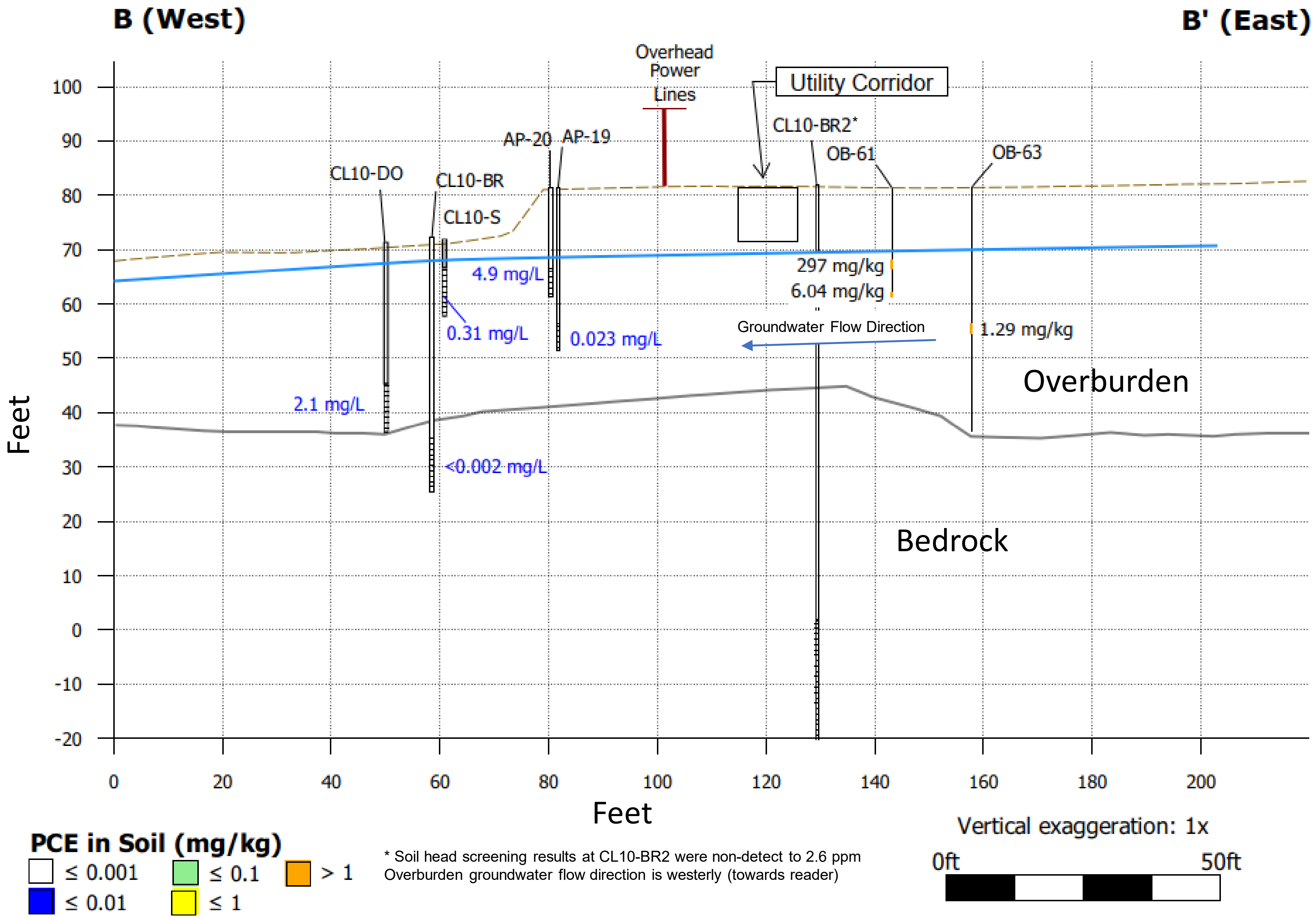


* Soil headspace screening results at MW-032 were non-detect
** Soil head screening results at CL10-BR2 were non-detect to 2.6 ppm
Overburden groundwater flow direction is westerly (towards reader)

Figure 3-3
PSL10 Cross Section A-A'
Phase IV Remedy Implementation Plan
Beverly, Massachusetts



* Soil head screening results at CL10-BR2 were non-detect to 2.6 ppm
Overburden groundwater flow direction is westerly (towards reader)

Surfaces

Bedrock Surface ----- Ground Surface —— Shallow Potentiometric Surface May 2023

2.1 mg/L – Maximum 12/22 or 5/23 PCE groundwater concentration

Figure 3-4
PSL10 Cross Section B-B'
Phase IV Remedy Implementation Plan
Beverly, Massachusetts

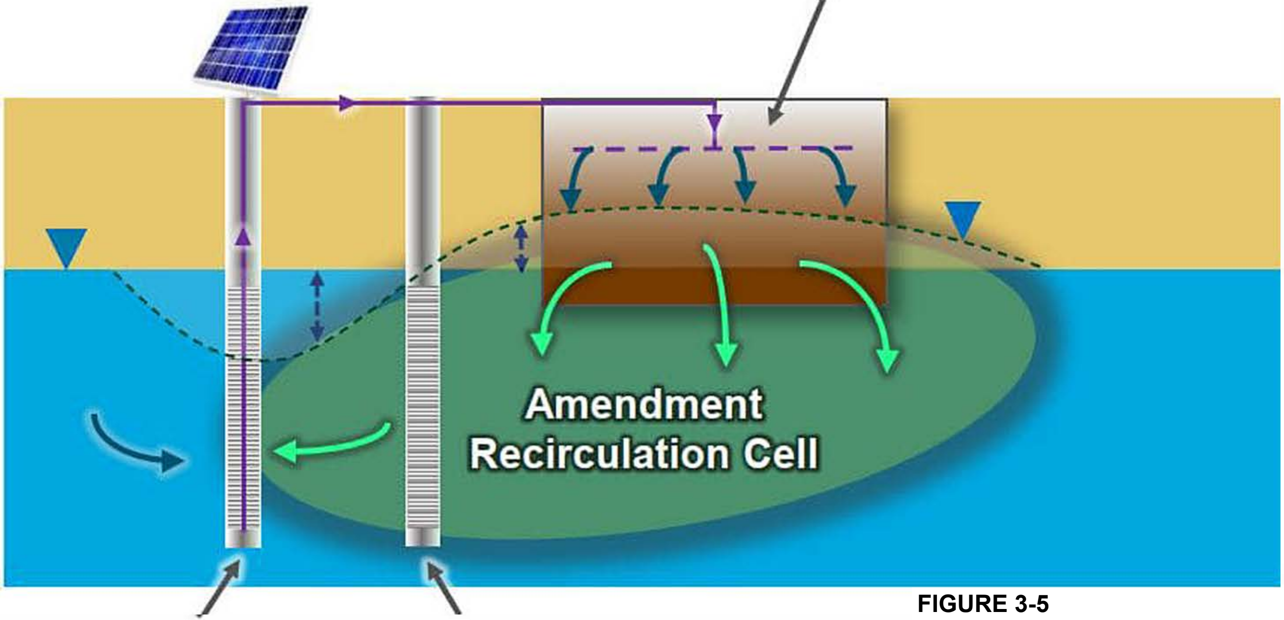
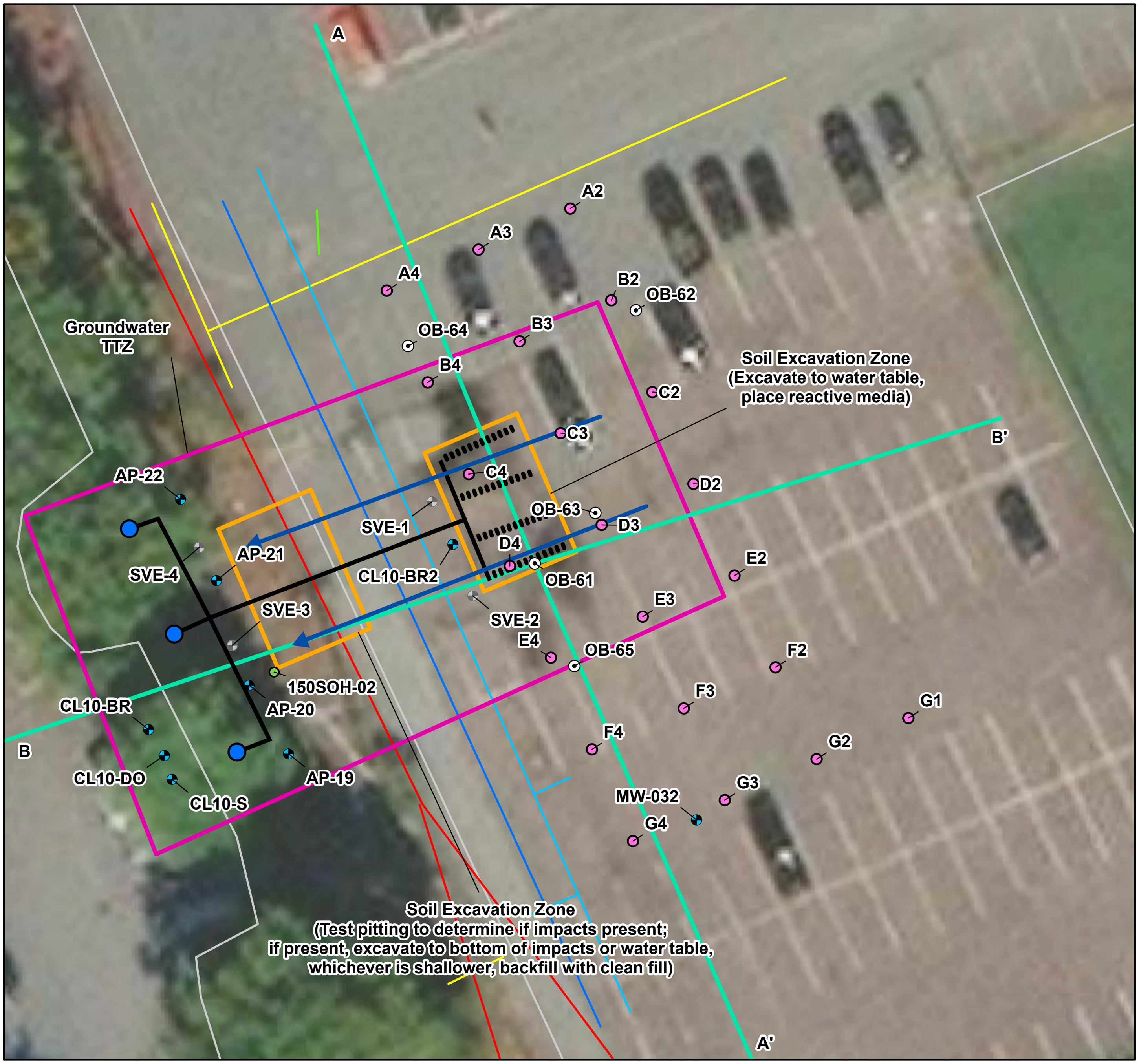


FIGURE 3-5
Subgrade Biogeochemical Reactor Diagram
Phase IV Remedy Implementation Plan
Beverly, Massachusetts



LEGEND

⊙ Soil Boring Location

● Soil Vapor Sampling Point (2023)

● Soil Sampling Point (1999)

◕ Abandoned or Destroyed Well

◕ Monitoring Well (MW)

● Proposed Recirculation Well

— Conveyance Line

▮▮▮▮▮▮▮▮ Infiltration Line

— Underground Storm/Sewer

— Underground 30" Water Line

— Underground 6" Water Line

— Underground Gas Line

— Overhead Electric

▭ Soil Excavation Zone

▭ Groundwater TTZ

— Cross-Section Line

→ Groundwater Recirculation Zone

VICINITY MAP

Notes:
TTZ = target treatment zone
1. Excavation, extraction well and conveyance/infiltration lines conceptual and will be refined during final design

0 15 30 60
Feet
1:360
1 inch = 30 feet
N

FIGURE 3-6
Conceptual Layout of the Remedial Action
Phase IV Remedy Implementation Plan
Beverly, Massachusetts

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Jacobs

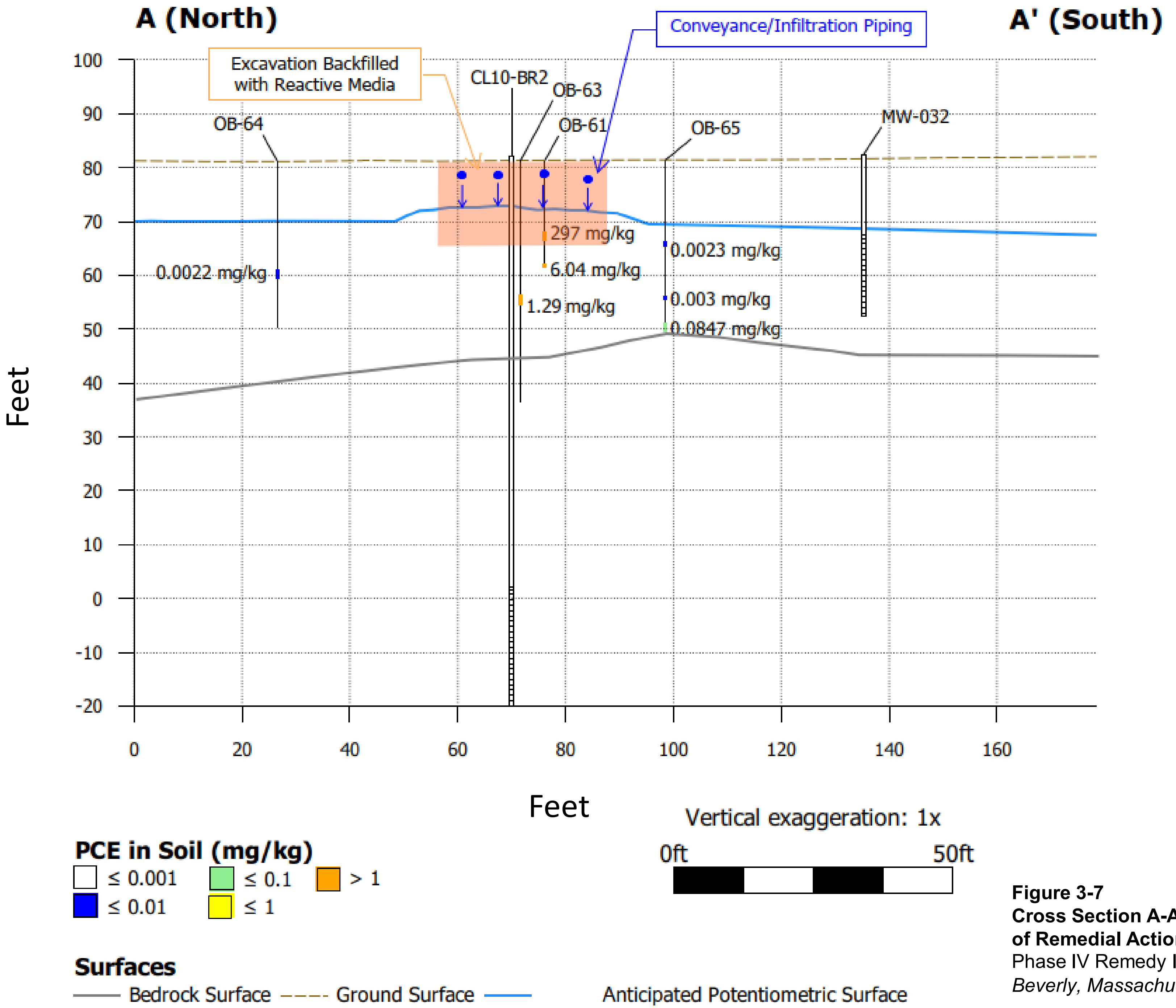


Figure 3-7
Cross Section A-A’ Conceptual Layout of Remedial Action
Phase IV Remedy Implementation Plan
Beverly, Massachusetts

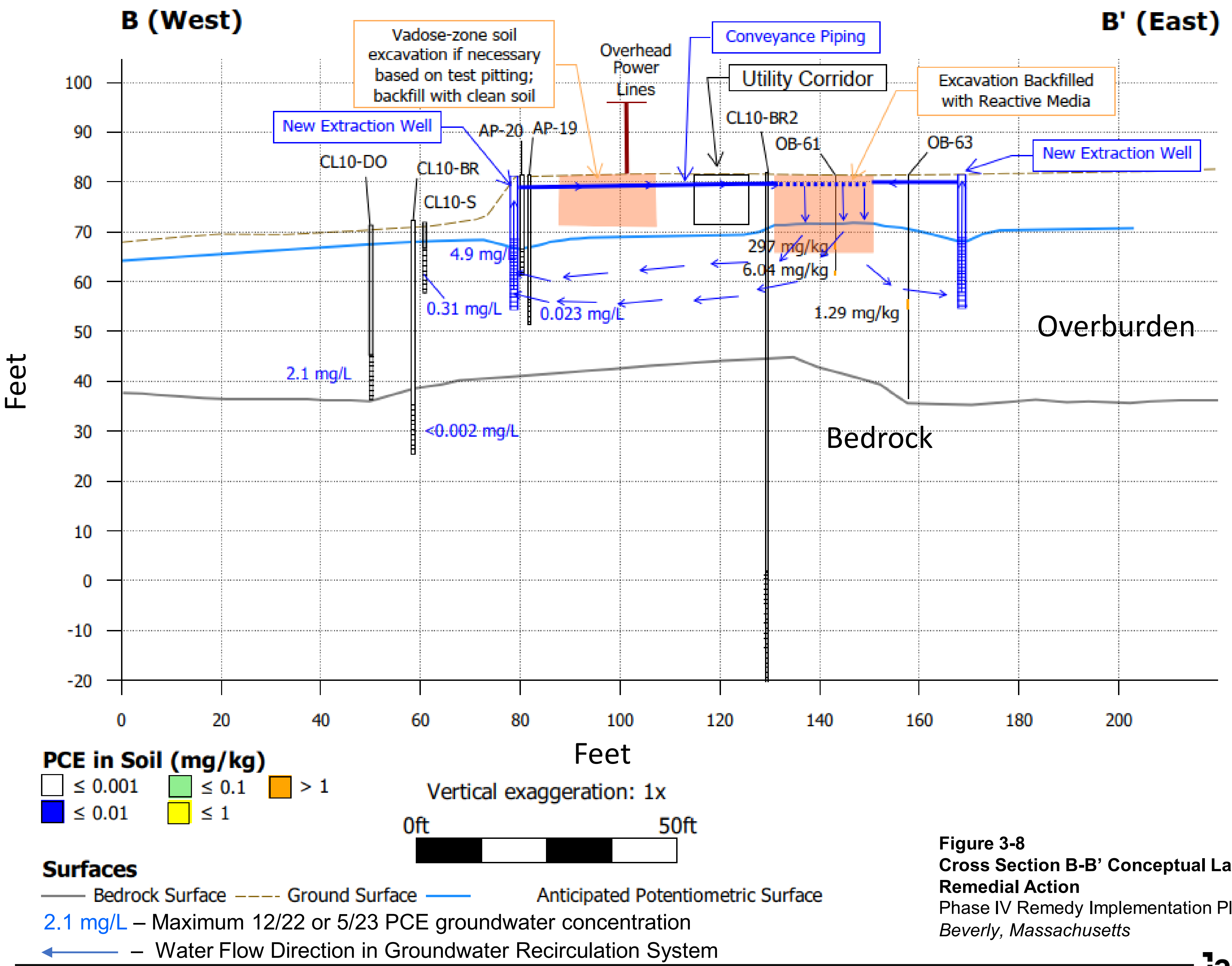


Figure 3-8
Cross Section B-B' Conceptual Layout of Remedial Action
Phase IV Remedy Implementation Plan
Beverly, Massachusetts

Jacobs

Appendix A

Comprehensive Response Action Transmittal Form

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

BWSC 108

Release Tracking Number
3 - 485

A. SITE LOCATION:

1. Site Name: VARIAN-MICROWAVE DIV

2. Street Address: 150 SOHIER RD

3. City/Town: BEVERLY

4. ZIP Code: 019150000

☑ 5. Check here if the disposal site that is the source of the release is Tier Classified. Check the current Tier Classification Category:

☑ a. Tier I ☐ b. Tier ID ☐ c. Tier II

B. THIS FORM IS BEING USED TO: (check all that apply)

☐ 1. Submit a **Phase I Completion Statement,** pursuant to 310 CMR 40.0484.

☐ 2. Submit a **Revised Phase I Completion Statement,** pursuant to 310 CMR 40.0484.

☐ 3. Submit a **Phase II Scope of Work,** pursuant to 310 CMR 40.0834.

☐ 4. Submit an **interim Phase II Report.** This report does not satisfy the response action deadline requirements in 310 CMR 40.0550.

☐ 5. Submit a **final Phase II Report and Completion Statement,** pursuant to 310 CMR 40.0836.

☐ 6. Submit a **Revised Phase II Report and Completion Statement,** pursuant to 310 CMR 40.0836.

☐ 7. Submit a **Phase III Remedial Action Plan and Completion Statement,** pursuant to 310 CMR 40.0862.

☐ 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement,** pursuant to 310 CMR 40.0862.

☑ 9. Submit a **Phase IV Remedy Implementation Plan,** pursuant to 310 CMR 40.0874.

☐ 10. Submit a **Modified Phase IV Remedy Implementation Plan,** pursuant to 310 CMR 40.0874.

☐ 11. Submit an **As-Built Construction Report,** pursuant to 310 CMR 40.0875.

☐ 12. Submit a **Phase IV Status Report,** pursuant to 310 CMR 40.0877.

☐ 13. Submit a **Phase IV Completion Statement,** pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

☐ a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Permanent or Temporary Solution.

☐ b. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.

☐ c. The requirements of a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

☐ 14. Submit a **Revised Phase IV Completion Statement,** pursuant to 310 CMR 40.0878 and 40.0879.

☐ 15. Submit a **Phase V Status Report,** pursuant to 310 CMR 40.0892.

☐ 16. Submit a **Remedial Monitoring Report.** (This report can only be submitted through eDEP.)

a. Type of Report: (check one) ☐ i. Initial Report ☐ ii. Interim Report ☐ iii. Final Report

b. Frequency of Submittal: (check all that apply)

- ☐ i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.
- ☐ ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.
- ☐ iii. A Remedial Monitoring Report(s) submitted every six months, concurrent with a Status Report.
- ☐ iv. A Remedial Monitoring Report(s) submitted annually, concurrent with a Status Report.

c. Status of Site: (check one) ☐ i. Phase IV ☐ ii. Phase V ☐ iii. Remedy Operation Status ☐ iv. Temporary Solution

d. Number of Remedial Systems and/or Monitoring Programs: ____________________

A separate BWSC108A, CRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.

☐ 17. Submit a **Remedy Operation Status,** pursuant to 310 CMR 40.0893.

☐ 18. Submit a **Status Report to maintain a Remedy Operation Status,** pursuant to 310 CMR 40.0893(2).

☐ 19. Submit a **Transfer and/or a Modification of Persons Maintaining a Remedy Operation Status (ROS),** pursuant to 310 CMR 40.0893(5) (check one, or both, if applicable).

- ☐ a. Submit a Transfer of Persons Maintaining an ROS (the transferee should be the person listed in Section D, "Person Undertaking Response Actions").
- ☐ b. Submit a Modification of Persons Maintaining an ROS (the primary representative should be the person listed in Section D, "Person Undertaking Response Actions").

c. Number of Persons Maintaining an ROS not including the primary representative: ____________________

☐ 20. Submit a **Termination of a Remedy Operation Status,** pursuant to 310 CMR 40.0893(6).(check one)

- ☐ a. Submit a notice indicating ROS performance standards have not been met. A plan and timetable pursuant to 310 CMR 40.0893(6)(b) for resuming the ROS are attached.
- ☐ b. Submit a notice of Termination of ROS.

☐ 21. Submit a **Phase V Completion Statement,** pursuant to 310 CMR 40.0894.

Specify the outcome of Phase V activities: (check one)

- ☐ a. The requirements of a Permanent Solution have been met. A completed Permanent Solution Statement and Report (BWSC104) will be submitted to DEP.
- ☐ b. The requirements for a Temporary Solution have been met. A completed Temporary Solution Statement and Report (BWSC104) will be submitted to DEP.

☐ 22. Submit a **Revised Phase V Completion Statement,** pursuant to 310 CMR 40.0894.

☐ 23. Submit a **Temporary Solution Status Report,** pursuant to 310 CMR 40.0898.

☐ 24. Submit a **Plan for the Application of Remedial Additives** near a sensitive receptor, pursuant to 310 CMR 40.0046(3).

a. Status of Site: (check one)

☐ i. Phase IV ☐ ii. Phase V ☐ iii. Remedy Operation Status ☐ iv. Temporary Solution

C. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> *if Section B indicates that a* ***Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement*** *and/or a* ***Termination of a Remedy Operation Status*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that a* ***Phase II Scope of Work*** *or a* ***Phase IV Remedy Implementation Plan*** *is being submitted,* the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that an* ***As-Built Construction Report,*** *a* ***Remedy Operation Status,*** *a* ***Phase IV, Phase V or Temporary Solution Status Report,*** *a* ***Status Report to Maintain a Remedy Operation Status,*** *a* ***Transfer or Modification of Persons Maintaining a Remedy Operation Status*** *and/or a* ***Remedial Monitoring Report*** *is being submitted,* the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP#: 9456

2. First Name: MATTHEW E 3. Last Name: HACKMAN

4. Telephone: 4017379211 5. Ext.: 6. Email: matthewehackman@verizon.net

7. Signature:

8. Date: (mm/dd/yyyy) 9. LSP Stamp:

D. PERSON UNDERTAKING RESPONSE ACTIONS:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: VARIAN MEDICAL SYSTEMS INC

3. Contact First Name: MATTHEW

4. Last Name: GILLIS

5. Street: 801 PENNSYLVANIA AVE NW STE 73

6. Title:

7. City/Town: WASHINGTON

8. State: DC

9. ZIP Code: 200040000

10. Telephone:

11. Ext:

12. Email:

E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS:

☐ Check here to change relationship

☑ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☑ e. Other RP or PRP Specify: NON-SPECIFIED PRP

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Undertaking Response Actions Specify Relationship:

F. REQUIRED ATTACHMENT AND SUBMITTALS:

☑ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☐ 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.

☐ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.

☑ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.

☐ 5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.

☐ 6. If submitting a Transfer of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for the person making this submittal (transferee) is attached.

☐ 7. If submitting a Modification of a Remedy Operation Status (as per 310 CMR 40.0893(5)), check here to certify that a statement detailing the compliance history for each new person making this submittal is attached.

☐ 8. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to: BWSC.eDEP@state.ma.us.

☑ 9. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

Attachment to BWSC 108
150 Sohier Road, Beverly, MA
RTN 3-0485

Approvals from the Massachusetts Department of Environmental Protection that this submittal is subject to include:

- Massachusetts Department of Environmental Protection Termination of Remedy Operation Status Notice of Noncompliance, dated February 18, 2022.

- Massachusetts Department of Environmental Protection approval of extension request, letter to Varian Medical Systems, Inc., dated July 6, 2022.

- Public Comment Draft Phase II Addendum Reporting Schedule, Aptim Environmental and Infrastructure, LLC letter to Massachusetts Department of Environmental Protection, dated September 12, 2022

Appendix B

Soil Boring Logs and Well Construction Diagrams

Challenging today.
Reinventing tomorrow.

PROJECT NUMBER

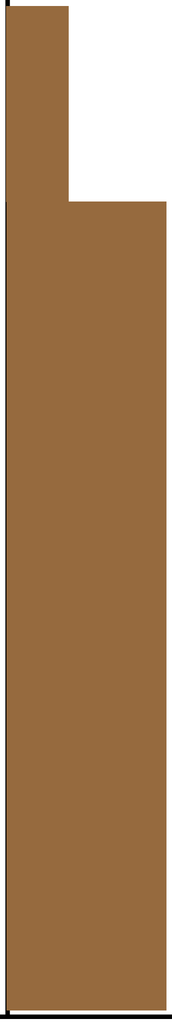
BORING NUMBER
OB-61

SHEET 1 OF 2

SOIL BORING LOG (UNCONSOLIDATED)

PROJECT : Varian Medical System
LOCATION : 150 Sohier Rd, Beverly, MA
DATE : 9/20/2023
START TIME : 8:45
END TIME : 14:50
DRILLING CONTRACTOR : GeoLogic
DRILLING METHOD AND EQUIPMENT USED : Hollow stem auger
ELEVATION :
WATER LEVEL :
LOGGER : D. Kearney

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
				Boring air knifed to 5 ft bgs		
5	2'	1'	12.1	Poorly graded sand with silt (SP-SM), brown (7.5 YR 5/4), dry, dense, fine-grained sand.		Blow count 6-10-36-32
	2'	2'	72.0	Same as above (SAA) with gravel, medium dense		Blow count 52-30-23
10	2'	2'	176.2	SAA with minor angular gravel, brown (7.5 YR 4/4), very dense, gravel greater than 1.5" in the shoe of core (coarse).		Blow count 34-45-81-50/2"
	2'	2'	31.2	SAA. 10YR 4/3, very dense		Blow count 29-50-109
15	2'	2'	>15,000	SAA, very dense		Blow count 22-61-50/2"



Challenging today.
Reinventing tomorrow.

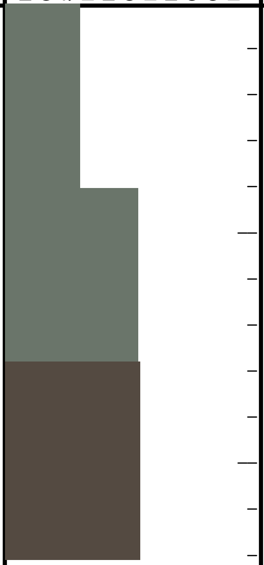
PROJECT NUMBER

BORING NUMBER
OB-61

SHEET 2 OF 2

SOIL BORING LOG (UNCONSOLIDATED)

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
	2'	2'	781.4	Silty Sand (SM), grayish green (56Y 5/2), dry, very dense		Blow count 42-80-53-67
	2'	2'	3,632	SAA, with fine gravel, damp		
20	2'	2'	7.96	SAA, very dark grayish brown (2.5 Y 9/2). TD of boring to 19 feet bgs core collected to 21 feet bgs		
25						
30						
32.5						



PROJECT NUMBER	BORING NUMBER	
	OB-62	SHEET 1 OF 3

Challenging today.
Reinventing tomorrow.

SOIL BORING LOG (UNCONSOLIDATED)

PROJECT : Varian Medical System
LOCATION : 150 Sohier Rd, Beverly, MA
DATE : 9/22/2023 to 9/25/2023
START TIME : 7:50 (9/22/2023)
END TIME : 12:00 (9/25/2023)
DRILLING CONTRACTOR : Geologic
DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger/Drive & Wash
ELEVATION :
WATER LEVEL :
LOGGER : D. Kearney / S. Fox

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
				Boring air knifed to 5 ft bgs		at 0805 H2O level 5.1 ft bgs
5	2'	2'	0.0	(5-20) Poorly graded sand with silt, fine sand, SP-SM, olive brown (2.5Y 4/4), dry, stiff to hard.		blow count 18-35-43-18 cobble at 7', deflected the auger?
10	1.5'		1.5	SAA, olive gray (5Y 5/2)		Blow count 15-27-15
15						

Challenging today.
Reinventing tomorrow.

PROJECT NUMBER	BORING NUMBER	SHEET 2 OF 3
	OB-62	

SOIL BORING LOG (UNCONSOLIDATED)

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
	2'	2'	6.6	Poorly graded sand with gravel, fine sand with fine gravel (SP), Grey (2.5Y 5/1), dry, very stiff to hard		Blow count 27-81-60-73 0.0 ppm PID - breathing zone
						Auger stuck at 20'; 2' of heave in augers, switch to Drive and Wash
20	2'	2'	0.0	SAA, very dense.		Blow count 49-39-59-48
25	2'	0.17'		Poorly Graded Sand with minor gravel (up to 1-inch diameter) (SP), pale yellowish brown (10 YR 6/2), dense to very dense.		Blow count: 20-30-36-57 Poor recovery from 25-27', 2 inches. Only bolt from auger in split spoon. Drilling with drive and wash method
30	2'	2'	0.3 ppm	SAA, fine grained sand with minor gravel (SP), yellowish brown (10 YR 5/4), slightly moist, very dense.		Blow count 24-41-55-69
32.5						

Challenging today.
Reinventing tomorrow.

PROJECT NUMBER

BORING NUMBER
OB-62

SHEET 3 OF 3

SOIL BORING LOG (UNCONSOLIDATED)

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
					▨	blow count 91-82-83-101
35	2'		0.1 ppm	SAA, very dense.	▨	Split-spoon sample to 36'; hole drilled to 35'
40						
45						
50						

Challenging today.
Reinventing tomorrow.

PROJECT NUMBER

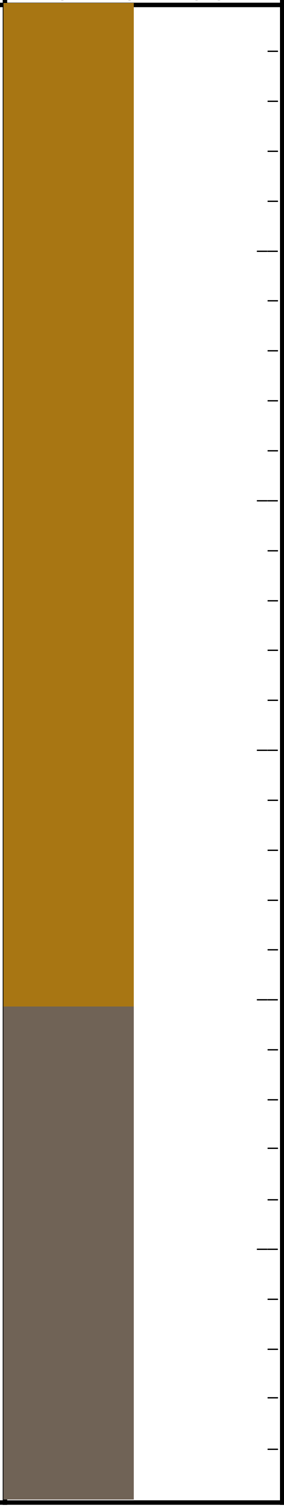
BORING NUMBER OB-63

SHEET 1 OF 3

SOIL BORING LOG (UNCONSOLIDATED)

PROJECT :	Varian Medical System	DRILLING CONTRACTOR :	Geologic
LOCATION :	150 Sohier Rd, Beverly, MA	DRILLING METHOD AND EQUIPMENT USED :	Drive and Wash
DATE :	9/28/2023 to 9/29/2023	ELEVATION :	
START TIME :	12:10 (9/28/2023)	WATER LEVEL :	
END TIME :	7:20 (9/29/2023)	LOGGER :	Steve Fox

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
5						
	2'	1.5'	2.5	Silty sand (SP/SM), dark yellowish orange (10 YR 6/6), slightly moist, very dense, minor coarse sand		Blow count 15-36-56-52
10						
	1.2'	1.2'	2.7	(10-35) Poorly graded sand (SP), pale yellowish brown (10 YR 6/2) with some lighter brown (5 YR 5/6), slightly moist, very dense, fine grained with minor coarse sand.		Blow count 36-41-100/4"
15						



Challenging today.
Reinventing tomorrow.

PROJECT NUMBER	BORING NUMBER	
	OB-63	SHEET 2 OF 3

SOIL BORING LOG (UNCONSOLIDATED)

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
	2'	1'		SAA, color change at 16' to pale yellowish brown (10 YR 6/2), very dense		blow count 43-88-80/5"
20	1'	1'	148	SAA, pale yellowish brown (10 YR 6/2), very dense, minor coarse sand (less 5%),		Blow Count 43-88/4"
25	2'	2'	226	SAA as 20' interval, very dense		Blow count 31-25-35-28
30	1.2'	1.2'	57.2	SAA, very dense, increase in coarse sand to 5-10%		Blow count 41-80-50/2"
32.5						

Challenging today.
Reinventing tomorrow.

PROJECT NUMBER	BORING NUMBER	
	OB-63	SHEET 3 OF 3

SOIL BORING LOG (UNCONSOLIDATED)

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
					▨	
35					▨	blow count 37-39-100/5"
	1.5'		64.5	(35-45) Silty Sand (SM), dark yellowish brown (10 YR 4/2), minor coarse gravel, very stiff, very dense	▨	
40					▨	
	2'	1'	14.9	SAA	▨	
45				TD-45'		
50						

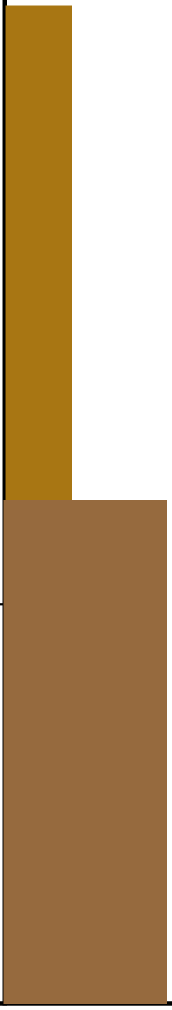
Challenging today.
Reinventing tomorrow.

PROJECT NUMBER	BORING NUMBER	SHEET 1 OF 2
	OB-64	

SOIL BORING LOG (UNCONSOLIDATED)

PROJECT : Varian Medical System
LOCATION : 150 Sohier Rd, Beverly, MA
DATE : 9/26/2023
START TIME : 9:25
END TIME : 16:40
DRILLING CONTRACTOR : GeoLogic
DRILLING METHOD AND EQUIPMENT USED : Drive and Wash
ELEVATION :
WATER LEVEL :
LOGGER : Steve Fox

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
						Air knifed to 5'
5	2'	2'	0	Poorly graded sand (SP), dark yellowish orange 10 YR 6/6, slightly moist, very dense, fine grained sand w/silt increasing with depth.		Blow count 15-31-45-64
10	2'	2'	1.8	SAA		Blow count 33-47-52-55
				Sandy Silt with Gravel (ML), moderate yellowish brown (10YR 5/4), dry to slightly damp, hard, very dense, 30% gravel.		
15						



Challenging today.
Reinventing tomorrow.

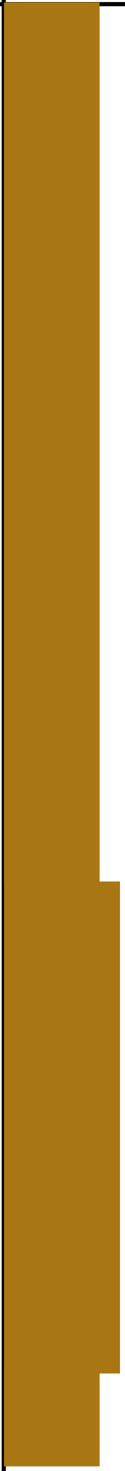
PROJECT NUMBER

BORING NUMBER
OB-64

SHEET 2 OF 2

SOIL BORING LOG (UNCONSOLIDATED)

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
	2'	0.33'		Sandy Silt (ML), dark yellowish brown (10 YR 4/2), 30% sand (fine-medium grained). damp, very dense (till)		100 hammer blows for 4"
						Driller felt boulders from 15-16' and 19-20'
20	1' 5"		0.7	Same as above (SAS)		Blow count 31-45-100/5" for 1.5 ft
25	2'			no recovery		Driller thinks it might be gravel
				Coarse sand in cuttings coming to the surface		
30						
	2'	2'	1.6	Sandy Silt (ML), dark yellowish brown (10 YR 4/2), moist, very dense, fine-medium grained sand. TD- 31'		Blow count 39-54-79
32.5						



Challenging today.
Reinventing tomorrow.

PROJECT NUMBER	BORING NUMBER	
	OB-65	SHEET 1 OF 2

SOIL BORING LOG (UNCONSOLIDATED)

PROJECT : Varian Medical System
LOCATION : 150 Sohier Rd, Beverly, MA
DATE : 9/27/2023
START TIME : 12:10
END TIME : 14:50
DRILLING CONTRACTOR : GeoLogic
DRILLING METHOD AND EQUIPMENT USED : Drive and wash
ELEVATION :
WATER LEVEL :
LOGGER : Steve Fox

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
				Air knife to 5'		
5	2'	2'	1.7	Silty Sand (SM), dark yellowish orange (10 YR 6/6), slightly moist, medium dense, very fine grained sand with greater than 15% fines, coarse sand and fine gravel up to 3/4 inch.	▨	Blow count 16-16-21-3
					▨	
10	1"	1"	6.7	Same as above (SAS), very dense, igneous fragments in the core.	▨	Blow count 54-70-100"
					▨	
15						

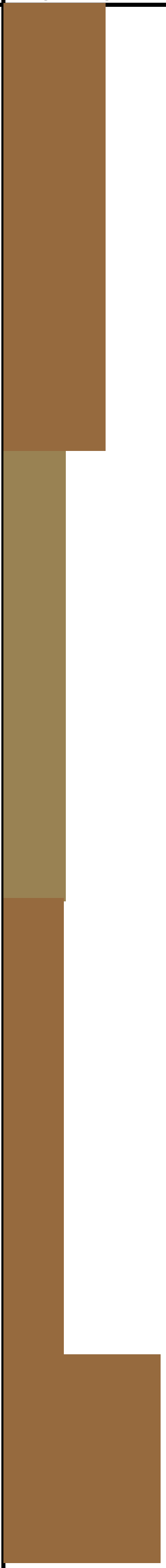
Challenging today.
Reinventing tomorrow.

PROJECT NUMBER

BORING NUMBER **OB-65**

SHEET 2 OF 2

SOIL BORING LOG (UNCONSOLIDATED)

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	Head Space (ppm)	USCS Description SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, PLASTICITY **SAMPLE ID**	STRAT COLUMN Lithology, Grain Size, and <-F Vertical Gradation C-> Lig/Coal Clay Silt F Sand M Sand C Sand F Gravel M Gravel C Gravel Cobble Fill	COMMENTS SEDIMENTARY STRUCTURES, FOSSILS/BIO MARKERS, DRILL RATE, RIG CHATTER, FLUID GAIN /LOSS, DRILLER COMMENTS
	1'	1'	7.9	Poorly Graded Sand with Silt (SP), moderate yellowish brown (10 YR 5/4), dry, very dense, minor silts.		57/105' for 1 ft
20	2'	1.5'		Poorly Graded sand (SP), pale yellowish brown (10 YR 6/2), slightly moist, very dense, sand is fine-grained. At 21.5 color change to dark yellowish brown 10 YR 5/4, dry, very dense.		Blow count 48-70-32-33
25	1.3'		0.0	SAS. color change to moderate yellowish brown (10 YR 5/4)		Blow count 38-60-100/3"
30	2'	2'	17.4	SAA with minor sub angular coarse gravel, .slightly moist, very dense. weathered ingneous rock in tip		Blow count 24-67-100/5"
32.5				TD= 32		

JACOBS

PROJECT NUMBER
VARMS111

WELL NUMBER
OB-61

SHEET 1 OF 1

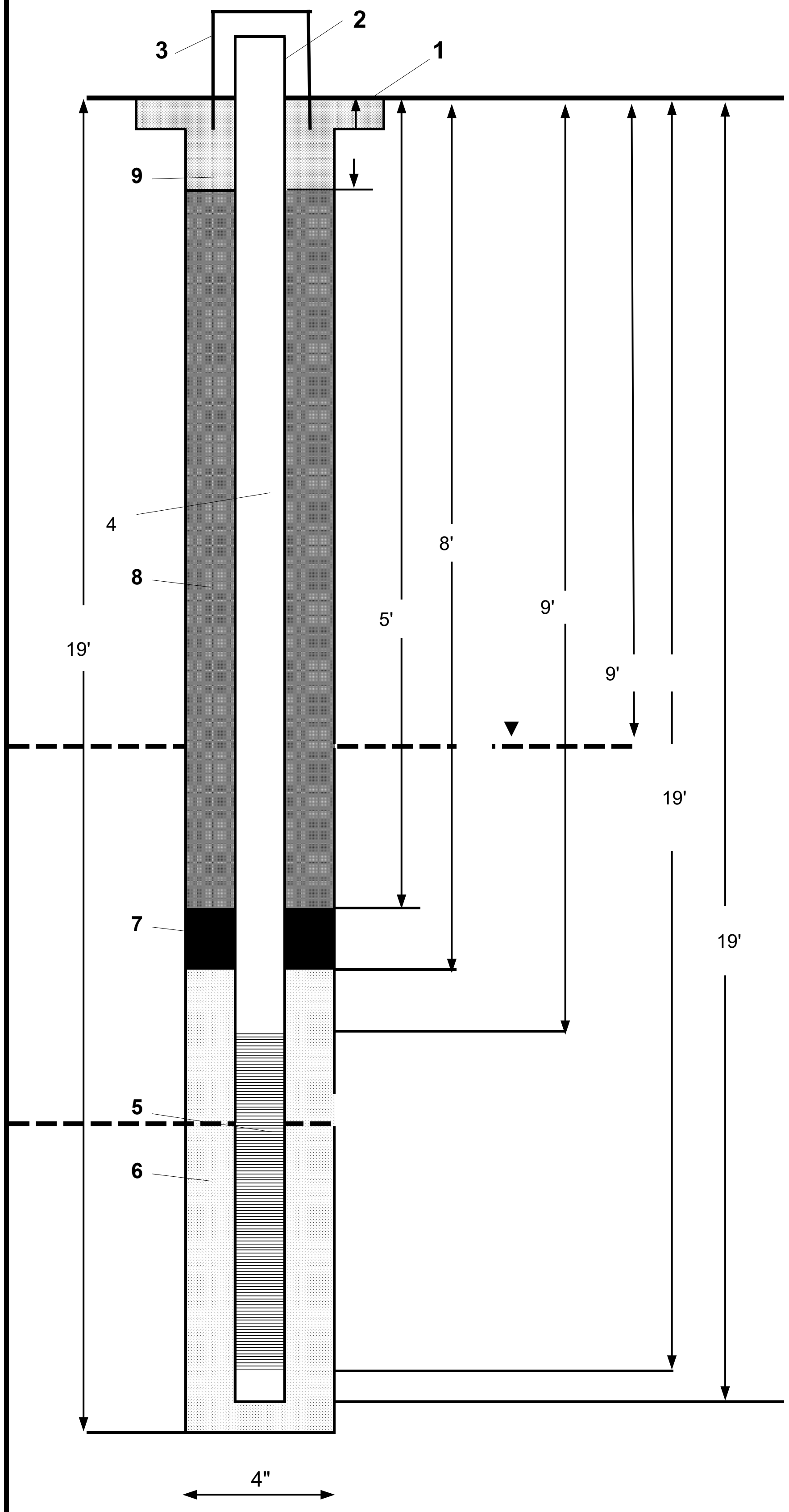
WELL COMPLETION DIAGRAM

PROJECT : Varian Medical Services LOCATION : Beverly, MA

DRILLING CONTRACTOR : GeoLogic COORDINATES :

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger DRILLER: Matt Firreisa

WATER LEVEL : ~9' bgs START : 9/20/2023 END : 11/1/23 LOGGER : Steve Fox



1- Ground elevation at well	To Be Surveyed
2- Top of PVC casing elevation	To Be Surveyed
a) protective cover elevation	NM
3- Wellhead protection cover type	Flush Mount
a) weep hole?	no
b) concrete pad dimensions	2' x 2'
4- Dia./type of well casing	2" PVC Schedule 40
5- Type/slot size of screen	0.010" mil-slot screen
6- Type screen filter	Silica Holliston Sand 2S, 50 lb bag
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
7- Type of seal	PureGold Medium Bentonite Chips
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
8- Type of seal	PureGod Medium Chips
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
9- Cement	
a) cement mix used	Concrete with coarse aggregate
b) calculated volume	NM
c) actual volume installed	NM
d) placement	pour
Development method	Surge / Purge
Estimated purge volume	16 gallons
Development time	1 hour

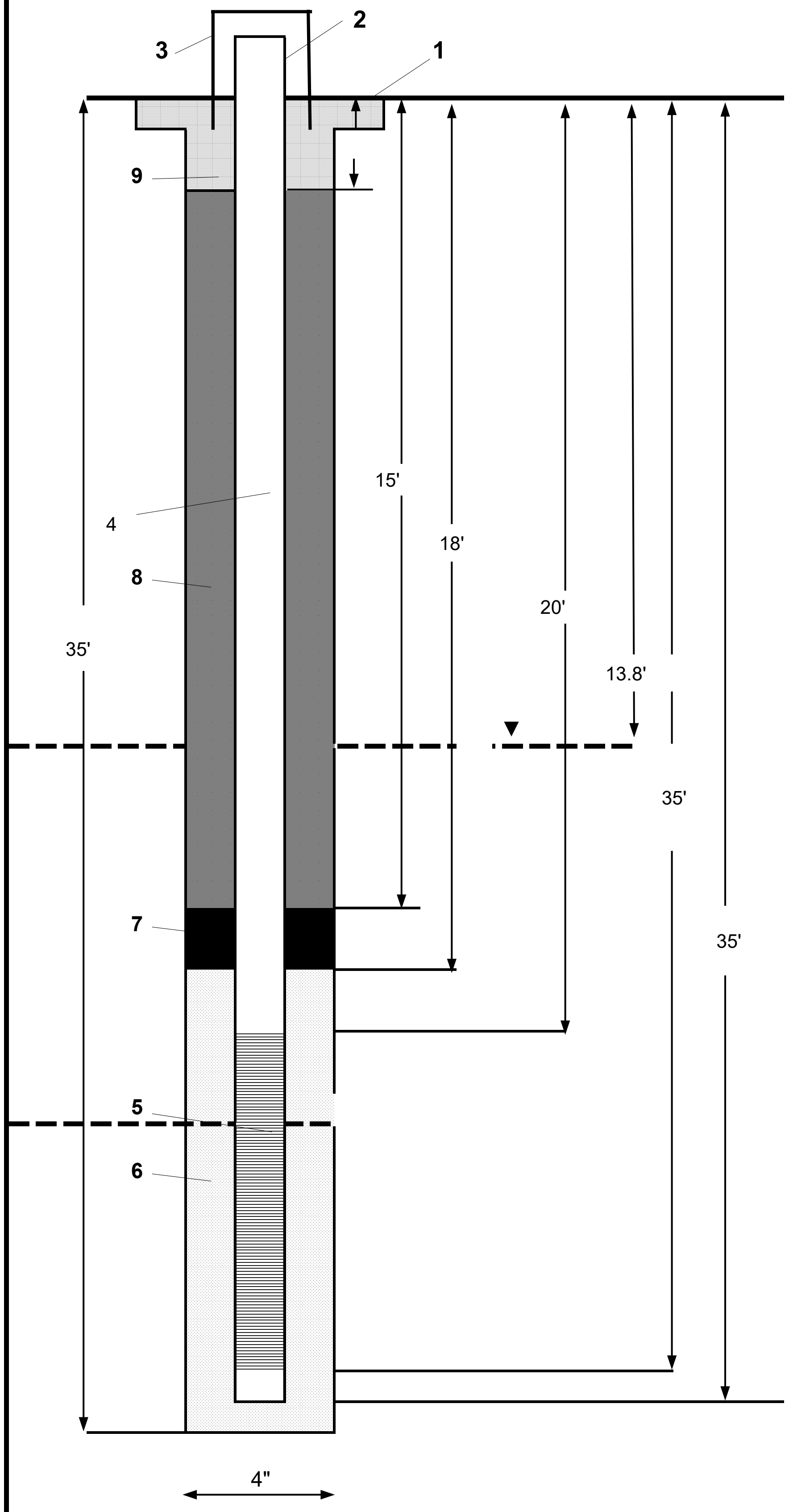
Comments:

Not to scale

PROJECT NUMBER **VARMS111**	**WELL NUMBER** **OB-62** SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : Varian Medical Services LOCATION : Beverly, MA
DRILLING CONTRACTOR : GeoLogic COORDINATES :
DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger to 14 feet bgs, Drive and Wash to total depth DRILLER: Matt Firreisa
WATER LEVEL : 13.78' START : 9/22/2023 END : 9/29/23 LOGGER : Steve Fox



1- Ground elevation at well	To Be Surveyed
2- Top of PVC casing elevation	To Be Surveyed
a) protective cover elevation	NM
3- Wellhead protection cover type	Flush Mount
a) weep hole?	no
b) concrete pad dimensions	2' x 2'
4- Dia./type of well casing	2" PVC Schedule 40
5- Type/slot size of screen	0.010" mil-slot screen
6- Type screen filter	Silica Holliston Sand 2S, 50 lb bag
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
7- Type of seal	PureGold Medium Bentonite Chips
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
8- Type of seal	PureGod Medium Chips
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
9- Cement	
a) cement mix used	Concrete with coarse aggregate
b) calculated volume	NM
c) actual volume installed	NM
d) placement	pour
Development method	Surge / Purge
Estimated purge volume	15 gallons
Development time	1 hour

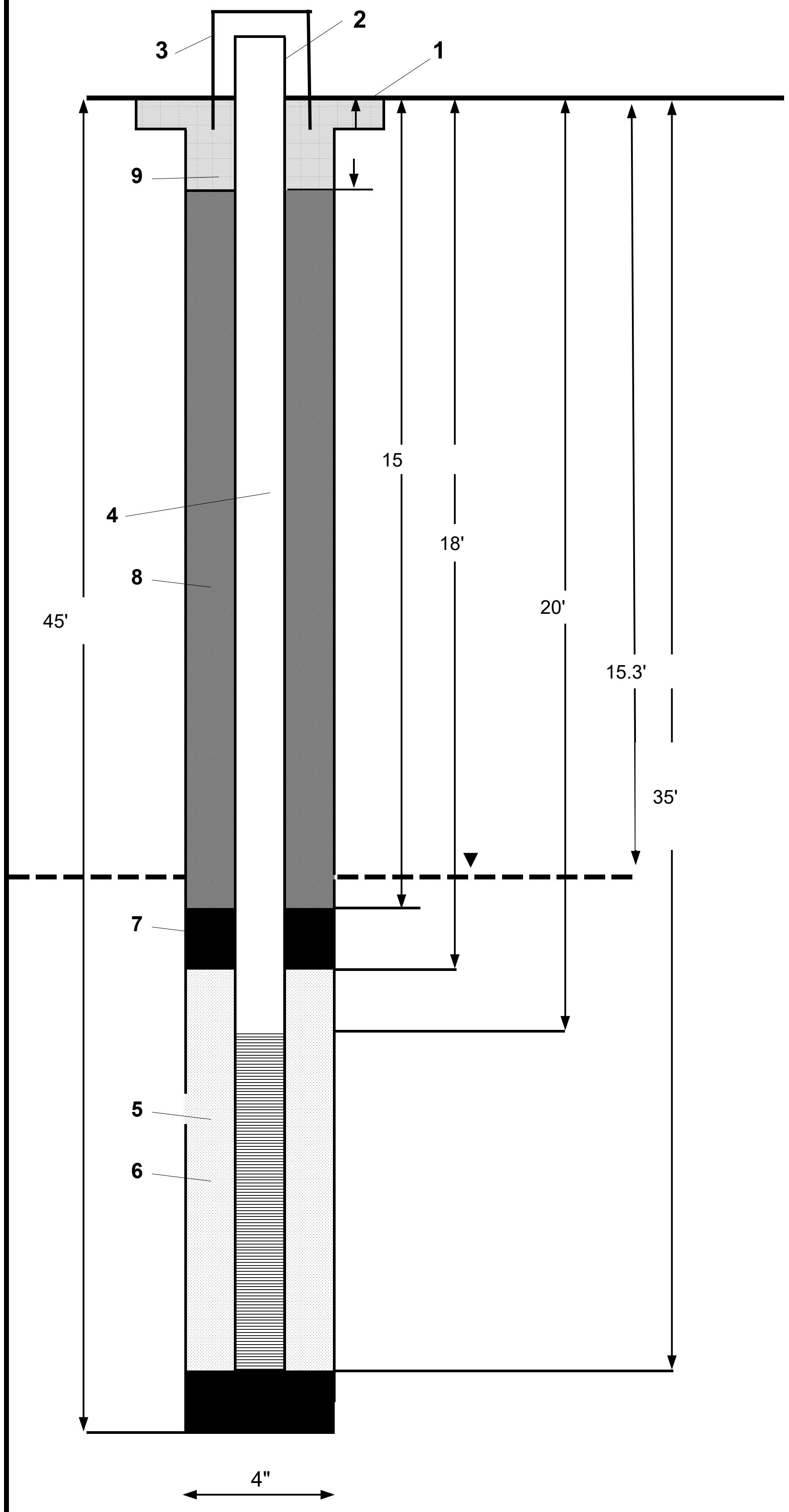
Comments: At a depth of 15 feet below ground surface (bgs), due to auger refusal, the drilling method was switched from hollow stem auger to drive and wash.

Not to scale

JACOBS	**PROJECT NUMBER** **VARMS111**	**WELL NUMBER** **OB-63** SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : Varian Medical Services LOCATION : Beverly, MA
DRILLING CONTRACTOR : GeoLogic COORDINATES :
DRILLING METHOD AND EQUIPMENT USED : Drive and Wash DRILLER: Matt Firreisa
WATER LEVEL : 15.25' START : 9/28/2023 END : 9/29/2023 LOGGER : Steve Fox



1- Ground elevation at well	
2- Top of PVC casing elevation	
a) protective cover elevation	NM
3- Wellhead protection cover type	Flush Mount
a) weep hole?	no
b) concrete pad dimensions	2' x 2'
4- Dia./type of well casing	2" PVC Schedule 40
5- Type/slot size of screen	0.010" mil-slot screen
6- Type screen filter	Silica Holliston Sand 2S, 50 lb bag
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
7- Type of seal	PureGold Medium Bentonite Chips
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
8- Type of seal	4 to 6 lbs of granular bentonite to one 94 lb Portland Type 1 Cement, to 7 to 9 gallons of potable water
a) calculated volume	NM
b) actual volume installed	NM
c) placement	tremie hose
9- Cement	
a) cement mix used	Concrete with coarse aggregate
b) calculated volume	NM
c) actual volume installed	NM
d) placement	pour
Development method	Surge / Purge
Estimated purge volume	40 gallons
Development time	45 minutes

Comments: Note: the boring was drilled to 45 feet bgs. Based on PID screening readings, the boring for OB-63 was backfilled with PureGold bentonite chips from 35 to 45 feet bgs and the monitoring well was screened from 20 to 35 feet bgs.

Not to scale

JACOBS

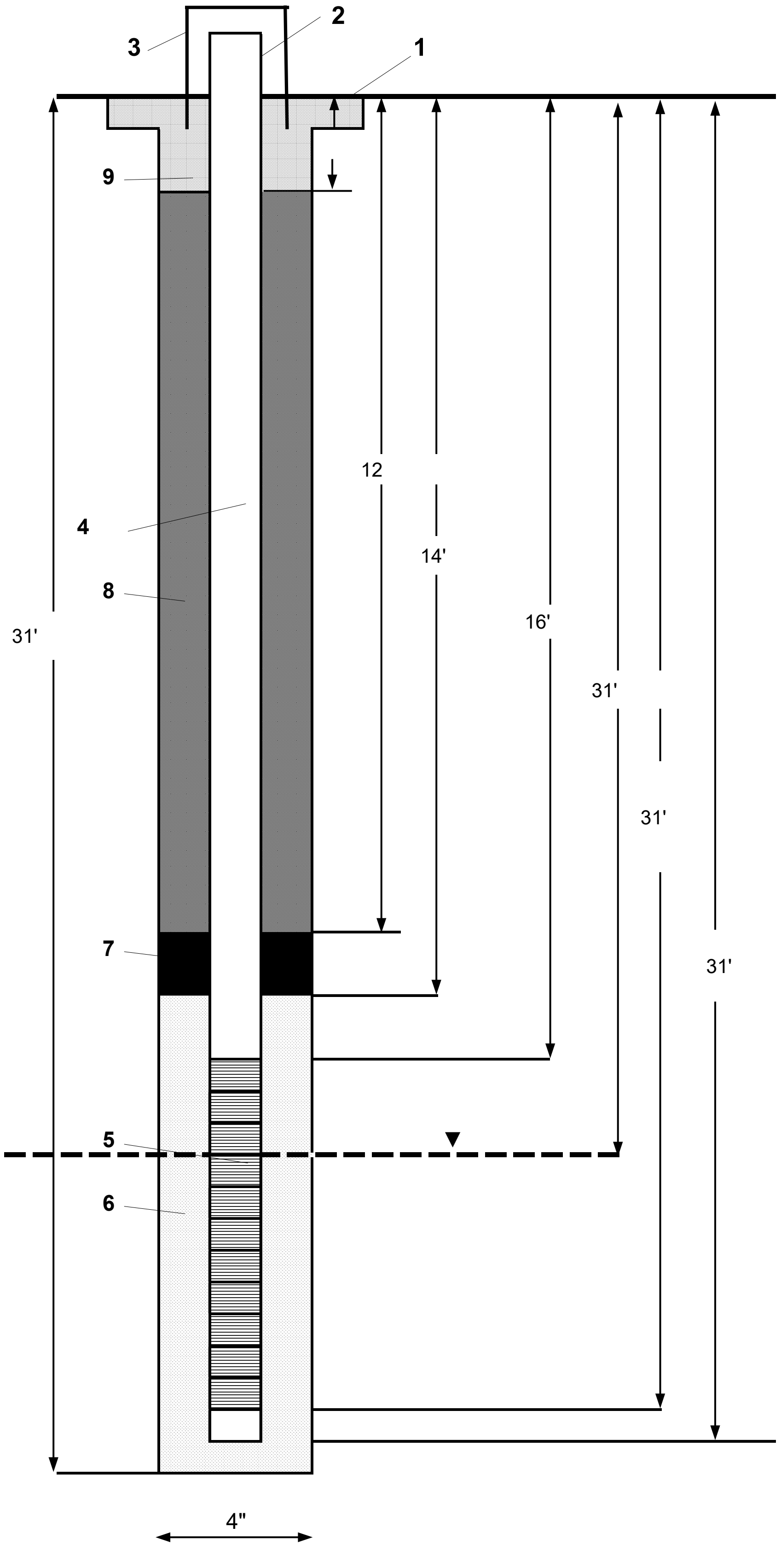
PROJECT NUMBER
VARMS111

WELL NUMBER
OB-64

SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : Varian Medical Services LOCATION : Beverly, MA
DRILLING CONTRACTOR : GeoLogic COORDINATES :
DRILLING METHOD AND EQUIPMENT USED : Drive and Wash DRILLER: Matt Firreisa
WATER LEVEL : START : 9/26/23 END : 9/29/23 LOGGER : Steve Fox/Gillian Herzberger



1- Ground elevation at well	To Be Surveyed
2- Top of PVC casing elevation	To Be Surveyed
a) protective cover elevation	NM
3- Wellhead protection cover type	Flush Mount
a) weep hole?	no
b) concrete pad dimensions	2' x 2'
4- Dia./type of well casing	2" PVC Schedule 40
5- Type/slot size of screen	0.010" mil-slot screen
6- Type screen filter	Silica Holliston Sand 2S, 50 lb bag
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
7- Type of seal	PureGold Medium Bentonite Chips
a) calculated volume	NM
b) actual volume installed	NM
c) placement	pour
8- Type of seal	4 to 6 lbs of granular bentonite to one 94 lb Portland Type 1 Cement, to 7 to 9 gallons of potable water
a) calculated volume	NM
b) actual volume installed	NM
c) placement	tremie hose
9- Cement	
a) cement mix used	Concrete with coarse agregate
b) calculated volume	NM
c) actual volume installed	NM
d) placement	pour
Development method	Surge / Purge
Estimated purge volume	15 gallons
Development time	45 minutes

Comments:

Not to scale

JACOBS

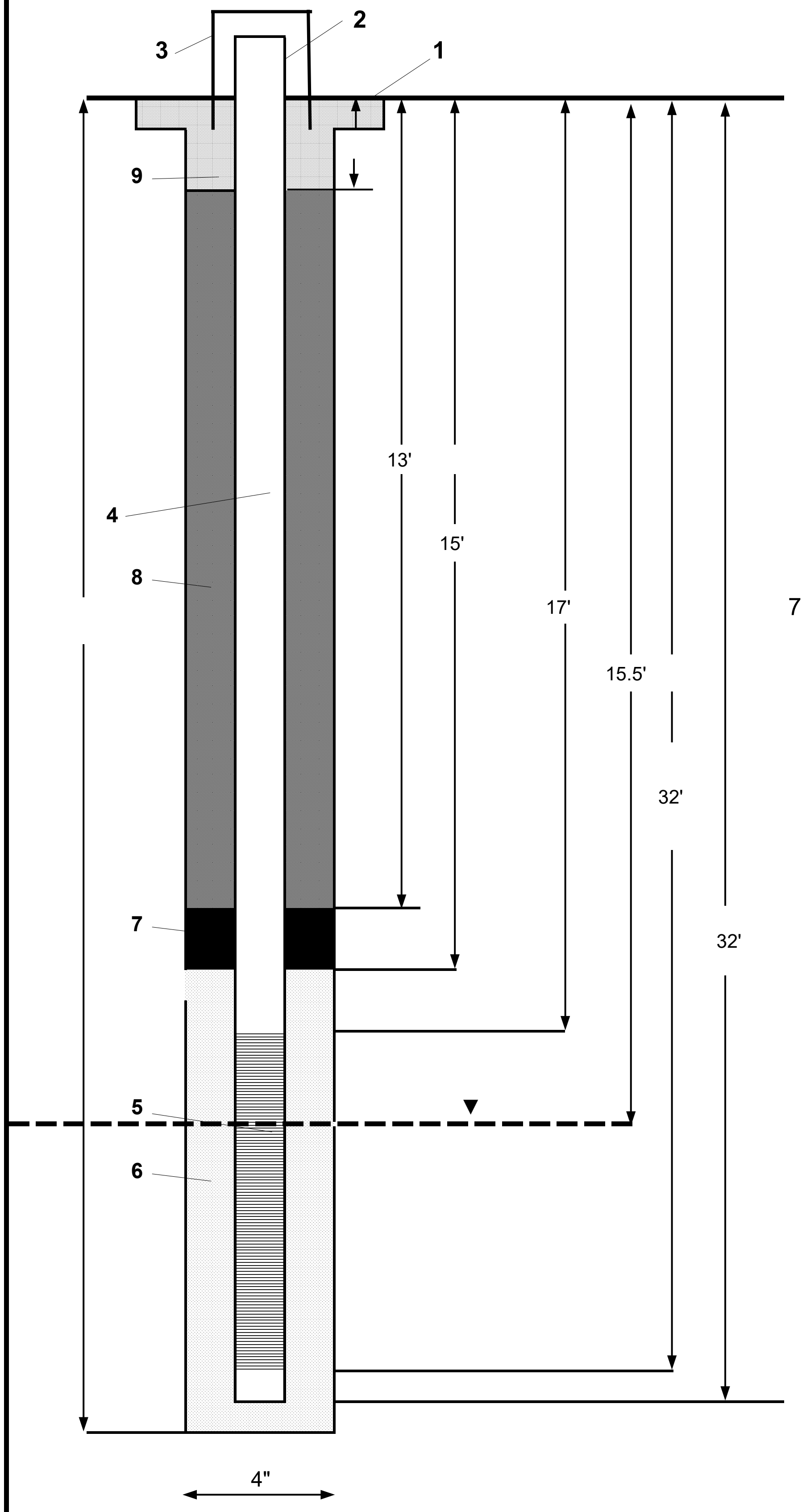
PROJECT NUMBER
VARMS111

WELL NUMBER
OB-65

SHEET 1 OF 1

WELL COMPLETION DIAGRAM

PROJECT : Varian Medical Services LOCATION : Beverly, MA
DRILLING CONTRACTOR : GeoLogic COORDINATES :
DRILLING METHOD AND EQUIPMENT USED : Drive and Wash DRILLER: Matt Firreisa
WATER LEVEL : 15.5' START : 9/27/2023 END : 9/29/23 LOGGER : Steve Fox



1- Ground elevation at well	To Be Surveyed
2- Top of PVC casing elevation	To Be Surveyed
a) protective cover elevation	NM
3- Wellhead protection cover type	Flush Mount
a) weep hole?	no
b) concrete pad dimensions	2' x 2'
4- Dia./type of well casing	2" PVC Schedule 40
5- Type/slot size of screen	0.010" mil-slot screen
6- Type screen filter	Silica Holliston Sand 2S, 50 lb bag
a) calculated volume	NM
b) actual volume installed	NM
c) placement	Pour
7- Type of seal	PureGold Medium Bentonite Chips
a) calculated volume	NM
b) actual volume installed	NM
c) placement	pour
8- Type of seal	4 to 6 lbs of granular bentonite to one 94 lb Portland Type 1 Cement, to 7 to 9 gallons of potable water
a) calculated volume	NM
b) actual volume installed	NM
c) placement	tremie hose
9- Cement	
a) cement mix used	Concrete with coarse agregate
b) calculated volume	NM
c) actual volume installed	NM
d) placement	pour
Development method	Surge / Purge
Estimated purge volume	15 gallons
Development time	1 hour

Comments:

Not to scale

Appendix C
Laboratory Analytical Reports

SGS

Dayton, NJ

09/27/23

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Jacobs Engineering

Varian, Beverly, MA

VARMS105.A.CS.EV.02.FT PO#148048917

SGS Job Number: JD73168

Sampling Date: 09/20/23

Report to:

Jacobs Engineering
120 St. James Avenue
Boston, MA 02116
Raymond.cadorette@jacobs.com; Bernice.Kidd@jacobs.com

ATTN: Raymond J. Cadorette

Total number of pages in report: **65**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Victoria Pushkova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

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Sample Summary

Jacobs Engineering

Job No: JD73168

Varian, Beverly, MA
Project No: VARMS105.A.CS.EV.02.FT PO#148048917

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD73168-1	09/20/23	11:05	DK	09/20/23	SO	Soil	VAR_PSL10_SO_OB61_13-15_20230920
JD73168-2	09/20/23	11:05	DK	09/20/23	SO	Trip Blank Methanol	TB_20230920_SO_01M
JD73168-3	09/20/23	11:05	DK	09/20/23	SO	Trip Blank Soil	TB_20230920_SO_01L

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the RL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Jacobs Engineering	**Job No:**	JD73168
Site:	Varian, Beverly, MA	**Report Date**	9/27/2023 9:32:26 AM

On 09/20/2023, 1 sample(s), 2 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 1 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD73168 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** V3D8050

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73168-2 for Acetone: Associated CCV outside of control limits high, sample was ND.
- V3D8050-BSD for 2-Hexanone: Outside in house control limits.
- JD73168-2 for 1,2,3-Trichlorobenzene: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- JD73168-2 for Chloroform: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- JD73168-2 for Methylene chloride: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- V3D8050-BSD for 1,2-Dibromo-3-chloropropane: Outside in house control limits.
- Not all RL meet the requirement.

Matrix: SO **Batch ID:** V3D8051

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VY8866

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73168-1 for 1,4-Dioxane: Associated CCV outside of control limits high, sample was ND.
- JD73168-1 for 4-Methyl-2-pentanone(MIBK): Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

Matrix: SO **Batch ID:** VY8867

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73168-3 for 1,4-Dioxane: Associated CCV outside of control limits high, sample was ND.
- JD73168-3 for Bromoform: Associated CCV outside of control limits high, sample was ND.
- JD73168-3 for 4-Methyl-2-pentanone(MIBK): Response factor for this compound is below 0.05 in the initial and continuing calibrations.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO **Batch ID:** GN46279

- The data for SM2540 G 18TH ED MOD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73168-1	**VAR_PSL10_SO_OB61_13-15_20230920**					
1,2-Dichlorobenzene		7.5	0.87		ug/kg	SW846 8260D
Ethylbenzene		1.6	0.87		ug/kg	SW846 8260D
Hexachlorobutadiene		44.4	4.4		ug/kg	SW846 8260D
Tetrachloroethene		297000	23000		ug/kg	SW846 8260D
Trichloroethene		84.9	0.87		ug/kg	SW846 8260D
m,p-Xylene		4.5	0.87		ug/kg	SW846 8260D
o-Xylene		11.8	0.87		ug/kg	SW846 8260D
Xylene (total)		16.3	0.87		ug/kg	SW846 8260D
JD73168-2	**TB_20230920_SO_01M**					
No hits reported in this sample.						
JD73168-3	**TB_20230920_SO_01L**					
Acetone		12.3	10		ug/kg	SW846 8260D

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB61_13-15_20230920		
Lab Sample ID:	JD73168-1	**Date Sampled:**	09/20/23
Matrix:	SO - Soil	**Date Received:**	09/20/23
Method:	SW846 8260D	**Percent Solids:**	92.5
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y203581.D	1	09/22/23 17:28	PS	n/a	n/a	VY8866
Run #2	3D192672.D	1	09/25/23 18:57	JN	n/a	n/a	V3D8051
Run #3	3D192665.D	1	09/25/23 16:02	JN	n/a	n/a	V3D8051

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.2 g		
Run #2	13.2 g	10.0 ml	0.40 ul
Run #3	13.2 g	10.0 ml	10.0 ul

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	8.7	ug/kg	
71-43-2	Benzene	ND	0.44	ug/kg	
108-86-1	Bromobenzene	ND	4.4	ug/kg	
74-97-5	Bromochloromethane	ND	4.4	ug/kg	
75-27-4	Bromodichloromethane	ND	1.7	ug/kg	
75-25-2	Bromoform	ND	4.4	ug/kg	
74-83-9	Bromomethane	ND	4.4	ug/kg	
78-93-3	2-Butanone (MEK)	ND	8.7	ug/kg	
104-51-8	n-Butylbenzene	ND	1.7	ug/kg	
135-98-8	sec-Butylbenzene	ND	1.7	ug/kg	
98-06-6	tert-Butylbenzene	ND	1.7	ug/kg	
75-15-0	Carbon disulfide	ND	1.7	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.7	ug/kg	
108-90-7	Chlorobenzene	ND	1.7	ug/kg	
75-00-3	Chloroethane	ND	4.4	ug/kg	
67-66-3	Chloroform	ND	1.7	ug/kg	
74-87-3	Chloromethane	ND	4.4	ug/kg	
95-49-8	o-Chlorotoluene	ND	1.7	ug/kg	
106-43-4	p-Chlorotoluene	ND	1.7	ug/kg	
108-20-3	Di-Isopropyl ether	ND	1.7	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.7	ug/kg	
124-48-1	Dibromochloromethane	ND	1.7	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.87	ug/kg	
95-50-1	1,2-Dichlorobenzene	7.5	0.87	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.87	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.87	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.4	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.87	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.87	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.87	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB61_13-15_20230920			
Lab Sample ID:	JD73168-1		**Date Sampled:**	09/20/23
Matrix:	SO - Soil		**Date Received:**	09/20/23
Method:	SW846 8260D		**Percent Solids:**	92.5
Project:	Varian, Beverly, MA			

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
156-59-2	cis-1,2-Dichloroethene	ND	0.87	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.87	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.7	ug/kg	
142-28-9	1,3-Dichloropropane	ND	1.7	ug/kg	
594-20-7	2,2-Dichloropropane	ND	1.7	ug/kg	
563-58-6	1,1-Dichloropropene	ND	1.7	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.7	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.7	ug/kg	
123-91-1	1,4-Dioxane [a]	ND	110	ug/kg	
60-29-7	Ethyl Ether	ND	1.7	ug/kg	
100-41-4	Ethylbenzene	1.6	0.87	ug/kg	
87-68-3	Hexachlorobutadiene	44.4	4.4	ug/kg	
591-78-6	2-Hexanone	ND	4.4	ug/kg	
98-82-8	Isopropylbenzene	ND	1.7	ug/kg	
99-87-6	p-Isopropyltoluene	ND	1.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.87	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK [b]	ND	4.4	ug/kg	
74-95-3	Methylene bromide	ND	4.4	ug/kg	
75-09-2	Methylene chloride	ND	4.4	ug/kg	
91-20-3	Naphthalene	ND	4.4	ug/kg	
103-65-1	n-Propylbenzene	ND	1.7	ug/kg	
100-42-5	Styrene	ND	1.7	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	1.7	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	1.7	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.7	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.7	ug/kg	
127-18-4	Tetrachloroethene	297000 [c]	23000	ug/kg	
109-99-9	Tetrahydrofuran	ND	8.7	ug/kg	
108-88-3	Toluene	ND	0.87	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.7	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.7	ug/kg	
79-01-6	Trichloroethene	84.9	0.87	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.4	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	4.4	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	1.7	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	1.7	ug/kg	
75-01-4	Vinyl chloride	ND	1.7	ug/kg	
	m,p-Xylene	4.5	0.87	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB61_13-15_20230920		
Lab Sample ID:	JD73168-1	**Date Sampled:**	09/20/23
Matrix:	SO - Soil	**Date Received:**	09/20/23
Method:	SW846 8260D	**Percent Solids:**	92.5
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
95-47-6	o-Xylene	11.8	0.87	ug/kg	
1330-20-7	Xylene (total)	16.3	0.87	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	90%	91%	93%	80-124%
17060-07-0	1,2-Dichloroethane-D4	89%	99%	101%	75-133%
2037-26-5	Toluene-D8	91%	96%	96%	79-125%
460-00-4	4-Bromofluorobenzene	98%	91%	93%	58-148%

(a) Associated CCV outside of control limits high, sample was ND.
(b) Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(c) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230920_SO_01M		
Lab Sample ID:	JD73168-2	**Date Sampled:**	09/20/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/20/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D192627.D	1	09/22/23 14:16	JN	n/a	n/a	V3D8050
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform [b]	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230920_SO_01M
Lab Sample ID: JD73168-2 **Date Sampled:** 09/20/23
Matrix: SO - Trip Blank Methanol **Date Received:** 09/20/23
Method: SW846 8260D **Percent Solids:** n/a
Project: Varian, Beverly, MA

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride [b]	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene [b]	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230920_SO_01M
Lab Sample ID: JD73168-2
Matrix: SO - Trip Blank Methanol
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/20/23
Date Received: 09/20/23
Percent Solids: n/a

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	87%		80-124%
17060-07-0	1,2-Dichloroethane-D4	99%		75-133%
2037-26-5	Toluene-D8	96%		79-125%
460-00-4	4-Bromofluorobenzene	89%		58-148%

(a) Associated CCV outside of control limits high, sample was ND.
(b) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230920_SO_01L			
Lab Sample ID:	JD73168-3		**Date Sampled:**	09/20/23
Matrix:	SO - Trip Blank Soil		**Date Received:**	09/20/23
Method:	SW846 8260D		**Percent Solids:**	n/a
Project:	Varian, Beverly, MA			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y203616.D	1	09/23/23 17:43	PS	n/a	n/a	VY8867
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	12.3	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform [a]	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230920_SO_01L		
Lab Sample ID:	JD73168-3	**Date Sampled:**	09/20/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/20/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane [a]	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK [b]	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230920_SO_01L
Lab Sample ID: JD73168-3
Matrix: SO - Trip Blank Soil
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/20/23
Date Received: 09/20/23
Percent Solids: n/a

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-124%
17060-07-0	1,2-Dichloroethane-D4	101%		75-133%
2037-26-5	Toluene-D8	97%		79-125%
460-00-4	4-Bromofluorobenzene	97%		58-148%

(a) Associated CCV outside of control limits high, sample was ND.
(b) Response factor for this compound is below 0.05 in the initial and continuing calibrations.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- MCP Form
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits

SGS

MTB
STB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

EHSA-QAC-0023-04-FORM-Standard COC

JD73168

Page 1 of 1

FED-EX Tracking #:
Bottle Order Control #: VP-083023-128
SGS Quote #:
SGS Job #:

Client / Reporting Information

Company Name: Jacobs Engineering
Street Address: 120 St. James Ave
City: Boston State: MA Zip:
Project Contact: E-mail: Bernice.Kidd@Jacobs.com
Phone #: 530-209-3480
Sampler(s) Name(s): D. Kearney Phone #: 781-710-4276

Project Information

Project Name: Varian Medical Systems
Street: 150 Sohier Rd ~~MA~~
City: Beverly State: MA
Project #: VARMS111.A.CS.EV.02.FI
Client Purchase Order #: 148048917
Project Manager: Raymond Cadorette

Billing Information (if different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis: SW8260C

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

			Collection							Number of preserved Bottles									pH Check (Lab Use Only)	
SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO_3	H_2SO_4	NONE	DI Water	MEOH	ENCORE	SW8260C		LAB USE ONLY
1	VAR-PSL10-SO-SB61-20230920		9/20/23	1105	DK	G		SO	4					1	2	1		X	PID = >15,000 ppm	P75
2	TB_20230920_SO_01M								1							1		X		14JS
3	TB_20230920_SO_01L								2						2			X		4926

Initial Assessment N33B
Label Verification

Turn Around Time (Business Days)

Approved By (SGS PM): / Date:

☐ 10 Business Days
☐ 5 Business Days
☐ 3 Business Days*
☐ 2 Business Days*
☐ 1 Business Day*
☐ Other
All data available via Lablink
* Approval needed for 1-3 Business Day TAT

Deliverable

☐ Commercial "A" (Level 1)
☐ Commercial "B" (Level 2)
☐ NJ Reduced (Level 3)
☐ Full Tier I (Level 4)
☐ Commercial "C"
☐ NJ DKQP
☐ NYASP Category A
☐ NYASP Category B
☐ MA MCP Criteria
☐ CT RCP Criteria
☐ State Forms
☐ EDD Format
☐ DOD-QSM5

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

SGS Courier

Comments / Special Instructions

Please analyze either methanol or low level vial based on PID readings. And instrument ~~detection limit~~ sensitivity. Analyze TB for both

SGS Service Center
Northborough, MA

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by: 1 Date / Time: 1603 9/20/23 Received By: 1 Scott Parsons
Relinquished By: 2 Scott Parsons Date / Time: 9/20/23 20:00 Received By: 2 Brandon Malloy
Relinquished by: 3 Brandon Malloy Date / Time: 9-20-23 23:10 Received By: 3
Relinquished By: 4 Date / Time: Received By: 4
Relinquished by: 5 Date / Time: Received By: 5
Custody Seal #: ☐ Intact ☐ Not intact ☐ Absent
Therm ID: On Ice ☑ Cooler Temp. °C 1.3
See Sample Receipt Summary

SGS Sample Receipt Summary

Job Number: JD73168 **Client:** JACOBS ENGINEERING **Project:** VARIAN, BEVERLY, MA

Date / Time Received: 9/20/2023 11:10:00 PM **Delivery Method:** SGS **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (1.3);

Cooler Temps (Corrected) °C: Cooler 1: (1.0);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun 40		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

Job Change Order: JD73168

Requested Date:	9/27/2023	**Received Date:**	9/20/2023
Account Name:	Jacobs Engineering	**Due Date:**	9/27/2023
Project Description:	Varian, Beverly, MA	**Deliverable:**	MAMCP
C/O Initiated By:	VIKTORIYA_ **PM:** VP	**TAT (Days):**	7

==

Sample #:	JD73168-1	**Dept:**	
Client ID:	VAR-PSL10-50-SB61-20230920	**TAT:**	7
Change:	Please revise ID to VAR_PSL10_SO_OB61_13-15_20230920		

Above Changes Per: Deirdre Kearney **Date/Time:** 9/27/2023

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	SGS North America Inc. - Dayton	Project #:	JD73168
Project Location:	Varian, Beverly, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
JD73168-1,JD73168-2,JD73168-3

Matrices: Groundwater/Surface Water ( ) Soil/Sediment (x) Drinking Water ( ) Air ( ) Other ( )

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr ( ) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC ( ) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals ( ) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total ( ) Cyanide/PAC CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No

Responses to questions G, H, and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☐ Yes	☑ No [1]
	<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.		
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes	☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No [1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:		**Position:**	**General Manager**
Printed Name:	David Chastain	**Date:**	**27-Sep-23**

Internal Sample Tracking Chronicle

Jacobs Engineering

Job No: JD73168

Varian, Beverly, MA
Project No: VARMS105.A.CS.EV.02.FT PO#148048917

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD73168-1 VAR_PSL10_SO_OB61_13-15_20230920	Collected: 20-SEP-23 11:05 By: DK		Received: 20-SEP-23 By: KG			
JD73168-1	SM2540 G 18TH ED MOD	22-SEP-23 15:00	MK			SOL104
JD73168-1	SW846 8260D	22-SEP-23 17:28	PS			V8260MCP
JD73168-1	SW846 8260D	25-SEP-23 16:02	JN			V8260MCP
JD73168-1	SW846 8260D	25-SEP-23 18:57	JN			V8260MCP
JD73168-2 TB_20230920_SO_01M	Collected: 20-SEP-23 11:05 By: DK		Received: 20-SEP-23 By: KG			
JD73168-2	SW846 8260D	22-SEP-23 14:16	JN			V8260MCP
JD73168-3 TB_20230920_SO_01L	Collected: 20-SEP-23 11:05 By: DK		Received: 20-SEP-23 By: KG			
JD73168-3	SW846 8260D	23-SEP-23 17:43	PS			V8260MCP

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8050	SW846 8260D						
V3D8050-BS	67-64-1	Acetone	BSP	REC	111	%	70-130
V3D8050-BS	71-43-2	Benzene	BSP	REC	98	%	70-130
V3D8050-BS	108-86-1	Bromobenzene	BSP	REC	90	%	70-130
V3D8050-BS	74-97-5	Bromochloromethane	BSP	REC	94	%	70-130
V3D8050-BS	75-27-4	Bromodichloromethane	BSP	REC	94	%	70-130
V3D8050-BS	75-25-2	Bromoform	BSP	REC	93	%	70-130
V3D8050-BS	74-83-9	Bromomethane	BSP	REC	89	%	70-130
V3D8050-BS	78-93-3	2-Butanone (MEK)	BSP	REC	101	%	70-130
V3D8050-BS	104-51-8	n-Butylbenzene	BSP	REC	97	%	70-130
V3D8050-BS	135-98-8	sec-Butylbenzene	BSP	REC	98	%	70-130
V3D8050-BS	98-06-6	tert-Butylbenzene	BSP	REC	97	%	70-130
V3D8050-BS	75-15-0	Carbon disulfide	BSP	REC	89	%	70-130
V3D8050-BS	56-23-5	Carbon tetrachloride	BSP	REC	95	%	70-130
V3D8050-BS	108-90-7	Chlorobenzene	BSP	REC	95	%	70-130
V3D8050-BS	75-00-3	Chloroethane	BSP	REC	97	%	70-130
V3D8050-BS	67-66-3	Chloroform	BSP	REC	83	%	70-130
V3D8050-BS	74-87-3	Chloromethane	BSP	REC	90	%	70-130
V3D8050-BS	95-49-8	o-Chlorotoluene	BSP	REC	92	%	70-130
V3D8050-BS	106-43-4	p-Chlorotoluene	BSP	REC	92	%	70-130
V3D8050-BS	108-20-3	Di-Isopropyl ether	BSP	REC	98	%	70-130
V3D8050-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	80	%	70-130
V3D8050-BS	124-48-1	Dibromochloromethane	BSP	REC	96	%	70-130
V3D8050-BS	106-93-4	1,2-Dibromoethane	BSP	REC	92	%	70-130
V3D8050-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	95	%	70-130
V3D8050-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	95	%	70-130
V3D8050-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	90	%	70-130
V3D8050-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	92	%	70-130
V3D8050-BS	75-34-3	1,1-Dichloroethane	BSP	REC	90	%	70-130
V3D8050-BS	107-06-2	1,2-Dichloroethane	BSP	REC	94	%	70-130
V3D8050-BS	75-35-4	1,1-Dichloroethene	BSP	REC	92	%	70-130
V3D8050-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	91	%	70-130
V3D8050-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	87	%	70-130
V3D8050-BS	78-87-5	1,2-Dichloropropane	BSP	REC	97	%	70-130
V3D8050-BS	142-28-9	1,3-Dichloropropane	BSP	REC	91	%	70-130
V3D8050-BS	594-20-7	2,2-Dichloropropane	BSP	REC	89	%	70-130
V3D8050-BS	563-58-6	1,1-Dichloropropene	BSP	REC	93	%	70-130
V3D8050-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	99	%	70-130
V3D8050-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	95	%	70-130
V3D8050-BS	123-91-1	1,4-Dioxane	BSP	REC	77	%	70-130
V3D8050-BS	60-29-7	Ethyl Ether	BSP	REC	90	%	70-130
V3D8050-BS	100-41-4	Ethylbenzene	BSP	REC	97	%	70-130
V3D8050-BS	87-68-3	Hexachlorobutadiene	BSP	REC	86	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8050-BS	591-78-6	2-Hexanone	BSP	REC	100	%	70-130
V3D8050-BS	98-82-8	Isopropylbenzene	BSP	REC	102	%	70-130
V3D8050-BS	99-87-6	p-Isopropyltoluene	BSP	REC	97	%	70-130
V3D8050-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	93	%	70-130
V3D8050-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	101	%	70-130
V3D8050-BS	74-95-3	Methylene bromide	BSP	REC	94	%	70-130
V3D8050-BS	75-09-2	Methylene chloride	BSP	REC	80	%	70-130
V3D8050-BS	91-20-3	Naphthalene	BSP	REC	81	%	70-130
V3D8050-BS	103-65-1	n-Propylbenzene	BSP	REC	93	%	70-130
V3D8050-BS	100-42-5	Styrene	BSP	REC	103	%	70-130
V3D8050-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	101	%	70-130
V3D8050-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	92	%	70-130
V3D8050-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	97	%	70-130
V3D8050-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	84	%	70-130
V3D8050-BS	127-18-4	Tetrachloroethene	BSP	REC	95	%	70-130
V3D8050-BS	109-99-9	Tetrahydrofuran	BSP	REC	90	%	70-130
V3D8050-BS	108-88-3	Toluene	BSP	REC	95	%	70-130
V3D8050-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8050-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	88	%	70-130
V3D8050-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	90	%	70-130
V3D8050-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	89	%	70-130
V3D8050-BS	79-01-6	Trichloroethene	BSP	REC	100	%	70-130
V3D8050-BS	75-69-4	Trichlorofluoromethane	BSP	REC	90	%	70-130
V3D8050-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	88	%	70-130
V3D8050-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	91	%	70-130
V3D8050-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	95	%	70-130
V3D8050-BS	75-01-4	Vinyl chloride	BSP	REC	96	%	70-130
V3D8050-BS		m,p-Xylene	BSP	REC	100	%	70-130
V3D8050-BS	95-47-6	o-Xylene	BSP	REC	99	%	70-130
V3D8050-BS	1330-20-7	Xylene (total)	BSP	REC	99	%	70-130
V3D8050-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	92	%	70-130
V3D8050-BS	2037-26-5	Toluene-D8	BSP	SURR	95	%	70-130
V3D8050-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	90	%	70-130
V3D8050-BSD	67-64-1	Acetone	BSD	REC	122	%	70-130
V3D8050-BSD	67-64-1	Acetone	BSD	RPD	10	%	20
V3D8050-BSD	71-43-2	Benzene	BSD	REC	99	%	70-130
V3D8050-BSD	71-43-2	Benzene	BSD	RPD	1	%	20
V3D8050-BSD	108-86-1	Bromobenzene	BSD	REC	90	%	70-130
V3D8050-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
V3D8050-BSD	74-97-5	Bromochloromethane	BSD	REC	94	%	70-130
V3D8050-BSD	74-97-5	Bromochloromethane	BSD	RPD	0	%	20
V3D8050-BSD	75-27-4	Bromodichloromethane	BSD	REC	96	%	70-130
V3D8050-BSD	75-27-4	Bromodichloromethane	BSD	RPD	2	%	20
V3D8050-BSD	75-25-2	Bromoform	BSD	REC	100	%	70-130
V3D8050-BSD	75-25-2	Bromoform	BSD	RPD	7	%	20

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8050-BSD	74-83-9	Bromomethane	BSD	REC	97	%	70-130
V3D8050-BSD	74-83-9	Bromomethane	BSD	RPD	8	%	20
V3D8050-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	111	%	70-130
V3D8050-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	10	%	20
V3D8050-BSD	104-51-8	n-Butylbenzene	BSD	REC	99	%	70-130
V3D8050-BSD	104-51-8	n-Butylbenzene	BSD	RPD	2	%	20
V3D8050-BSD	135-98-8	sec-Butylbenzene	BSD	REC	98	%	70-130
V3D8050-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	0	%	20
V3D8050-BSD	98-06-6	tert-Butylbenzene	BSD	REC	97	%	70-130
V3D8050-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
V3D8050-BSD	75-15-0	Carbon disulfide	BSD	REC	89	%	70-130
V3D8050-BSD	75-15-0	Carbon disulfide	BSD	RPD	0	%	20
V3D8050-BSD	56-23-5	Carbon tetrachloride	BSD	REC	97	%	70-130
V3D8050-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	2	%	20
V3D8050-BSD	108-90-7	Chlorobenzene	BSD	REC	97	%	70-130
V3D8050-BSD	108-90-7	Chlorobenzene	BSD	RPD	3	%	20
V3D8050-BSD	75-00-3	Chloroethane	BSD	REC	102	%	70-130
V3D8050-BSD	75-00-3	Chloroethane	BSD	RPD	5	%	20
V3D8050-BSD	67-66-3	Chloroform	BSD	REC	83	%	70-130
V3D8050-BSD	67-66-3	Chloroform	BSD	RPD	0	%	20
V3D8050-BSD	74-87-3	Chloromethane	BSD	REC	87	%	70-130
V3D8050-BSD	74-87-3	Chloromethane	BSD	RPD	3	%	20
V3D8050-BSD	95-49-8	o-Chlorotoluene	BSD	REC	93	%	70-130
V3D8050-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	2	%	20
V3D8050-BSD	106-43-4	p-Chlorotoluene	BSD	REC	92	%	70-130
V3D8050-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
V3D8050-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	97	%	70-130
V3D8050-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	1	%	20
V3D8050-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	92	%	70-130
V3D8050-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	14 [a]	%	20
V3D8050-BSD	124-48-1	Dibromochloromethane	BSD	REC	100	%	70-130
V3D8050-BSD	124-48-1	Dibromochloromethane	BSD	RPD	4	%	20
V3D8050-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	97	%	70-130
V3D8050-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	5	%	20
V3D8050-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	95	%	70-130
V3D8050-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
V3D8050-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	95	%	70-130
V3D8050-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
V3D8050-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	92	%	70-130
V3D8050-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	2	%	20
V3D8050-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	92	%	70-130
V3D8050-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	0	%	20
V3D8050-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	89	%	70-130
V3D8050-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	0	%	20
V3D8050-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	96	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8050-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	2	%	20
V3D8050-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	91	%	70-130
V3D8050-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	1	%	20
V3D8050-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	90	%	70-130
V3D8050-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	1	%	20
V3D8050-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	87	%	70-130
V3D8050-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	0	%	20
V3D8050-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	99	%	70-130
V3D8050-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
V3D8050-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	95	%	70-130
V3D8050-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	5	%	20
V3D8050-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	89	%	70-130
V3D8050-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	0	%	20
V3D8050-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	92	%	70-130
V3D8050-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	1	%	20
V3D8050-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	101	%	70-130
V3D8050-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	2	%	20
V3D8050-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	98	%	70-130
V3D8050-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	3	%	20
V3D8050-BSD	123-91-1	1,4-Dioxane	BSD	REC	92	%	70-130
V3D8050-BSD	123-91-1	1,4-Dioxane	BSD	RPD	18	%	20
V3D8050-BSD	60-29-7	Ethyl Ether	BSD	REC	89	%	70-130
V3D8050-BSD	60-29-7	Ethyl Ether	BSD	RPD	1	%	20
V3D8050-BSD	100-41-4	Ethylbenzene	BSD	REC	99	%	70-130
V3D8050-BSD	100-41-4	Ethylbenzene	BSD	RPD	2	%	20
V3D8050-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	84	%	70-130
V3D8050-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	2	%	20
V3D8050-BSD	591-78-6	2-Hexanone	BSD	REC	112	%	70-130
V3D8050-BSD	591-78-6	2-Hexanone	BSD	RPD	11 [a]	%	20
V3D8050-BSD	98-82-8	Isopropylbenzene	BSD	REC	104	%	70-130
V3D8050-BSD	98-82-8	Isopropylbenzene	BSD	RPD	2	%	20
V3D8050-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	97	%	70-130
V3D8050-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	0	%	20
V3D8050-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	95	%	70-130
V3D8050-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	2	%	20
V3D8050-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	110	%	70-130
V3D8050-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	9	%	20
V3D8050-BSD	74-95-3	Methylene bromide	BSD	REC	97	%	70-130
V3D8050-BSD	74-95-3	Methylene bromide	BSD	RPD	4	%	20
V3D8050-BSD	75-09-2	Methylene chloride	BSD	REC	81	%	70-130
V3D8050-BSD	75-09-2	Methylene chloride	BSD	RPD	1	%	20
V3D8050-BSD	91-20-3	Naphthalene	BSD	REC	92	%	70-130
V3D8050-BSD	91-20-3	Naphthalene	BSD	RPD	12	%	20
V3D8050-BSD	103-65-1	n-Propylbenzene	BSD	REC	92	%	70-130
V3D8050-BSD	103-65-1	n-Propylbenzene	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8050-BSD	100-42-5	Styrene	BSD	REC	106	%	70-130
V3D8050-BSD	100-42-5	Styrene	BSD	RPD	2	%	20
V3D8050-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	105	%	70-130
V3D8050-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	3	%	20
V3D8050-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	92	%	70-130
V3D8050-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	0	%	20
V3D8050-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	101	%	70-130
V3D8050-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	4	%	20
V3D8050-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	87	%	70-130
V3D8050-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	4	%	20
V3D8050-BSD	127-18-4	Tetrachloroethene	BSD	REC	97	%	70-130
V3D8050-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
V3D8050-BSD	109-99-9	Tetrahydrofuran	BSD	REC	95	%	70-130
V3D8050-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	5	%	20
V3D8050-BSD	108-88-3	Toluene	BSD	REC	97	%	70-130
V3D8050-BSD	108-88-3	Toluene	BSD	RPD	2	%	20
V3D8050-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	91	%	70-130
V3D8050-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	7	%	20
V3D8050-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	92	%	70-130
V3D8050-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	4	%	20
V3D8050-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	89	%	70-130
V3D8050-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	1	%	20
V3D8050-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	94	%	70-130
V3D8050-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	6	%	20
V3D8050-BSD	79-01-6	Trichloroethene	BSD	REC	101	%	70-130
V3D8050-BSD	79-01-6	Trichloroethene	BSD	RPD	2	%	20
V3D8050-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	89	%	70-130
V3D8050-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	1	%	20
V3D8050-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	93	%	70-130
V3D8050-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	6	%	20
V3D8050-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	93	%	70-130
V3D8050-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	2	%	20
V3D8050-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	94	%	70-130
V3D8050-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	0	%	20
V3D8050-BSD	75-01-4	Vinyl chloride	BSD	REC	98	%	70-130
V3D8050-BSD	75-01-4	Vinyl chloride	BSD	RPD	1	%	20
V3D8050-BSD		m,p-Xylene	BSD	REC	103	%	70-130
V3D8050-BSD		m,p-Xylene	BSD	RPD	3	%	20
V3D8050-BSD	95-47-6	o-Xylene	BSD	REC	102	%	70-130
V3D8050-BSD	95-47-6	o-Xylene	BSD	RPD	3	%	20
V3D8050-BSD	1330-20-7	Xylene (total)	BSD	REC	103	%	70-130
V3D8050-BSD	1330-20-7	Xylene (total)	BSD	RPD	3	%	20
V3D8050-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	92	%	70-130
V3D8050-BSD	2037-26-5	Toluene-D8	BSD	SURR	97	%	70-130
V3D8050-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	91	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8050-MB	1868-53-7	Dibromofluoromethane	MB	SURR	89	%	70-130
V3D8050-MB	2037-26-5	Toluene-D8	MB	SURR	96	%	70-130
V3D8050-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	90	%	70-130
JD73168-2	1868-53-7	Dibromofluoromethane	SAMP	SURR	87	%	70-130
JD73168-2	2037-26-5	Toluene-D8	SAMP	SURR	96	%	70-130
JD73168-2	460-00-4	4-Bromofluorobenzene	SAMP	SURR	89	%	70-130
V3D8051	SW846 8260D						
V3D8051-BS	127-18-4	Tetrachloroethene	BSP	REC	98	%	70-130
V3D8051-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	96	%	70-130
V3D8051-BS	2037-26-5	Toluene-D8	BSP	SURR	96	%	70-130
V3D8051-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	90	%	70-130
V3D8051-BSD	127-18-4	Tetrachloroethene	BSD	REC	95	%	70-130
V3D8051-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
V3D8051-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	95	%	70-130
V3D8051-BSD	2037-26-5	Toluene-D8	BSD	SURR	95	%	70-130
V3D8051-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	92	%	70-130
V3D8051-MB	1868-53-7	Dibromofluoromethane	MB	SURR	93	%	70-130
V3D8051-MB	2037-26-5	Toluene-D8	MB	SURR	96	%	70-130
V3D8051-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	90	%	70-130
JD73168-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	93	%	70-130
JD73168-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	91	%	70-130
JD73168-1	2037-26-5	Toluene-D8	SAMP	SURR	96	%	70-130
JD73168-1	2037-26-5	Toluene-D8	SAMP	SURR	96	%	70-130
JD73168-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	91	%	70-130
JD73168-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	93	%	70-130
VY8866	SW846 8260D						
VY8866-BS	67-64-1	Acetone	BSP	REC	92	%	70-130
VY8866-BS	71-43-2	Benzene	BSP	REC	108	%	70-130
VY8866-BS	108-86-1	Bromobenzene	BSP	REC	107	%	70-130
VY8866-BS	74-97-5	Bromochloromethane	BSP	REC	111	%	70-130
VY8866-BS	75-27-4	Bromodichloromethane	BSP	REC	108	%	70-130
VY8866-BS	75-25-2	Bromoform	BSP	REC	119	%	70-130
VY8866-BS	74-83-9	Bromomethane	BSP	REC	98	%	70-130
VY8866-BS	78-93-3	2-Butanone (MEK)	BSP	REC	98	%	70-130
VY8866-BS	104-51-8	n-Butylbenzene	BSP	REC	109	%	70-130
VY8866-BS	135-98-8	sec-Butylbenzene	BSP	REC	107	%	70-130
VY8866-BS	98-06-6	tert-Butylbenzene	BSP	REC	105	%	70-130
VY8866-BS	75-15-0	Carbon disulfide	BSP	REC	111	%	70-130
VY8866-BS	56-23-5	Carbon tetrachloride	BSP	REC	116	%	70-130
VY8866-BS	108-90-7	Chlorobenzene	BSP	REC	109	%	70-130
VY8866-BS	75-00-3	Chloroethane	BSP	REC	108	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8866-BS	67-66-3	Chloroform	BSP	REC	98	%	70-130
VY8866-BS	74-87-3	Chloromethane	BSP	REC	92	%	70-130
VY8866-BS	95-49-8	o-Chlorotoluene	BSP	REC	105	%	70-130
VY8866-BS	106-43-4	p-Chlorotoluene	BSP	REC	106	%	70-130
VY8866-BS	108-20-3	Di-Isopropyl ether	BSP	REC	109	%	70-130
VY8866-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	105	%	70-130
VY8866-BS	124-48-1	Dibromochloromethane	BSP	REC	113	%	70-130
VY8866-BS	106-93-4	1,2-Dibromoethane	BSP	REC	111	%	70-130
VY8866-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	106	%	70-130
VY8866-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	108	%	70-130
VY8866-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	107	%	70-130
VY8866-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	107	%	70-130
VY8866-BS	75-34-3	1,1-Dichloroethane	BSP	REC	107	%	70-130
VY8866-BS	107-06-2	1,2-Dichloroethane	BSP	REC	102	%	70-130
VY8866-BS	75-35-4	1,1-Dichloroethene	BSP	REC	114	%	70-130
VY8866-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	113	%	70-130
VY8866-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	113	%	70-130
VY8866-BS	78-87-5	1,2-Dichloropropane	BSP	REC	109	%	70-130
VY8866-BS	142-28-9	1,3-Dichloropropane	BSP	REC	108	%	70-130
VY8866-BS	594-20-7	2,2-Dichloropropane	BSP	REC	110	%	70-130
VY8866-BS	563-58-6	1,1-Dichloropropene	BSP	REC	115	%	70-130
VY8866-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	110	%	70-130
VY8866-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	109	%	70-130
VY8866-BS	123-91-1	1,4-Dioxane	BSP	REC	118	%	70-130
VY8866-BS	60-29-7	Ethyl Ether	BSP	REC	107	%	70-130
VY8866-BS	100-41-4	Ethylbenzene	BSP	REC	105	%	70-130
VY8866-BS	87-68-3	Hexachlorobutadiene	BSP	REC	111	%	70-130
VY8866-BS	591-78-6	2-Hexanone	BSP	REC	99	%	70-130
VY8866-BS	98-82-8	Isopropylbenzene	BSP	REC	109	%	70-130
VY8866-BS	99-87-6	p-Isopropyltoluene	BSP	REC	108	%	70-130
VY8866-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	112	%	70-130
VY8866-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	113	%	70-130
VY8866-BS	74-95-3	Methylene bromide	BSP	REC	106	%	70-130
VY8866-BS	75-09-2	Methylene chloride	BSP	REC	91	%	70-130
VY8866-BS	91-20-3	Naphthalene	BSP	REC	103	%	70-130
VY8866-BS	103-65-1	n-Propylbenzene	BSP	REC	104	%	70-130
VY8866-BS	100-42-5	Styrene	BSP	REC	107	%	70-130
VY8866-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	110	%	70-130
VY8866-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	107	%	70-130
VY8866-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	115	%	70-130
VY8866-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	101	%	70-130
VY8866-BS	109-99-9	Tetrahydrofuran	BSP	REC	102	%	70-130
VY8866-BS	108-88-3	Toluene	BSP	REC	109	%	70-130
VY8866-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	111	%	70-130
VY8866-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	114	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8866-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	113	%	70-130
VY8866-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	110	%	70-130
VY8866-BS	79-01-6	Trichloroethene	BSP	REC	115	%	70-130
VY8866-BS	75-69-4	Trichlorofluoromethane	BSP	REC	105	%	70-130
VY8866-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	97	%	70-130
VY8866-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	107	%	70-130
VY8866-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	107	%	70-130
VY8866-BS	75-01-4	Vinyl chloride	BSP	REC	104	%	70-130
VY8866-BS		m,p-Xylene	BSP	REC	105	%	70-130
VY8866-BS	95-47-6	o-Xylene	BSP	REC	106	%	70-130
VY8866-BS	1330-20-7	Xylene (total)	BSP	REC	105	%	70-130
VY8866-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	96	%	70-130
VY8866-BS	2037-26-5	Toluene-D8	BSP	SURR	97	%	70-130
VY8866-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	95	%	70-130
VY8866-BSD	67-64-1	Acetone	BSD	REC	96	%	70-130
VY8866-BSD	67-64-1	Acetone	BSD	RPD	4	%	20
VY8866-BSD	71-43-2	Benzene	BSD	REC	110	%	70-130
VY8866-BSD	71-43-2	Benzene	BSD	RPD	2	%	20
VY8866-BSD	108-86-1	Bromobenzene	BSD	REC	110	%	70-130
VY8866-BSD	108-86-1	Bromobenzene	BSD	RPD	3	%	20
VY8866-BSD	74-97-5	Bromochloromethane	BSD	REC	115	%	70-130
VY8866-BSD	74-97-5	Bromochloromethane	BSD	RPD	3	%	20
VY8866-BSD	75-27-4	Bromodichloromethane	BSD	REC	112	%	70-130
VY8866-BSD	75-27-4	Bromodichloromethane	BSD	RPD	3	%	20
VY8866-BSD	75-25-2	Bromoform	BSD	REC	121	%	70-130
VY8866-BSD	75-25-2	Bromoform	BSD	RPD	2	%	20
VY8866-BSD	74-83-9	Bromomethane	BSD	REC	99	%	70-130
VY8866-BSD	74-83-9	Bromomethane	BSD	RPD	2	%	20
VY8866-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	101	%	70-130
VY8866-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	3	%	20
VY8866-BSD	104-51-8	n-Butylbenzene	BSD	REC	112	%	70-130
VY8866-BSD	104-51-8	n-Butylbenzene	BSD	RPD	2	%	20
VY8866-BSD	135-98-8	sec-Butylbenzene	BSD	REC	108	%	70-130
VY8866-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	2	%	20
VY8866-BSD	98-06-6	tert-Butylbenzene	BSD	REC	109	%	70-130
VY8866-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	4	%	20
VY8866-BSD	75-15-0	Carbon disulfide	BSD	REC	113	%	70-130
VY8866-BSD	75-15-0	Carbon disulfide	BSD	RPD	2	%	20
VY8866-BSD	56-23-5	Carbon tetrachloride	BSD	REC	120	%	70-130
VY8866-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	3	%	20
VY8866-BSD	108-90-7	Chlorobenzene	BSD	REC	112	%	70-130
VY8866-BSD	108-90-7	Chlorobenzene	BSD	RPD	3	%	20
VY8866-BSD	75-00-3	Chloroethane	BSD	REC	108	%	70-130
VY8866-BSD	75-00-3	Chloroethane	BSD	RPD	0	%	20
VY8866-BSD	67-66-3	Chloroform	BSD	REC	100	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8866-BSD	67-66-3	Chloroform	BSD	RPD	3	%	20
VY8866-BSD	74-87-3	Chloromethane	BSD	REC	94	%	70-130
VY8866-BSD	74-87-3	Chloromethane	BSD	RPD	2	%	20
VY8866-BSD	95-49-8	o-Chlorotoluene	BSD	REC	108	%	70-130
VY8866-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	3	%	20
VY8866-BSD	106-43-4	p-Chlorotoluene	BSD	REC	108	%	70-130
VY8866-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	2	%	20
VY8866-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	113	%	70-130
VY8866-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	4	%	20
VY8866-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	112	%	70-130
VY8866-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	6	%	20
VY8866-BSD	124-48-1	Dibromochloromethane	BSD	REC	116	%	70-130
VY8866-BSD	124-48-1	Dibromochloromethane	BSD	RPD	3	%	20
VY8866-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	114	%	70-130
VY8866-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	3	%	20
VY8866-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	108	%	70-130
VY8866-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	2	%	20
VY8866-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	110	%	70-130
VY8866-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	2	%	20
VY8866-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	111	%	70-130
VY8866-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	4	%	20
VY8866-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	109	%	70-130
VY8866-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	2	%	20
VY8866-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	109	%	70-130
VY8866-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	2	%	20
VY8866-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	105	%	70-130
VY8866-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	3	%	20
VY8866-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	115	%	70-130
VY8866-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	1	%	20
VY8866-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	117	%	70-130
VY8866-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	4	%	20
VY8866-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	117	%	70-130
VY8866-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	4	%	20
VY8866-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	112	%	70-130
VY8866-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	3	%	20
VY8866-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	109	%	70-130
VY8866-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	1	%	20
VY8866-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	112	%	70-130
VY8866-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	2	%	20
VY8866-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	119	%	70-130
VY8866-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	3	%	20
VY8866-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	112	%	70-130
VY8866-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
VY8866-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	111	%	70-130
VY8866-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	2	%	20

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8866-BSD	123-91-1	1,4-Dioxane	BSD	REC	121	%	70-130
VY8866-BSD	123-91-1	1,4-Dioxane	BSD	RPD	2	%	20
VY8866-BSD	60-29-7	Ethyl Ether	BSD	REC	109	%	70-130
VY8866-BSD	60-29-7	Ethyl Ether	BSD	RPD	1	%	20
VY8866-BSD	100-41-4	Ethylbenzene	BSD	REC	108	%	70-130
VY8866-BSD	100-41-4	Ethylbenzene	BSD	RPD	3	%	20
VY8866-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	116	%	70-130
VY8866-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	4	%	20
VY8866-BSD	591-78-6	2-Hexanone	BSD	REC	100	%	70-130
VY8866-BSD	591-78-6	2-Hexanone	BSD	RPD	2	%	20
VY8866-BSD	98-82-8	Isopropylbenzene	BSD	REC	109	%	70-130
VY8866-BSD	98-82-8	Isopropylbenzene	BSD	RPD	0	%	20
VY8866-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	110	%	70-130
VY8866-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	2	%	20
VY8866-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	119	%	70-130
VY8866-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	6	%	20
VY8866-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	119	%	70-130
VY8866-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	6	%	20
VY8866-BSD	74-95-3	Methylene bromide	BSD	REC	109	%	70-130
VY8866-BSD	74-95-3	Methylene bromide	BSD	RPD	2	%	20
VY8866-BSD	75-09-2	Methylene chloride	BSD	REC	95	%	70-130
VY8866-BSD	75-09-2	Methylene chloride	BSD	RPD	4	%	20
VY8866-BSD	91-20-3	Naphthalene	BSD	REC	106	%	70-130
VY8866-BSD	91-20-3	Naphthalene	BSD	RPD	3	%	20
VY8866-BSD	103-65-1	n-Propylbenzene	BSD	REC	107	%	70-130
VY8866-BSD	103-65-1	n-Propylbenzene	BSD	RPD	3	%	20
VY8866-BSD	100-42-5	Styrene	BSD	REC	109	%	70-130
VY8866-BSD	100-42-5	Styrene	BSD	RPD	2	%	20
VY8866-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	113	%	70-130
VY8866-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	3	%	20
VY8866-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	112	%	70-130
VY8866-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	5	%	20
VY8866-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	118	%	70-130
VY8866-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	3	%	20
VY8866-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	105	%	70-130
VY8866-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	4	%	20
VY8866-BSD	109-99-9	Tetrahydrofuran	BSD	REC	103	%	70-130
VY8866-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	0	%	20
VY8866-BSD	108-88-3	Toluene	BSD	REC	112	%	70-130
VY8866-BSD	108-88-3	Toluene	BSD	RPD	3	%	20
VY8866-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	114	%	70-130
VY8866-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	3	%	20
VY8866-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	117	%	70-130
VY8866-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	2	%	20
VY8866-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	116	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8866-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	3	%	20
VY8866-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	112	%	70-130
VY8866-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	2	%	20
VY8866-BSD	79-01-6	Trichloroethene	BSD	REC	117	%	70-130
VY8866-BSD	79-01-6	Trichloroethene	BSD	RPD	2	%	20
VY8866-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	106	%	70-130
VY8866-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	1	%	20
VY8866-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	102	%	70-130
VY8866-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	6	%	20
VY8866-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	111	%	70-130
VY8866-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	3	%	20
VY8866-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	109	%	70-130
VY8866-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	3	%	20
VY8866-BSD	75-01-4	Vinyl chloride	BSD	REC	104	%	70-130
VY8866-BSD	75-01-4	Vinyl chloride	BSD	RPD	0	%	20
VY8866-BSD		m,p-Xylene	BSD	REC	108	%	70-130
VY8866-BSD		m,p-Xylene	BSD	RPD	3	%	20
VY8866-BSD	95-47-6	o-Xylene	BSD	REC	107	%	70-130
VY8866-BSD	95-47-6	o-Xylene	BSD	RPD	1	%	20
VY8866-BSD	1330-20-7	Xylene (total)	BSD	REC	107	%	70-130
VY8866-BSD	1330-20-7	Xylene (total)	BSD	RPD	2	%	20
VY8866-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	96	%	70-130
VY8866-BSD	2037-26-5	Toluene-D8	BSD	SURR	98	%	70-130
VY8866-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	96	%	70-130
VY8866-MB	1868-53-7	Dibromofluoromethane	MB	SURR	98	%	70-130
VY8866-MB	2037-26-5	Toluene-D8	MB	SURR	98	%	70-130
VY8866-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	97	%	70-130
JD73168-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	90	%	70-130
JD73168-1	2037-26-5	Toluene-D8	SAMP	SURR	91	%	70-130
JD73168-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	98	%	70-130
VY8867	SW846 8260D						
VY8867-BS	67-64-1	Acetone	BSP	REC	106	%	70-130
VY8867-BS	71-43-2	Benzene	BSP	REC	111	%	70-130
VY8867-BS	108-86-1	Bromobenzene	BSP	REC	111	%	70-130
VY8867-BS	74-97-5	Bromochloromethane	BSP	REC	115	%	70-130
VY8867-BS	75-27-4	Bromodichloromethane	BSP	REC	113	%	70-130
VY8867-BS	75-25-2	Bromoform	BSP	REC	123	%	70-130
VY8867-BS	74-83-9	Bromomethane	BSP	REC	102	%	70-130
VY8867-BS	78-93-3	2-Butanone (MEK)	BSP	REC	111	%	70-130
VY8867-BS	104-51-8	n-Butylbenzene	BSP	REC	110	%	70-130
VY8867-BS	135-98-8	sec-Butylbenzene	BSP	REC	108	%	70-130
VY8867-BS	98-06-6	tert-Butylbenzene	BSP	REC	108	%	70-130
VY8867-BS	75-15-0	Carbon disulfide	BSP	REC	109	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8867-BS	56-23-5	Carbon tetrachloride	BSP	REC	117	%	70-130
VY8867-BS	108-90-7	Chlorobenzene	BSP	REC	109	%	70-130
VY8867-BS	75-00-3	Chloroethane	BSP	REC	108	%	70-130
VY8867-BS	67-66-3	Chloroform	BSP	REC	99	%	70-130
VY8867-BS	74-87-3	Chloromethane	BSP	REC	96	%	70-130
VY8867-BS	95-49-8	o-Chlorotoluene	BSP	REC	107	%	70-130
VY8867-BS	106-43-4	p-Chlorotoluene	BSP	REC	108	%	70-130
VY8867-BS	108-20-3	Di-Isopropyl ether	BSP	REC	114	%	70-130
VY8867-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	115	%	70-130
VY8867-BS	124-48-1	Dibromochloromethane	BSP	REC	114	%	70-130
VY8867-BS	106-93-4	1,2-Dibromoethane	BSP	REC	114	%	70-130
VY8867-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	110	%	70-130
VY8867-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	110	%	70-130
VY8867-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	109	%	70-130
VY8867-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	113	%	70-130
VY8867-BS	75-34-3	1,1-Dichloroethane	BSP	REC	109	%	70-130
VY8867-BS	107-06-2	1,2-Dichloroethane	BSP	REC	107	%	70-130
VY8867-BS	75-35-4	1,1-Dichloroethene	BSP	REC	113	%	70-130
VY8867-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	114	%	70-130
VY8867-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	109	%	70-130
VY8867-BS	78-87-5	1,2-Dichloropropane	BSP	REC	115	%	70-130
VY8867-BS	142-28-9	1,3-Dichloropropane	BSP	REC	110	%	70-130
VY8867-BS	594-20-7	2,2-Dichloropropane	BSP	REC	110	%	70-130
VY8867-BS	563-58-6	1,1-Dichloropropene	BSP	REC	114	%	70-130
VY8867-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	115	%	70-130
VY8867-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	113	%	70-130
VY8867-BS	123-91-1	1,4-Dioxane	BSP	REC	128	%	70-130
VY8867-BS	60-29-7	Ethyl Ether	BSP	REC	111	%	70-130
VY8867-BS	100-41-4	Ethylbenzene	BSP	REC	105	%	70-130
VY8867-BS	87-68-3	Hexachlorobutadiene	BSP	REC	112	%	70-130
VY8867-BS	591-78-6	2-Hexanone	BSP	REC	108	%	70-130
VY8867-BS	98-82-8	Isopropylbenzene	BSP	REC	106	%	70-130
VY8867-BS	99-87-6	p-Isopropyltoluene	BSP	REC	109	%	70-130
VY8867-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	114	%	70-130
VY8867-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	123	%	70-130
VY8867-BS	74-95-3	Methylene bromide	BSP	REC	112	%	70-130
VY8867-BS	75-09-2	Methylene chloride	BSP	REC	92	%	70-130
VY8867-BS	91-20-3	Naphthalene	BSP	REC	108	%	70-130
VY8867-BS	103-65-1	n-Propylbenzene	BSP	REC	105	%	70-130
VY8867-BS	100-42-5	Styrene	BSP	REC	105	%	70-130
VY8867-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	115	%	70-130
VY8867-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	112	%	70-130
VY8867-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	115	%	70-130
VY8867-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	109	%	70-130
VY8867-BS	127-18-4	Tetrachloroethene	BSP	REC	113	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8867-BS	109-99-9	Tetrahydrofuran	BSP	REC	110	%	70-130
VY8867-BS	108-88-3	Toluene	BSP	REC	108	%	70-130
VY8867-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	114	%	70-130
VY8867-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	116	%	70-130
VY8867-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	114	%	70-130
VY8867-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	114	%	70-130
VY8867-BS	79-01-6	Trichloroethene	BSP	REC	116	%	70-130
VY8867-BS	75-69-4	Trichlorofluoromethane	BSP	REC	102	%	70-130
VY8867-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	106	%	70-130
VY8867-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	110	%	70-130
VY8867-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	109	%	70-130
VY8867-BS	75-01-4	Vinyl chloride	BSP	REC	104	%	70-130
VY8867-BS		m,p-Xylene	BSP	REC	105	%	70-130
VY8867-BS	95-47-6	o-Xylene	BSP	REC	103	%	70-130
VY8867-BS	1330-20-7	Xylene (total)	BSP	REC	105	%	70-130
VY8867-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	96	%	70-130
VY8867-BS	2037-26-5	Toluene-D8	BSP	SURR	95	%	70-130
VY8867-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	97	%	70-130
VY8867-BSD	67-64-1	Acetone	BSD	REC	101	%	70-130
VY8867-BSD	67-64-1	Acetone	BSD	RPD	4	%	20
VY8867-BSD	71-43-2	Benzene	BSD	REC	106	%	70-130
VY8867-BSD	71-43-2	Benzene	BSD	RPD	5	%	20
VY8867-BSD	108-86-1	Bromobenzene	BSD	REC	107	%	70-130
VY8867-BSD	108-86-1	Bromobenzene	BSD	RPD	4	%	20
VY8867-BSD	74-97-5	Bromochloromethane	BSD	REC	110	%	70-130
VY8867-BSD	74-97-5	Bromochloromethane	BSD	RPD	4	%	20
VY8867-BSD	75-27-4	Bromodichloromethane	BSD	REC	108	%	70-130
VY8867-BSD	75-27-4	Bromodichloromethane	BSD	RPD	4	%	20
VY8867-BSD	75-25-2	Bromoform	BSD	REC	118	%	70-130
VY8867-BSD	75-25-2	Bromoform	BSD	RPD	4	%	20
VY8867-BSD	74-83-9	Bromomethane	BSD	REC	95	%	70-130
VY8867-BSD	74-83-9	Bromomethane	BSD	RPD	7	%	20
VY8867-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	105	%	70-130
VY8867-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	6	%	20
VY8867-BSD	104-51-8	n-Butylbenzene	BSD	REC	106	%	70-130
VY8867-BSD	104-51-8	n-Butylbenzene	BSD	RPD	3	%	20
VY8867-BSD	135-98-8	sec-Butylbenzene	BSD	REC	104	%	70-130
VY8867-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	4	%	20
VY8867-BSD	98-06-6	tert-Butylbenzene	BSD	REC	104	%	70-130
VY8867-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	4	%	20
VY8867-BSD	75-15-0	Carbon disulfide	BSD	REC	104	%	70-130
VY8867-BSD	75-15-0	Carbon disulfide	BSD	RPD	4	%	20
VY8867-BSD	56-23-5	Carbon tetrachloride	BSD	REC	112	%	70-130
VY8867-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	4	%	20
VY8867-BSD	108-90-7	Chlorobenzene	BSD	REC	104	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8867-BSD	108-90-7	Chlorobenzene	BSD	RPD	5	%	20
VY8867-BSD	75-00-3	Chloroethane	BSD	REC	100	%	70-130
VY8867-BSD	75-00-3	Chloroethane	BSD	RPD	7	%	20
VY8867-BSD	67-66-3	Chloroform	BSD	REC	96	%	70-130
VY8867-BSD	67-66-3	Chloroform	BSD	RPD	3	%	20
VY8867-BSD	74-87-3	Chloromethane	BSD	REC	90	%	70-130
VY8867-BSD	74-87-3	Chloromethane	BSD	RPD	6	%	20
VY8867-BSD	95-49-8	o-Chlorotoluene	BSD	REC	105	%	70-130
VY8867-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	2	%	20
VY8867-BSD	106-43-4	p-Chlorotoluene	BSD	REC	104	%	70-130
VY8867-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	4	%	20
VY8867-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	110	%	70-130
VY8867-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	4	%	20
VY8867-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	111	%	70-130
VY8867-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	3	%	20
VY8867-BSD	124-48-1	Dibromochloromethane	BSD	REC	113	%	70-130
VY8867-BSD	124-48-1	Dibromochloromethane	BSD	RPD	1	%	20
VY8867-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	111	%	70-130
VY8867-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	2	%	20
VY8867-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	106	%	70-130
VY8867-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	4	%	20
VY8867-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	106	%	70-130
VY8867-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	4	%	20
VY8867-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	105	%	70-130
VY8867-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	4	%	20
VY8867-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	107	%	70-130
VY8867-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	5	%	20
VY8867-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	104	%	70-130
VY8867-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	4	%	20
VY8867-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	102	%	70-130
VY8867-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	6	%	20
VY8867-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	107	%	70-130
VY8867-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	5	%	20
VY8867-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	108	%	70-130
VY8867-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	5	%	20
VY8867-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	105	%	70-130
VY8867-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	4	%	20
VY8867-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	108	%	70-130
VY8867-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	6	%	20
VY8867-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	108	%	70-130
VY8867-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	2	%	20
VY8867-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	106	%	70-130
VY8867-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	3	%	20
VY8867-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	110	%	70-130
VY8867-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	3	%	20

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8867-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	110	%	70-130
VY8867-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	5	%	20
VY8867-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	109	%	70-130
VY8867-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	3	%	20
VY8867-BSD	123-91-1	1,4-Dioxane	BSD	REC	130	%	70-130
VY8867-BSD	123-91-1	1,4-Dioxane	BSD	RPD	1	%	20
VY8867-BSD	60-29-7	Ethyl Ether	BSD	REC	108	%	70-130
VY8867-BSD	60-29-7	Ethyl Ether	BSD	RPD	3	%	20
VY8867-BSD	100-41-4	Ethylbenzene	BSD	REC	101	%	70-130
VY8867-BSD	100-41-4	Ethylbenzene	BSD	RPD	4	%	20
VY8867-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	107	%	70-130
VY8867-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	5	%	20
VY8867-BSD	591-78-6	2-Hexanone	BSD	REC	103	%	70-130
VY8867-BSD	591-78-6	2-Hexanone	BSD	RPD	5	%	20
VY8867-BSD	98-82-8	Isopropylbenzene	BSD	REC	103	%	70-130
VY8867-BSD	98-82-8	Isopropylbenzene	BSD	RPD	3	%	20
VY8867-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	106	%	70-130
VY8867-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	3	%	20
VY8867-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	111	%	70-130
VY8867-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	3	%	20
VY8867-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	118	%	70-130
VY8867-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	4	%	20
VY8867-BSD	74-95-3	Methylene bromide	BSD	REC	109	%	70-130
VY8867-BSD	74-95-3	Methylene bromide	BSD	RPD	3	%	20
VY8867-BSD	75-09-2	Methylene chloride	BSD	REC	90	%	70-130
VY8867-BSD	75-09-2	Methylene chloride	BSD	RPD	2	%	20
VY8867-BSD	91-20-3	Naphthalene	BSD	REC	105	%	70-130
VY8867-BSD	91-20-3	Naphthalene	BSD	RPD	3	%	20
VY8867-BSD	103-65-1	n-Propylbenzene	BSD	REC	101	%	70-130
VY8867-BSD	103-65-1	n-Propylbenzene	BSD	RPD	4	%	20
VY8867-BSD	100-42-5	Styrene	BSD	REC	103	%	70-130
VY8867-BSD	100-42-5	Styrene	BSD	RPD	2	%	20
VY8867-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	110	%	70-130
VY8867-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	4	%	20
VY8867-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	109	%	70-130
VY8867-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	3	%	20
VY8867-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	113	%	70-130
VY8867-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	2	%	20
VY8867-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	105	%	70-130
VY8867-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	4	%	20
VY8867-BSD	127-18-4	Tetrachloroethene	BSD	REC	109	%	70-130
VY8867-BSD	127-18-4	Tetrachloroethene	BSD	RPD	4	%	20
VY8867-BSD	109-99-9	Tetrahydrofuran	BSD	REC	107	%	70-130
VY8867-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	4	%	20
VY8867-BSD	108-88-3	Toluene	BSD	REC	104	%	70-130

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* Sample used for QC is not from job JD73168

QC Evaluation: MA MCP Limits

Job Number: JD73168
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/20/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VY8867-BSD	108-88-3	Toluene	BSD	RPD	3	%	20
VY8867-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	110	%	70-130
VY8867-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	4	%	20
VY8867-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	110	%	70-130
VY8867-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	5	%	20
VY8867-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	109	%	70-130
VY8867-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	4	%	20
VY8867-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	110	%	70-130
VY8867-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	4	%	20
VY8867-BSD	79-01-6	Trichloroethene	BSD	REC	110	%	70-130
VY8867-BSD	79-01-6	Trichloroethene	BSD	RPD	5	%	20
VY8867-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	99	%	70-130
VY8867-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	3	%	20
VY8867-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	101	%	70-130
VY8867-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	4	%	20
VY8867-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	106	%	70-130
VY8867-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	4	%	20
VY8867-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	103	%	70-130
VY8867-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	6	%	20
VY8867-BSD	75-01-4	Vinyl chloride	BSD	REC	98	%	70-130
VY8867-BSD	75-01-4	Vinyl chloride	BSD	RPD	6	%	20
VY8867-BSD		m,p-Xylene	BSD	REC	101	%	70-130
VY8867-BSD		m,p-Xylene	BSD	RPD	4	%	20
VY8867-BSD	95-47-6	o-Xylene	BSD	REC	101	%	70-130
VY8867-BSD	95-47-6	o-Xylene	BSD	RPD	3	%	20
VY8867-BSD	1330-20-7	Xylene (total)	BSD	REC	101	%	70-130
VY8867-BSD	1330-20-7	Xylene (total)	BSD	RPD	3	%	20
VY8867-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	96	%	70-130
VY8867-BSD	2037-26-5	Toluene-D8	BSD	SURR	95	%	70-130
VY8867-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	97	%	70-130
VY8867-MB	1868-53-7	Dibromofluoromethane	MB	SURR	95	%	70-130
VY8867-MB	2037-26-5	Toluene-D8	MB	SURR	98	%	70-130
VY8867-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	96	%	70-130
JD73168-3	1868-53-7	Dibromofluoromethane	SAMP	SURR	98	%	70-130
JD73168-3	2037-26-5	Toluene-D8	SAMP	SURR	97	%	70-130
JD73168-3	460-00-4	4-Bromofluorobenzene	SAMP	SURR	97	%	70-130

(a) Outside in house control limits.

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* Sample used for QC is not from job JD73168

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8866-MB	Y203570.D	1	09/22/23	PS	n/a	n/a	VY8866

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8866-MB	Y203570.D	1	09/22/23	PS	n/a	n/a	VY8866

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8866-MB	Y203570.D	1	09/22/23	PS	n/a	n/a	VY8866

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	98%	80-124%
17060-07-0	1,2-Dichloroethane-D4	99%	75-133%
2037-26-5	Toluene-D8	98%	79-125%
460-00-4	4-Bromofluorobenzene	97%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8050-MB	3D192623.D	1	09/22/23	JN	n/a	n/a	V3D8050

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-2

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	64.6	250	ug/kg	J
78-93-3	2-Butanone (MEK)	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8050-MB	3D192623.D	1	09/22/23	JN	n/a	n/a	V3D8050

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-2

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8050-MB	3D192623.D	1	09/22/23	JN	n/a	n/a	V3D8050

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-2

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	89%	80-124%
17060-07-0	1,2-Dichloroethane-D4	98%	75-133%
2037-26-5	Toluene-D8	96%	79-125%
460-00-4	4-Bromofluorobenzene	90%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.28	370	ug/kg	J
	Total TIC, Volatile		0	ug/kg	
	Total Alkanes		0	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8867-MB	Y203604.D	1	09/23/23	PS	n/a	n/a	VY8867

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-3

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8867-MB	Y203604.D	1	09/23/23	PS	n/a	n/a	VY8867

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-3

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8867-MB	Y203604.D	1	09/23/23	PS	n/a	n/a	VY8867

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	95%	80-124%
17060-07-0	1,2-Dichloroethane-D4	94%	75-133%
2037-26-5	Toluene-D8	98%	79-125%
460-00-4	4-Bromofluorobenzene	96%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Page 1 of 1

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-MB	3D192654.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Compound	Result	RL	Units	Q
127-18-4	Tetrachloroethene	ND	100	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	96%	79-125%
460-00-4	4-Bromofluorobenzene	90%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	System artifact	1.27	390	ug/kg	J
	System artifact	1.76	290	ug/kg	J
	Total TIC, Volatile		0	ug/kg	

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8866-BS	Y203567.D	1	09/22/23	PS	n/a	n/a	VY8866
VY8866-BSD	Y203568.D	1	09/22/23	PS	n/a	n/a	VY8866

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	183	92	191	96	4	52-156/12
71-43-2	Benzene	50	54.0	108	55.2	110	2	82-119/10
108-86-1	Bromobenzene	50	53.3	107	54.9	110	3	82-115/10
74-97-5	Bromochloromethane	50	55.7	111	57.6	115	3	82-123/10
75-27-4	Bromodichloromethane	50	54.2	108	55.8	112	3	83-121/10
75-25-2	Bromoform	50	59.3	119	60.7	121	2	74-138/10
74-83-9	Bromomethane	50	48.8	98	49.6	99	2	56-150/12
78-93-3	2-Butanone (MEK)	200	196	98	202	101	3	72-138/10
104-51-8	n-Butylbenzene	50	54.6	109	55.8	112	2	81-124/11
135-98-8	sec-Butylbenzene	50	53.3	107	54.2	108	2	78-120/10
98-06-6	tert-Butylbenzene	50	52.7	105	54.6	109	4	78-121/10
75-15-0	Carbon disulfide	50	55.4	111	56.3	113	2	67-131/11
56-23-5	Carbon tetrachloride	50	58.2	116	59.8	120	3	72-130/11
108-90-7	Chlorobenzene	50	54.7	109	56.1	112	3	83-114/10
75-00-3	Chloroethane	50	53.8	108	54.0	108	0	67-141/12
67-66-3	Chloroform	50	48.8	98	50.1	100	3	76-115/10
74-87-3	Chloromethane	50	46.0	92	47.1	94	2	57-141/13
95-49-8	o-Chlorotoluene	50	52.7	105	54.2	108	3	81-118/10
106-43-4	p-Chlorotoluene	50	52.8	106	54.0	108	2	78-117/10
108-20-3	Di-Isopropyl ether	50	54.3	109	56.5	113	4	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	52.6	105	56.0	112	6	72-131/11
124-48-1	Dibromochloromethane	50	56.3	113	58.2	116	3	80-128/10
106-93-4	1,2-Dibromoethane	50	55.3	111	57.1	114	3	58-145/10
95-50-1	1,2-Dichlorobenzene	50	52.9	106	54.2	108	2	83-117/10
541-73-1	1,3-Dichlorobenzene	50	53.9	108	55.1	110	2	82-114/10
106-46-7	1,4-Dichlorobenzene	50	53.4	107	55.4	111	4	79-114/10
75-71-8	Dichlorodifluoromethane	50	53.4	107	54.7	109	2	49-146/13
75-34-3	1,1-Dichloroethane	50	53.6	107	54.7	109	2	76-126/10
107-06-2	1,2-Dichloroethane	50	50.9	102	52.7	105	3	76-118/10
75-35-4	1,1-Dichloroethene	50	56.9	114	57.6	115	1	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	56.4	113	58.6	117	4	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	56.3	113	58.5	117	4	76-122/10
78-87-5	1,2-Dichloropropane	50	54.4	109	56.2	112	3	82-123/10
142-28-9	1,3-Dichloropropane	50	53.8	108	54.3	109	1	84-120/10
594-20-7	2,2-Dichloropropane	50	55.1	110	56.2	112	2	66-130/11
563-58-6	1,1-Dichloropropene	50	57.7	115	59.6	119	3	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8866-BS	Y203567.D	1	09/22/23	PS	n/a	n/a	VY8866
VY8866-BSD	Y203568.D	1	09/22/23	PS	n/a	n/a	VY8866

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	55.2	110	56.0	112	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	54.5	109	55.6	111	2	83-123/10
123-91-1	1,4-Dioxane	1250	1480	118	1510	121	2	64-163/20
60-29-7	Ethyl Ether	50	53.6	107	54.3	109	1	78-131/10
100-41-4	Ethylbenzene	50	52.7	105	54.1	108	3	83-115/10
87-68-3	Hexachlorobutadiene	50	55.6	111	58.1	116	4	65-130/11
591-78-6	2-Hexanone	200	197	99	200	100	2	73-138/10
98-82-8	Isopropylbenzene	50	54.4	109	54.6	109	0	81-122/11
99-87-6	p-Isopropyltoluene	50	54.0	108	55.1	110	2	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	56.2	112	59.6	119	6	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	225	113	238	119	6	71-138/10
74-95-3	Methylene bromide	50	53.2	106	54.3	109	2	81-122/10
75-09-2	Methylene chloride	50	45.6	91	47.4	95	4	73-122/10
91-20-3	Naphthalene	50	51.4	103	53.0	106	3	71-129/14
103-65-1	n-Propylbenzene	50	52.2	104	53.6	107	3	77-120/10
100-42-5	Styrene	50	53.5	107	54.6	109	2	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	54.8	110	56.5	113	3	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	53.4	107	56.2	112	5	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	57.4	115	59.2	118	3	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	50.3	101	52.5	105	4	75-127/10
109-99-9	Tetrahydrofuran	50	51.1	102	51.3	103	0	61-136/11
108-88-3	Toluene	50	54.3	109	55.9	112	3	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	55.4	111	57.2	114	3	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	57.1	114	58.3	117	2	72-133/12
71-55-6	1,1,1-Trichloroethane	50	56.5	113	58.2	116	3	77-124/11
79-00-5	1,1,2-Trichloroethane	50	55.1	110	56.1	112	2	83-122/10
79-01-6	Trichloroethene	50	57.4	115	58.6	117	2	80-122/10
75-69-4	Trichlorofluoromethane	50	52.3	105	52.9	106	1	69-132/11
96-18-4	1,2,3-Trichloropropane	50	48.3	97	51.1	102	6	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	53.4	107	55.3	111	3	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	53.3	107	54.7	109	3	79-120/10
75-01-4	Vinyl chloride	50	51.9	104	51.9	104	0	60-144/13
	m,p-Xylene	100	105	105	108	108	3	82-119/10
95-47-6	o-Xylene	50	53.0	106	53.5	107	1	84-120/10
1330-20-7	Xylene (total)	150	158	105	161	107	2	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8866-BS	Y203567.D	1	09/22/23	PS	n/a	n/a	VY8866
VY8866-BSD	Y203568.D	1	09/22/23	PS	n/a	n/a	VY8866

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	96%	96%	80-124%
17060-07-0	1,2-Dichloroethane-D4	90%	91%	75-133%
2037-26-5	Toluene-D8	97%	98%	79-125%
460-00-4	4-Bromofluorobenzene	95%	96%	58-148%

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8050-BS	3D192620.D	1	09/22/23	JN	n/a	n/a	V3D8050
V3D8050-BSD	3D192621.D	1	09/22/23	JN	n/a	n/a	V3D8050

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	20000	22100	111	24400	122	10	52-156/12
71-43-2	Benzene	5000	4920	98	4970	99	1	82-119/10
108-86-1	Bromobenzene	5000	4480	90	4490	90	0	82-115/10
74-97-5	Bromochloromethane	5000	4690	94	4700	94	0	82-123/10
75-27-4	Bromodichloromethane	5000	4700	94	4790	96	2	83-121/10
75-25-2	Bromoform	5000	4650	93	4980	100	7	74-138/10
74-83-9	Bromomethane	5000	4460	89	4850	97	8	56-150/12
78-93-3	2-Butanone (MEK)	20000	20100	101	22200	111	10	72-138/10
104-51-8	n-Butylbenzene	5000	4840	97	4930	99	2	81-124/11
135-98-8	sec-Butylbenzene	5000	4880	98	4880	98	0	78-120/10
98-06-6	tert-Butylbenzene	5000	4830	97	4870	97	1	78-121/10
75-15-0	Carbon disulfide	5000	4450	89	4440	89	0	67-131/11
56-23-5	Carbon tetrachloride	5000	4750	95	4870	97	2	72-130/11
108-90-7	Chlorobenzene	5000	4730	95	4860	97	3	83-114/10
75-00-3	Chloroethane	5000	4870	97	5100	102	5	67-141/12
67-66-3	Chloroform	5000	4150	83	4170	83	0	76-115/10
74-87-3	Chloromethane	5000	4520	90	4370	87	3	57-141/13
95-49-8	o-Chlorotoluene	5000	4600	92	4670	93	2	81-118/10
106-43-4	p-Chlorotoluene	5000	4590	92	4590	92	0	78-117/10
108-20-3	Di-Isopropyl ether	5000	4900	98	4840	97	1	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	5000	4000	80	4600	92	14*[a]	72-131/11
124-48-1	Dibromochloromethane	5000	4790	96	4980	100	4	80-128/10
106-93-4	1,2-Dibromoethane	5000	4610	92	4870	97	5	58-145/10
95-50-1	1,2-Dichlorobenzene	5000	4730	95	4770	95	1	83-117/10
541-73-1	1,3-Dichlorobenzene	5000	4740	95	4740	95	0	82-114/10
106-46-7	1,4-Dichlorobenzene	5000	4510	90	4590	92	2	79-114/10
75-71-8	Dichlorodifluoromethane	5000	4610	92	4590	92	0	49-146/13
75-34-3	1,1-Dichloroethane	5000	4480	90	4460	89	0	76-126/10
107-06-2	1,2-Dichloroethane	5000	4720	94	4810	96	2	76-118/10
75-35-4	1,1-Dichloroethene	5000	4590	92	4530	91	1	72-125/11
156-59-2	cis-1,2-Dichloroethene	5000	4540	91	4490	90	1	80-118/10
156-60-5	trans-1,2-Dichloroethene	5000	4340	87	4330	87	0	76-122/10
78-87-5	1,2-Dichloropropane	5000	4860	97	4950	99	2	82-123/10
142-28-9	1,3-Dichloropropane	5000	4560	91	4770	95	5	84-120/10
594-20-7	2,2-Dichloropropane	5000	4460	89	4450	89	0	66-130/11
563-58-6	1,1-Dichloropropene	5000	4660	93	4610	92	1	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8050-BS	3D192620.D	1	09/22/23	JN	n/a	n/a	V3D8050
V3D8050-BSD	3D192621.D	1	09/22/23	JN	n/a	n/a	V3D8050

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	5000	4940	99	5030	101	2	83-123/10
10061-02-6	trans-1,3-Dichloropropene	5000	4740	95	4890	98	3	83-123/10
123-91-1	1,4-Dioxane	125000	96000	77	115000	92	18	64-163/20
60-29-7	Ethyl Ether	5000	4500	90	4460	89	1	78-131/10
100-41-4	Ethylbenzene	5000	4840	97	4950	99	2	83-115/10
87-68-3	Hexachlorobutadiene	5000	4310	86	4220	84	2	65-130/11
591-78-6	2-Hexanone	20000	20000	100	22300	112	11* [a]	73-138/10
98-82-8	Isopropylbenzene	5000	5100	102	5210	104	2	81-122/11
99-87-6	p-Isopropyltoluene	5000	4830	97	4850	97	0	80-120/10
1634-04-4	Methyl Tert Butyl Ether	5000	4660	93	4750	95	2	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	20000	20100	101	22000	110	9	71-138/10
74-95-3	Methylene bromide	5000	4690	94	4860	97	4	81-122/10
75-09-2	Methylene chloride	5000	4010	80	4040	81	1	73-122/10
91-20-3	Naphthalene	5000	4070	81	4580	92	12	71-129/14
103-65-1	n-Propylbenzene	5000	4640	93	4600	92	1	77-120/10
100-42-5	Styrene	5000	5170	103	5300	106	2	84-122/10
994-05-8	tert-Amyl Methyl Ether	5000	5060	101	5230	105	3	77-125/11
637-92-3	tert-Butyl Ethyl Ether	5000	4600	92	4620	92	0	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	5000	4870	97	5060	101	4	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	5000	4190	84	4350	87	4	75-127/10
127-18-4	Tetrachloroethene	5000	4730	95	4850	97	3	73-125/11
109-99-9	Tetrahydrofuran	5000	4500	90	4730	95	5	61-136/11
108-88-3	Toluene	5000	4770	95	4850	97	2	82-118/10
87-61-6	1,2,3-Trichlorobenzene	5000	4210	84	4530	91	7	68-132/13
120-82-1	1,2,4-Trichlorobenzene	5000	4390	88	4580	92	4	72-133/12
71-55-6	1,1,1-Trichloroethane	5000	4500	90	4450	89	1	77-124/11
79-00-5	1,1,2-Trichloroethane	5000	4450	89	4710	94	6	83-122/10
79-01-6	Trichloroethene	5000	4980	100	5070	101	2	80-122/10
75-69-4	Trichlorofluoromethane	5000	4490	90	4440	89	1	69-132/11
96-18-4	1,2,3-Trichloropropane	5000	4400	88	4660	93	6	80-120/10
95-63-6	1,2,4-Trimethylbenzene	5000	4550	91	4650	93	2	80-119/10
108-67-8	1,3,5-Trimethylbenzene	5000	4730	95	4720	94	0	79-120/10
75-01-4	Vinyl chloride	5000	4820	96	4880	98	1	60-144/13
	m,p-Xylene	10000	9950	100	10300	103	3	82-119/10
95-47-6	o-Xylene	5000	4950	99	5080	102	3	84-120/10
1330-20-7	Xylene (total)	15000	14900	99	15400	103	3	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8050-BS	3D192620.D	1	09/22/23	JN	n/a	n/a	V3D8050
V3D8050-BSD	3D192621.D	1	09/22/23	JN	n/a	n/a	V3D8050

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	92%	92%	80-124%
17060-07-0	1,2-Dichloroethane-D4	97%	99%	75-133%
2037-26-5	Toluene-D8	95%	97%	79-125%
460-00-4	4-Bromofluorobenzene	90%	91%	58-148%

(a) Outside in house control limits.

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8867-BS	Y203601.D	1	09/23/23	PS	n/a	n/a	VY8867
VY8867-BSD	Y203602.D	1	09/23/23	PS	n/a	n/a	VY8867

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	211	106	202	101	4	52-156/12
71-43-2	Benzene	50	55.5	111	53.0	106	5	82-119/10
108-86-1	Bromobenzene	50	55.5	111	53.3	107	4	82-115/10
74-97-5	Bromochloromethane	50	57.7	115	55.2	110	4	82-123/10
75-27-4	Bromodichloromethane	50	56.3	113	53.9	108	4	83-121/10
75-25-2	Bromoform	50	61.4	123	59.2	118	4	74-138/10
74-83-9	Bromomethane	50	50.9	102	47.4	95	7	56-150/12
78-93-3	2-Butanone (MEK)	200	222	111	210	105	6	72-138/10
104-51-8	n-Butylbenzene	50	54.8	110	53.0	106	3	81-124/11
135-98-8	sec-Butylbenzene	50	54.1	108	52.0	104	4	78-120/10
98-06-6	tert-Butylbenzene	50	54.0	108	52.0	104	4	78-121/10
75-15-0	Carbon disulfide	50	54.3	109	52.2	104	4	67-131/11
56-23-5	Carbon tetrachloride	50	58.3	117	56.0	112	4	72-130/11
108-90-7	Chlorobenzene	50	54.3	109	51.9	104	5	83-114/10
75-00-3	Chloroethane	50	53.8	108	50.2	100	7	67-141/12
67-66-3	Chloroform	50	49.7	99	48.1	96	3	76-115/10
74-87-3	Chloromethane	50	47.9	96	44.9	90	6	57-141/13
95-49-8	o-Chlorotoluene	50	53.4	107	52.6	105	2	81-118/10
106-43-4	p-Chlorotoluene	50	54.0	108	52.0	104	4	78-117/10
108-20-3	Di-Isopropyl ether	50	56.9	114	54.8	110	4	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	57.4	115	55.7	111	3	72-131/11
124-48-1	Dibromochloromethane	50	57.1	114	56.4	113	1	80-128/10
106-93-4	1,2-Dibromoethane	50	57.0	114	55.6	111	2	58-145/10
95-50-1	1,2-Dichlorobenzene	50	55.1	110	53.2	106	4	83-117/10
541-73-1	1,3-Dichlorobenzene	50	55.2	110	53.0	106	4	82-114/10
106-46-7	1,4-Dichlorobenzene	50	54.7	109	52.7	105	4	79-114/10
75-71-8	Dichlorodifluoromethane	50	56.3	113	53.3	107	5	49-146/13
75-34-3	1,1-Dichloroethane	50	54.3	109	52.2	104	4	76-126/10
107-06-2	1,2-Dichloroethane	50	53.7	107	50.8	102	6	76-118/10
75-35-4	1,1-Dichloroethene	50	56.3	113	53.6	107	5	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	57.1	114	54.2	108	5	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	54.3	109	52.3	105	4	76-122/10
78-87-5	1,2-Dichloropropane	50	57.3	115	54.0	108	6	82-123/10
142-28-9	1,3-Dichloropropane	50	55.1	110	54.1	108	2	84-120/10
594-20-7	2,2-Dichloropropane	50	54.8	110	53.2	106	3	66-130/11
563-58-6	1,1-Dichloropropene	50	56.8	114	55.0	110	3	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8867-BS	Y203601.D	1	09/23/23	PS	n/a	n/a	VY8867
VY8867-BSD	Y203602.D	1	09/23/23	PS	n/a	n/a	VY8867

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	57.6	115	54.8	110	5	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	56.5	113	54.6	109	3	83-123/10
123-91-1	1,4-Dioxane	1250	1600	128	1620	130	1	64-163/20
60-29-7	Ethyl Ether	50	55.5	111	53.9	108	3	78-131/10
100-41-4	Ethylbenzene	50	52.3	105	50.5	101	4	83-115/10
87-68-3	Hexachlorobutadiene	50	56.1	112	53.6	107	5	65-130/11
591-78-6	2-Hexanone	200	216	108	205	103	5	73-138/10
98-82-8	Isopropylbenzene	50	53.0	106	51.6	103	3	81-122/11
99-87-6	p-Isopropyltoluene	50	54.4	109	52.9	106	3	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	57.2	114	55.3	111	3	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	246	123	236	118	4	71-138/10
74-95-3	Methylene bromide	50	55.8	112	54.3	109	3	81-122/10
75-09-2	Methylene chloride	50	46.2	92	45.1	90	2	73-122/10
91-20-3	Naphthalene	50	53.8	108	52.3	105	3	71-129/14
103-65-1	n-Propylbenzene	50	52.3	105	50.5	101	4	77-120/10
100-42-5	Styrene	50	52.7	105	51.6	103	2	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	57.4	115	55.2	110	4	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	56.1	112	54.6	109	3	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	57.7	115	56.4	113	2	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	54.6	109	52.3	105	4	75-127/10
127-18-4	Tetrachloroethene	50	56.7	113	54.5	109	4	73-125/11
109-99-9	Tetrahydrofuran	50	55.2	110	53.3	107	4	61-136/11
108-88-3	Toluene	50	53.9	108	52.1	104	3	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	56.8	114	54.8	110	4	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	58.0	116	55.0	110	5	72-133/12
71-55-6	1,1,1-Trichloroethane	50	56.8	114	54.7	109	4	77-124/11
79-00-5	1,1,2-Trichloroethane	50	57.2	114	55.1	110	4	83-122/10
79-01-6	Trichloroethene	50	57.8	116	55.0	110	5	80-122/10
75-69-4	Trichlorofluoromethane	50	51.1	102	49.5	99	3	69-132/11
96-18-4	1,2,3-Trichloropropane	50	52.8	106	50.7	101	4	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	55.0	110	52.9	106	4	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	54.7	109	51.7	103	6	79-120/10
75-01-4	Vinyl chloride	50	51.8	104	49.0	98	6	60-144/13
	m,p-Xylene	100	105	105	101	101	4	82-119/10
95-47-6	o-Xylene	50	51.7	103	50.4	101	3	84-120/10
1330-20-7	Xylene (total)	150	157	105	152	101	3	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VY8867-BS	Y203601.D	1	09/23/23	PS	n/a	n/a	VY8867
VY8867-BSD	Y203602.D	1	09/23/23	PS	n/a	n/a	VY8867

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	96%	96%	80-124%
17060-07-0	1,2-Dichloroethane-D4	92%	91%	75-133%
2037-26-5	Toluene-D8	95%	95%	79-125%
460-00-4	4-Bromofluorobenzene	97%	97%	58-148%

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-BS	3D192651.D	1	09/25/23	JN	n/a	n/a	V3D8051
V3D8051-BSD	3D192652.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73168-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
127-18-4	Tetrachloroethene	2500	2450	98	2380	95	3	73-125/11

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	96%	95%	80-124%
17060-07-0	1,2-Dichloroethane-D4	99%	99%	75-133%
2037-26-5	Toluene-D8	96%	95%	79-125%
460-00-4	4-Bromofluorobenzene	90%	92%	58-148%

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* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: V3D8050-CC8035 **Injection Date:** 09/22/23
Lab File ID: 3D192618.D **Injection Time:** 09:58
Instrument ID: GCMS3D **Method:** SW846 8260D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	180529	2.69	522617	3.86	947121	4.40	869010	6.76	400979	8.94
Upper Limit [a]	361058	3.19	1045234	4.36	1894242	4.90	1738020	7.26	801958	9.44
Lower Limit [b]	90265	2.19	261309	3.36	473561	3.90	434505	6.26	200490	8.44

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V3D8050-BS	161824	2.69	540862	3.86	973254	4.40	892154	6.76	421192	8.94
V3D8050-BSD	187166	2.69	547206	3.86	973906	4.40	887387	6.76	431914	8.94
V3D8050-MB	151548	2.69	486499	3.86	875268	4.40	792550	6.76	365039	8.94
ZZZZZZ	151548	2.69	486499	3.86	875268	4.40	792550	6.76	365039	8.94
ZZZZZZ	167892	2.69	499998	3.86	907797	4.40	824029	6.76	375672	8.94
JD72931-2	188166	2.70	486530	3.86	874630	4.40	794418	6.76	364486	8.94
JD73168-2	178343	2.70	468225	3.86	827131	4.40	757254	6.76	349516	8.94
ZZZZZZ	174845	2.69	533444	3.86	1116809	4.40	1084994	6.76	530269	8.94
ZZZZZZ	197643	2.69	532268	3.86	1029550	4.40	1100294	6.76	565070	8.94
JD72931-2MS	225305	2.70	559896	3.86	1015518	4.40	926047	6.76	457251	8.94
JD72931-2MSD	215549	2.70	555397	3.86	995487	4.40	907357	6.76	448116	8.94
ZZZZZZ	187690	2.70	513018	3.86	925339	4.40	853276	6.76	397871	8.94
ZZZZZZ	199898	2.69	517451	3.86	935515	4.40	876664	6.76	412557	8.94
ZZZZZZ	201486	2.69	519638	3.86	925145	4.40	853615	6.76	411538	8.94
ZZZZZZ	209133	2.70	495886	3.86	892011	4.40	873202	6.76	460016	8.94
ZZZZZZ	210868	2.70	513349	3.86	916260	4.40	837523	6.76	396708	8.94
ZZZZZZ	208619	2.70	512179	3.86	923485	4.40	852616	6.76	395500	8.94
ZZZZZZ	253067	2.70	526588	3.86	990105	4.40	963458	6.76	470175	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: V3D8051-CC8035
Lab File ID: 3D192650.D
Instrument ID: GCMS3D
Injection Date: 09/25/23
Injection Time: 09:53
Method: SW846 8260D

	IS 1 AREA	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
Check Std	200829	2.69	471334	3.86	887667	4.40	831755	6.76	388703	8.94
Upper Limit [a]	401658	3.19	942668	4.36	1775334	4.90	1663510	7.26	777406	9.44
Lower Limit [b]	100415	2.19	235667	3.36	443834	3.90	415878	6.26	194352	8.44

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
V3D8051-BS	191675	2.69	500893	3.86	931565	4.40	867266	6.76	421523	8.94
V3D8051-BSD	211102	2.69	504706	3.86	934178	4.40	873471	6.76	419139	8.94
V3D8051-MB	201105	2.70	479149	3.86	895292	4.40	817626	6.76	372732	8.94
ZZZZZZ	201105	2.70	479149	3.86	895292	4.40	817626	6.76	372732	8.94
ZZZZZZ	187178	2.70	451464	3.86	839357	4.40	769253	6.76	353706	8.94
ZZZZZZ	178117	2.70	458116	3.86	843957	4.40	779744	6.76	357773	8.94
ZZZZZZ	192194	2.70	468399	3.86	873120	4.40	798355	6.76	362476	8.94
ZZZZZZ	176006	2.70	435224	3.86	808270	4.40	738151	6.76	343880	8.94
ZZZZZZ	161463	2.70	439605	3.86	813852	4.40	752914	6.76	344605	8.94
ZZZZZZ	178523	2.70	437443	3.86	818449	4.40	758551	6.76	342293	8.94
ZZZZZZ	184881	2.70	441252	3.86	823046	4.40	752218	6.76	342191	8.94
ZZZZZZ	181102	2.70	437701	3.86	819125	4.40	746533	6.76	345415	8.94
JD73193-2	227562	2.70	551497	3.86	1020141	4.40	904929	6.76	426047	8.94
JD73168-1	198301	2.69	515271	3.86	947385	4.40	877185	6.76	393186	8.94
ZZZZZZ	185853	2.69	491274	3.86	912594	4.40	857482	6.76	431328	8.94
JD73193-2MS	188888	2.70	493216	3.86	913702	4.40	841475	6.76	432776	8.94
JD73193-2MSD	221980	2.70	511256	3.86	942352	4.40	863551	6.76	443819	8.94
JD73168-1	194966	2.69	477688	3.86	877635	4.40	801512	6.76	361999	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: VY8866-CC8857
Lab File ID: Y203566.D
Instrument ID: GCMSY
Injection Date: 09/22/23
Injection Time: 10:13
Method: SW846 8260D

	IS 1 AREA	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
Check Std	106644	1.94	272249	3.06	469065	3.62	418429	6.07	254891	7.94
Upper Limit [a]	213288	2.44	544498	3.56	938130	4.12	836858	6.57	509782	8.44
Lower Limit [b]	53322	1.44	136125	2.56	234533	3.12	209215	5.57	127446	7.44

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
VY8865-BS2	117371	1.93	278922	3.06	484504	3.61	418331	6.06	260211	7.94
VY8866-BS	117371	1.93	278922	3.06	484504	3.61	418331	6.06	260211	7.94
VY8866-BSD	115272	1.93	269648	3.06	470501	3.61	410058	6.06	252271	7.94
VY8865-BSD2	115272	1.93	269648	3.06	470501	3.61	410058	6.06	252271	7.94
VY8865-MB2	118147	1.93	285454	3.06	454601	3.61	402405	6.06	257270	7.94
ZZZZZZ	118147	1.93	285454	3.06	454601	3.61	402405	6.06	257270	7.94
VY8866-MB	118147	1.93	285454	3.06	454601	3.61	402405	6.06	257270	7.94
JD73068-2MS	108944	1.94	292035	3.06	508774	3.61	440393	6.06	269570	7.94
ZZZZZZ	97120	1.93	293584	3.06	474387	3.61	424252	6.06	271939	7.94
ZZZZZZ	119525	1.93	298805	3.05	480187	3.61	431509	6.06	278575	7.94
JD73136-2	99098	1.93	278583	3.05	441374	3.61	397675	6.06	257877	7.94
JD73136-4	90477	1.93	253967	3.06	412380	3.61	374580	6.06	237727	7.94
ZZZZZZ	101480	1.94	279439	3.06	450661	3.62	409724	6.06	260049	7.94
ZZZZZZ	93058	1.93	275502	3.06	441910	3.61	399351	6.06	251533	7.94
ZZZZZZ	121468	1.94	275052	3.06	445346	3.61	403012	6.06	259940	7.94
ZZZZZZ	94819	1.94	274683	3.05	447249	3.62	403299	6.06	244884	7.94
JD73168-1	102189	1.93	299376	3.05	498247	3.62	492289	6.07	272037	7.94
JD73136-2MS	102805	1.93	273140	3.06	474693	3.61	408191	6.06	247882	7.94
ZZZZZZ	109239	1.93	274371	3.06	440248	3.61	403258	6.06	261073	7.94
ZZZZZZ	102327	1.93	277656	3.06	448253	3.61	404042	6.06	254872	7.94
ZZZZZZ	115775	1.93	283241	3.06	461752	3.62	415650	6.06	259022	7.94
JD73242-10	102055	1.94	270533	3.06	437724	3.62	396877	6.06	252500	7.94
ZZZZZZ	116070	1.93	274150	3.05	436789	3.61	394536	6.06	247641	7.94
ZZZZZZ	97441	1.94	274724	3.06	440479	3.61	395117	6.06	255788	7.94
ZZZZZZ	122604	1.93	271619	3.06	446615	3.62	402415	6.06	256083	7.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: VY8867-CC8857
Lab File ID: Y203600.D
Instrument ID: GCMSY
Injection Date: 09/23/23
Injection Time: 11:26
Method: SW846 8260D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	109038	1.94	265895	3.06	463331	3.62	401572	6.06	249142	7.94
Upper Limit [a]	218076	2.44	531790	3.56	926662	4.12	803144	6.56	498284	8.44
Lower Limit [b]	54519	1.44	132948	2.56	231666	3.12	200786	5.56	124571	7.44

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VY8867-BS	117004	1.93	270657	3.06	465329	3.62	415940	6.06	251488	7.94
VY8866-BS2	117004	1.93	270657	3.06	465329	3.62	415940	6.06	251488	7.94
VY8867-BSD	112915	1.93	273433	3.06	474688	3.61	416818	6.06	253191	7.94
VY8866-BSD2	112915	1.93	273433	3.06	474688	3.61	416818	6.06	253191	7.94
ZZZZZZ	81102	1.93	277623	3.06	432526	3.62	392745	6.06	252471	7.94
VY8866-MB2	81102	1.93	277623	3.06	432526	3.62	392745	6.06	252471	7.94
VY8867-MB	81102	1.93	277623	3.06	432526	3.62	392745	6.06	252471	7.94
JD73242-10DUP	114073	1.93	278223	3.06	449931	3.61	400673	6.06	255993	7.94
JD73219-1	78584	1.93	268435	3.06	423175	3.61	386157	6.06	244930	7.94
JD73219-2	97936	1.93	274154	3.06	431621	3.62	393768	6.07	252618	7.94
ZZZZZZ	101455	1.93	273838	3.05	440681	3.61	398639	6.06	256419	7.94
ZZZZZZ	96451	1.93	271210	3.06	435466	3.61	386725	6.06	251441	7.94
ZZZZZZ	93784	1.93	264226	3.06	421921	3.62	384203	6.06	240034	7.94
ZZZZZZ	104052	1.93	271826	3.06	432677	3.61	393320	6.06	251106	7.94
ZZZZZZ	95902	1.93	265524	3.05	423104	3.61	383261	6.06	240520	7.94
ZZZZZZ	98772	1.93	267251	3.06	429702	3.62	391324	6.06	250476	7.94
JD73219-1MS	103909	1.93	268642	3.06	469684	3.61	410122	6.06	252651	7.94
JD73168-3	91777	1.93	257566	3.05	405275	3.62	373523	6.06	239604	7.94
JD73219-2DUP	77156	1.93	248334	3.06	399923	3.62	363311	6.06	230376	7.94
ZZZZZZ	95356	1.93	285797	3.05	460834	3.61	414643	6.06	270155	7.94
ZZZZZZ	106838	1.93	271545	3.06	439550	3.62	402945	6.06	261390	7.94
ZZZZZZ	113765	1.93	267965	3.05	432179	3.61	392390	6.06	249748	7.94
ZZZZZZ	105007	1.93	262520	3.05	426623	3.61	388336	6.06	252127	7.94
ZZZZZZ	102895	1.93	265885	3.06	428456	3.62	381083	6.06	231363	7.94
ZZZZZZ	97440	1.93	263690	3.05	447199	3.61	385919	6.06	231727	7.94
ZZZZZZ	118910	1.93	281444	3.05	448158	3.61	408368	6.06	262604	7.94
ZZZZZZ	105685	1.93	278903	3.05	446128	3.62	405460	6.06	264775	7.94
ZZZZZZ	85080	1.93	278581	3.06	442116	3.61	398173	6.06	256192	7.94
ZZZZZZ	85028	1.93	278512	3.05	457217	3.61	402078	6.06	253422	7.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

Internal Standard Area Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std:	VY8867-CC8857	**Injection Date:**	09/23/23
Lab File ID:	Y203600.D	**Injection Time:**	11:26
Instrument ID:	GCMSY	**Method:**	SW846 8260D

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Surrogate Recovery Summary

Job Number: JD73168
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Method: SW846 8260D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JD73168-1	3D192665.D	93	101	96	93
JD73168-1	3D192672.D	91	99	96	91
JD73168-1	Y203581.D	90	89	91	98
JD73168-2	3D192627.D	87	99	96	89
JD73168-3	Y203616.D	98	101	97	97
V3D8050-BS	3D192620.D	92	97	95	90
V3D8050-BSD	3D192621.D	92	99	97	91
V3D8050-MB	3D192623.D	89	98	96	90
V3D8051-BS	3D192651.D	96	99	96	90
V3D8051-BSD	3D192652.D	95	99	95	92
V3D8051-MB	3D192654.D	93	100	96	90
VY8866-BS	Y203567.D	96	90	97	95
VY8866-BSD	Y203568.D	96	91	98	96
VY8866-MB	Y203570.D	98	99	98	97
VY8867-BS	Y203601.D	96	92	95	97
VY8867-BSD	Y203602.D	96	91	95	97
VY8867-MB	Y203604.D	95	94	98	96

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-124%
S2 = 1,2-Dichloroethane-D4	75-133%
S3 = Toluene-D8	79-125%
S4 = 4-Bromofluorobenzene	58-148%

SGS

Dayton, NJ

09/28/23

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Jacobs Engineering

Varian, Beverly, MA

VARMS105.A.CS.EV.02.FT PO#148048917

SGS Job Number: JD73274

Sampling Date: 09/21/23

Report to:

Jacobs Engineering
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ATTN: Raymond J. Cadorette

Total number of pages in report: **51**

NELAP ACCREDITED TNI LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Victoria Pushkova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Jacobs Engineering

Job No: JD73274

Varian, Beverly, MA
Project No: VARMS105.A.CS.EV.02.FT PO#148048917

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD73274-1	09/21/23	09:10	DK	09/21/23	SO	Soil	VAR-PSL10-SO-OB61_19-20_230921
JD73274-2	09/21/23	09:10	DK	09/21/23	SO	Trip Blank Methanol	TB_20230921_SO_02M
JD73274-3	09/21/23	09:10	DK	09/21/23	SO	Trip Blank Soil	TB_20230921_SO_02L

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the RL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Jacobs Engineering **Job No:** JD73274

Site: Varian, Beverly, MA **Report Date** 9/28/2023 3:59:50 PM

On 09/21/2023, 1 sample(s), 2 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0.7 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD73274 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** V3D8051

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73274-2 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73274-2 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73274-2 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.

Matrix: SO **Batch ID:** V3D8053

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: SO **Batch ID:** VI10236

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73274-3 for Acetone: Associated CCV outside of control limits high. This compound is outside the RCP limits in the associated BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73274-3 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73274-3 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73274-1 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73274-1 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73274-1 for Acetone: Associated CCV outside of control limits high. This compound is outside the RCP limits in the associated BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- Not all RL meet the requirement.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO **Batch ID:** GN46314

- The data for SM2540 G 18TH ED MOD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73274-1	**VAR-PSL10-SO-OB61_19-20_230921**					
Acetone [a]		23.4	8.0		ug/kg	SW846 8260D
1,2-Dichlorobenzene		5.2	0.80		ug/kg	SW846 8260D
cis-1,2-Dichloroethene		35.1	0.80		ug/kg	SW846 8260D
Ethylbenzene		1.9	0.80		ug/kg	SW846 8260D
Tetrachloroethene		6040	85		ug/kg	SW846 8260D
Trichloroethene		616	43		ug/kg	SW846 8260D
m,p-Xylene		1.8	0.80		ug/kg	SW846 8260D
Xylene (total)		2.0	0.80		ug/kg	SW846 8260D
JD73274-2	**TB_20230921_SO_02M**					
No hits reported in this sample.						
JD73274-3	**TB_20230921_SO_02L**					
Acetone [a]		12.1	10		ug/kg	SW846 8260D

(a) Associated CCV outside of control limits high. This compound is outside the RCP limits in the associated BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VAR-PSL10-SO-OB61_19-20_230921		
Lab Sample ID:	JD73274-1	**Date Sampled:**	09/21/23
Matrix:	SO - Soil	**Date Received:**	09/21/23
Method:	SW846 8260D	**Percent Solids:**	93.1
Project:	Varian, Beverly, MA		

	File ID	**DF**	**Analyzed**	**By**	**Prep Date**	**Prep Batch**	**Analytical Batch**
Run #1	I252319.D	1	09/26/23 12:47	JN	n/a	n/a	VI10236
Run #2	3D192721.D	1	09/27/23 14:22	JN	n/a	n/a	V3D8053

	Initial Weight	**Final Volume**	**Methanol Aliquot**
Run #1	6.7 g		
Run #2	13.8 g	10.0 ml	100 ul

VOA MCP List

CAS No.	**Compound**	**Result**	**RL**	**Units**	**Q**
67-64-1	Acetone [a]	23.4	8.0	ug/kg	
71-43-2	Benzene	ND	0.40	ug/kg	
108-86-1	Bromobenzene	ND	4.0	ug/kg	
74-97-5	Bromochloromethane	ND	4.0	ug/kg	
75-27-4	Bromodichloromethane	ND	1.6	ug/kg	
75-25-2	Bromoform	ND	4.0	ug/kg	
74-83-9	Bromomethane	ND	4.0	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	8.0	ug/kg	
104-51-8	n-Butylbenzene	ND	1.6	ug/kg	
135-98-8	sec-Butylbenzene	ND	1.6	ug/kg	
98-06-6	tert-Butylbenzene	ND	1.6	ug/kg	
75-15-0	Carbon disulfide	ND	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.6	ug/kg	
108-90-7	Chlorobenzene	ND	1.6	ug/kg	
75-00-3	Chloroethane	ND	4.0	ug/kg	
67-66-3	Chloroform	ND	1.6	ug/kg	
74-87-3	Chloromethane	ND	4.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	1.6	ug/kg	
106-43-4	p-Chlorotoluene	ND	1.6	ug/kg	
108-20-3	Di-Isopropyl ether	ND	1.6	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	1.6	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.80	ug/kg	
95-50-1	1,2-Dichlorobenzene	5.2	0.80	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.80	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.80	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.80	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.80	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.80	ug/kg	
156-59-2	cis-1,2-Dichloroethene	35.1	0.80	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.80	ug/kg	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR-PSL10-SO-OB61_19-20_230921		
Lab Sample ID:	JD73274-1	**Date Sampled:**	09/21/23
Matrix:	SO - Soil	**Date Received:**	09/21/23
Method:	SW846 8260D	**Percent Solids:**	93.1
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	1.6	ug/kg	
142-28-9	1,3-Dichloropropane	ND	1.6	ug/kg	
594-20-7	2,2-Dichloropropane	ND	1.6	ug/kg	
563-58-6	1,1-Dichloropropene	ND	1.6	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.6	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.6	ug/kg	
123-91-1	1,4-Dioxane	ND	100	ug/kg	
60-29-7	Ethyl Ether	ND	1.6	ug/kg	
100-41-4	Ethylbenzene	1.9	0.80	ug/kg	
87-68-3	Hexachlorobutadiene	ND	4.0	ug/kg	
591-78-6	2-Hexanone [c]	ND	4.0	ug/kg	
98-82-8	Isopropylbenzene	ND	1.6	ug/kg	
99-87-6	p-Isopropyltoluene	ND	1.6	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.80	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.0	ug/kg	
74-95-3	Methylene bromide	ND	4.0	ug/kg	
75-09-2	Methylene chloride	ND	4.0	ug/kg	
91-20-3	Naphthalene	ND	4.0	ug/kg	
103-65-1	n-Propylbenzene	ND	1.6	ug/kg	
100-42-5	Styrene	ND	1.6	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	1.6	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	1.6	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.6	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.6	ug/kg	
127-18-4	Tetrachloroethene	6040 [d]	85	ug/kg	
109-99-9	Tetrahydrofuran	ND	8.0	ug/kg	
108-88-3	Toluene	ND	0.80	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/kg	
79-01-6	Trichloroethene	616 [d]	43	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	4.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	1.6	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	1.6	ug/kg	
75-01-4	Vinyl chloride	ND	1.6	ug/kg	
	m,p-Xylene	1.8	0.80	ug/kg	
95-47-6	o-Xylene	ND	0.80	ug/kg	
1330-20-7	Xylene (total)	2.0	0.80	ug/kg	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR-PSL10-SO-OB61_19-20_230921		
Lab Sample ID:	JD73274-1	**Date Sampled:**	09/21/23
Matrix:	SO - Soil	**Date Received:**	09/21/23
Method:	SW846 8260D	**Percent Solids:**	93.1
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%	87%	80-124%
17060-07-0	1,2-Dichloroethane-D4	110%	99%	75-133%
2037-26-5	Toluene-D8	98%	94%	79-125%
460-00-4	4-Bromofluorobenzene	96%	91%	58-148%

(a) Associated CCV outside of control limits high. This compound is outside the RCP limits in the associated BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(c) Associated CCV outside of control limits high, sample was ND.
(d) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	TB_20230921_SO_02M		
Lab Sample ID:	JD73274-2	**Date Sampled:**	09/21/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/21/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D192661.D	1	09/25/23 14:36	JN	n/a	n/a	V3D8051
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK) [a]	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230921_SO_02M
Lab Sample ID: JD73274-2
Matrix: SO - Trip Blank Methanol
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/21/23
Date Received: 09/21/23
Percent Solids: n/a

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone [b]	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230921_SO_02M		
Lab Sample ID:	JD73274-2	**Date Sampled:**	09/21/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/21/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		80-124%
17060-07-0	1,2-Dichloroethane-D4	98%		75-133%
2037-26-5	Toluene-D8	94%		79-125%
460-00-4	4-Bromofluorobenzene	90%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	J = Indicates an estimated value
RL = Reporting Limit	B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range	N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	TB_20230921_SO_02L		
Lab Sample ID:	JD73274-3	**Date Sampled:**	09/21/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/21/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252318.D	1	09/26/23 12:25	JN	n/a	n/a	VI10236
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	12.1	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230921_SO_02L
Lab Sample ID: JD73274-3
Matrix: SO - Trip Blank Soil
Method: SW846 8260D
Project: Varian, Beverly, MA
Date Sampled: 09/21/23
Date Received: 09/21/23
Percent Solids: n/a

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone [c]	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230921_SO_02L		
Lab Sample ID:	JD73274-3	**Date Sampled:**	09/21/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/21/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		80-124%
17060-07-0	1,2-Dichloroethane-D4	99%		75-133%
2037-26-5	Toluene-D8	100%		79-125%
460-00-4	4-Bromofluorobenzene	95%		58-148%

(a) Associated CCV outside of control limits high. This compound is outside the RCP limits in the associated BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- MCP Form
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits

SO
SL
MTB
SSTB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

EHSA-QAC-0023-04-FORM-Standard COC

Page 1 of 1

FED-EX Tracking #
Bottle Order Control # VP-083023-128
SGS Quote #
SGS Job # JD73274

Client / Reporting Information
Company Name: Jacobs Engineering
Street Address: 120 St James
City: Boston State: MA Zip:
Project Contact: Bernice.Kidd@Jacobs.Com E-mail:
Phone #: 530-209-3480
Sampler(s) Name(s): D. Kearney Phone #: 7817104276

Project Information
Project Name: Varian Medical Systems
Street: 150 Sohier
City: Beverly State: MA
Project #: VARMS111.ACS.EV.0219
Client Purchase Order #: 14804891 7
Project Manager: Raymond Cadorette

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis: SW 8260C

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	SW 8260C	pH Check (Lab Use Only)	LAB USE ONLY
1	VAR_PSUO_SO_0B61_19-21_20230921		9/21/23	0910	DK	G		SO	4					1	2	1		X	PID = 7,962	977
2	TB_20230921_SO_02M								1							1		X		1456
3	TB_20230921_SO_02L								2						2			X		4929

Initial Assessment NB3B

Label Verification ________

SGS Service Center
Northborough, MA
9/21

SGS Courier

Turn Around Time (Business Days)
☐ ~~10 Business Days~~
☒ 5 Business Days
☐ 3 Business Days*
☐ 2 Business Days*
☐ 1 Business Day*
☐ Other ________
All data available via Lablink

Approved By (SGS PM): / Date:
5day TAT on
DK TF

* Approval needed for 1-3 Business Day TAT

Deliverable
☐ Commercial "A" (Level 1)
☐ Commercial "B" (Level 2)
☐ NJ Reduced (Level 3)
☐ Full Tier I (Level 4)
☐ Commercial "C"
☐ NJ DKQP
☐ NYASP Category A
☐ NYASP Category B
☐ MA MCP Criteria ______
☐ CT RCP Criteria ______
☐ State Forms
☐ EDD Format ________
☐ DOD-QSM5

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions
Please analyze either methanol or low level vial based on PID readings and instrument sensitivity. Analyze TB for both

SGS Service Center
Northborough, MA

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by:	Date / Time:	Received By:	Relinquished By:	Date / Time:	Received By:
1 1327	9/21/23	1	2	9/21/23 16:20	2 Scott Parsons
3 Scott Parsons	9/21/23 19:00	3 Brandon Malloy	4 Brandon Malloy	9-21-23 22:05	4 James Knox
5		5	Custody Seal #	☐ Intact ☐ Not intact ☐ Absent	Therm ID: See Sample Receipt Summary; On Ice ☑; Cooler Temp. °C 1.0

JD73274: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: JD73274 **Client:** JACOBS ENGINEERING **Project:** VARIAN, BEVERLY, MA

Date / Time Received: 9/21/2023 10:05:00 PM **Delivery Method:** ______ **Airbill #'s:** ______

Cooler Temps (Raw Measured) °C: Cooler 1: (1.0);

Cooler Temps (Corrected) °C: Cooler 1: (0.7);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐

2. Cooler temp verification: IR Gun 40
3. Cooler media: Ice (Bag)
4. No. Coolers: 1

Quality Control Preservatio	Y	N	N/A
1. Trip Blank present / cooler:	☑	☐	☐
2. Trip Blank listed on COC:	☑	☐	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐

3. Condition of sample: Intact

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify) ______ ______

Comments

SM089-03
Rev. Date 12/7/17

JD73274: Chain of Custody
Page 2 of 2

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	SGS North America Inc. - Dayton	Project #:	JD73274
Project Location:	Varian, Beverly, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
JD73274-1,JD73274-2,JD73274-3

Matrices: Groundwater/Surface Water ( ) Soil/Sediment (x) Drinking Water ( ) Air ( ) Other (X)

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr ( ) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC ( ) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals ( ) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total ( ) Cyanide/PAC CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No

Responses to questions G, H, and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☐ Yes	☑ No[1]
	<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.		
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes	☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No[1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:

Position: **General Manager**

Printed Name: David Chastain

Date: **28-Sep-23**

Internal Sample Tracking Chronicle

Jacobs Engineering

Job No: JD73274

Varian, Beverly, MA
Project No: VARMS105.A.CS.EV.02.FT PO#148048917

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD73274-1	Collected: 21-SEP-23 09:10 By: DK		Received: 21-SEP-23 By: JK			
VAR-PSL10-SO-OB61_19-20_230921						
JD73274-1	SM2540 G 18TH ED MOD	23-SEP-23 15:00	MK			SOL104
JD73274-1	SW846 8260D	26-SEP-23 12:47	JN			V8260MCP
JD73274-1	SW846 8260D	27-SEP-23 14:22	JN			V8260MCP
JD73274-2	Collected: 21-SEP-23 09:10 By: DK		Received: 21-SEP-23 By: JK			
TB_20230921_SO_02M						
JD73274-2	SW846 8260D	25-SEP-23 14:36	JN			V8260MCP
JD73274-3	Collected: 21-SEP-23 09:10 By: DK		Received: 21-SEP-23 By: JK			
TB_20230921_SO_02L						
JD73274-3	SW846 8260D	26-SEP-23 12:25	JN			V8260MCP

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051	SW846 8260D						
V3D8051-BS	67-64-1	Acetone	BSP	REC	156	%	70-130
V3D8051-BS	71-43-2	Benzene	BSP	REC	104	%	70-130
V3D8051-BS	108-86-1	Bromobenzene	BSP	REC	89	%	70-130
V3D8051-BS	74-97-5	Bromochloromethane	BSP	REC	102	%	70-130
V3D8051-BS	75-27-4	Bromodichloromethane	BSP	REC	99	%	70-130
V3D8051-BS	75-25-2	Bromoform	BSP	REC	98	%	70-130
V3D8051-BS	74-83-9	Bromomethane	BSP	REC	102	%	70-130
V3D8051-BS	78-93-3	2-Butanone (MEK)	BSP	REC	132	%	70-130
V3D8051-BS	104-51-8	n-Butylbenzene	BSP	REC	98	%	70-130
V3D8051-BS	135-98-8	sec-Butylbenzene	BSP	REC	98	%	70-130
V3D8051-BS	98-06-6	tert-Butylbenzene	BSP	REC	97	%	70-130
V3D8051-BS	75-15-0	Carbon disulfide	BSP	REC	97	%	70-130
V3D8051-BS	56-23-5	Carbon tetrachloride	BSP	REC	102	%	70-130
V3D8051-BS	108-90-7	Chlorobenzene	BSP	REC	98	%	70-130
V3D8051-BS	75-00-3	Chloroethane	BSP	REC	112	%	70-130
V3D8051-BS	67-66-3	Chloroform	BSP	REC	91	%	70-130
V3D8051-BS	74-87-3	Chloromethane	BSP	REC	101	%	70-130
V3D8051-BS	95-49-8	o-Chlorotoluene	BSP	REC	92	%	70-130
V3D8051-BS	106-43-4	p-Chlorotoluene	BSP	REC	92	%	70-130
V3D8051-BS	108-20-3	Di-Isopropyl ether	BSP	REC	106	%	70-130
V3D8051-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	85	%	70-130
V3D8051-BS	124-48-1	Dibromochloromethane	BSP	REC	99	%	70-130
V3D8051-BS	106-93-4	1,2-Dibromoethane	BSP	REC	94	%	70-130
V3D8051-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	94	%	70-130
V3D8051-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	94	%	70-130
V3D8051-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	92	%	70-130
V3D8051-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	105	%	70-130
V3D8051-BS	75-34-3	1,1-Dichloroethane	BSP	REC	98	%	70-130
V3D8051-BS	107-06-2	1,2-Dichloroethane	BSP	REC	98	%	70-130
V3D8051-BS	75-35-4	1,1-Dichloroethene	BSP	REC	98	%	70-130
V3D8051-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	98	%	70-130
V3D8051-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	94	%	70-130
V3D8051-BS	78-87-5	1,2-Dichloropropane	BSP	REC	102	%	70-130
V3D8051-BS	142-28-9	1,3-Dichloropropane	BSP	REC	93	%	70-130
V3D8051-BS	594-20-7	2,2-Dichloropropane	BSP	REC	98	%	70-130
V3D8051-BS	563-58-6	1,1-Dichloropropene	BSP	REC	100	%	70-130
V3D8051-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	105	%	70-130
V3D8051-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	98	%	70-130
V3D8051-BS	123-91-1	1,4-Dioxane	BSP	REC	103	%	70-130
V3D8051-BS	60-29-7	Ethyl Ether	BSP	REC	96	%	70-130
V3D8051-BS	100-41-4	Ethylbenzene	BSP	REC	100	%	70-130
V3D8051-BS	87-68-3	Hexachlorobutadiene	BSP	REC	84	%	70-130

* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BS	591-78-6	2-Hexanone	BSP	REC	120	%	70-130
V3D8051-BS	98-82-8	Isopropylbenzene	BSP	REC	105	%	70-130
V3D8051-BS	99-87-6	p-Isopropyltoluene	BSP	REC	97	%	70-130
V3D8051-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	101	%	70-130
V3D8051-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	111	%	70-130
V3D8051-BS	74-95-3	Methylene bromide	BSP	REC	97	%	70-130
V3D8051-BS	75-09-2	Methylene chloride	BSP	REC	88	%	70-130
V3D8051-BS	91-20-3	Naphthalene	BSP	REC	84	%	70-130
V3D8051-BS	103-65-1	n-Propylbenzene	BSP	REC	94	%	70-130
V3D8051-BS	100-42-5	Styrene	BSP	REC	108	%	70-130
V3D8051-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	106	%	70-130
V3D8051-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	100	%	70-130
V3D8051-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	100	%	70-130
V3D8051-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	85	%	70-130
V3D8051-BS	127-18-4	Tetrachloroethene	BSP	REC	98	%	70-130
V3D8051-BS	109-99-9	Tetrahydrofuran	BSP	REC	102	%	70-130
V3D8051-BS	108-88-3	Toluene	BSP	REC	99	%	70-130
V3D8051-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8051-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	88	%	70-130
V3D8051-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	97	%	70-130
V3D8051-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	92	%	70-130
V3D8051-BS	79-01-6	Trichloroethene	BSP	REC	105	%	70-130
V3D8051-BS	75-69-4	Trichlorofluoromethane	BSP	REC	97	%	70-130
V3D8051-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	91	%	70-130
V3D8051-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	92	%	70-130
V3D8051-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	96	%	70-130
V3D8051-BS	75-01-4	Vinyl chloride	BSP	REC	108	%	70-130
V3D8051-BS		m,p-Xylene	BSP	REC	103	%	70-130
V3D8051-BS	95-47-6	o-Xylene	BSP	REC	102	%	70-130
V3D8051-BS	1330-20-7	Xylene (total)	BSP	REC	102	%	70-130
V3D8051-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	96	%	70-130
V3D8051-BS	2037-26-5	Toluene-D8	BSP	SURR	96	%	70-130
V3D8051-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	90	%	70-130
V3D8051-BSD	67-64-1	Acetone	BSD	REC	161 [a]	%	70-130
V3D8051-BSD	67-64-1	Acetone	BSD	RPD	3	%	20
V3D8051-BSD	71-43-2	Benzene	BSD	REC	102	%	70-130
V3D8051-BSD	71-43-2	Benzene	BSD	RPD	2	%	20
V3D8051-BSD	108-86-1	Bromobenzene	BSD	REC	89	%	70-130
V3D8051-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
V3D8051-BSD	74-97-5	Bromochloromethane	BSD	REC	99	%	70-130
V3D8051-BSD	74-97-5	Bromochloromethane	BSD	RPD	3	%	20
V3D8051-BSD	75-27-4	Bromodichloromethane	BSD	REC	98	%	70-130
V3D8051-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
V3D8051-BSD	75-25-2	Bromoform	BSD	REC	97	%	70-130
V3D8051-BSD	75-25-2	Bromoform	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BSD	74-83-9	Bromomethane	BSD	REC	105	%	70-130
V3D8051-BSD	74-83-9	Bromomethane	BSD	RPD	2	%	20
V3D8051-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	137	%	70-130
V3D8051-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	4	%	20
V3D8051-BSD	104-51-8	n-Butylbenzene	BSD	REC	97	%	70-130
V3D8051-BSD	104-51-8	n-Butylbenzene	BSD	RPD	1	%	20
V3D8051-BSD	135-98-8	sec-Butylbenzene	BSD	REC	96	%	70-130
V3D8051-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	2	%	20
V3D8051-BSD	98-06-6	tert-Butylbenzene	BSD	REC	95	%	70-130
V3D8051-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	2	%	20
V3D8051-BSD	75-15-0	Carbon disulfide	BSD	REC	93	%	70-130
V3D8051-BSD	75-15-0	Carbon disulfide	BSD	RPD	4	%	20
V3D8051-BSD	56-23-5	Carbon tetrachloride	BSD	REC	100	%	70-130
V3D8051-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	2	%	20
V3D8051-BSD	108-90-7	Chlorobenzene	BSD	REC	96	%	70-130
V3D8051-BSD	108-90-7	Chlorobenzene	BSD	RPD	3	%	20
V3D8051-BSD	75-00-3	Chloroethane	BSD	REC	107	%	70-130
V3D8051-BSD	75-00-3	Chloroethane	BSD	RPD	4	%	20
V3D8051-BSD	67-66-3	Chloroform	BSD	REC	88	%	70-130
V3D8051-BSD	67-66-3	Chloroform	BSD	RPD	3	%	20
V3D8051-BSD	74-87-3	Chloromethane	BSD	REC	95	%	70-130
V3D8051-BSD	74-87-3	Chloromethane	BSD	RPD	6	%	20
V3D8051-BSD	95-49-8	o-Chlorotoluene	BSD	REC	91	%	70-130
V3D8051-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	1	%	20
V3D8051-BSD	106-43-4	p-Chlorotoluene	BSD	REC	92	%	70-130
V3D8051-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
V3D8051-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	104	%	70-130
V3D8051-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	2	%	20
V3D8051-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	90	%	70-130
V3D8051-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	5	%	20
V3D8051-BSD	124-48-1	Dibromochloromethane	BSD	REC	97	%	70-130
V3D8051-BSD	124-48-1	Dibromochloromethane	BSD	RPD	2	%	20
V3D8051-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	93	%	70-130
V3D8051-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	1	%	20
V3D8051-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	95	%	70-130
V3D8051-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	2	%	20
V3D8051-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	94	%	70-130
V3D8051-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
V3D8051-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	91	%	70-130
V3D8051-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	1	%	20
V3D8051-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	102	%	70-130
V3D8051-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	3	%	20
V3D8051-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	94	%	70-130
V3D8051-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	4	%	20
V3D8051-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	98	%	70-130

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	1	%	20
V3D8051-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	94	%	70-130
V3D8051-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	4	%	20
V3D8051-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	96	%	70-130
V3D8051-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	2	%	20
V3D8051-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	92	%	70-130
V3D8051-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	3	%	20
V3D8051-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	100	%	70-130
V3D8051-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
V3D8051-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	92	%	70-130
V3D8051-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	1	%	20
V3D8051-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	94	%	70-130
V3D8051-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	5	%	20
V3D8051-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	96	%	70-130
V3D8051-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	3	%	20
V3D8051-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	103	%	70-130
V3D8051-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	2	%	20
V3D8051-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	96	%	70-130
V3D8051-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	3	%	20
V3D8051-BSD	123-91-1	1,4-Dioxane	BSD	REC	109	%	70-130
V3D8051-BSD	123-91-1	1,4-Dioxane	BSD	RPD	6	%	20
V3D8051-BSD	60-29-7	Ethyl Ether	BSD	REC	95	%	70-130
V3D8051-BSD	60-29-7	Ethyl Ether	BSD	RPD	1	%	20
V3D8051-BSD	100-41-4	Ethylbenzene	BSD	REC	96	%	70-130
V3D8051-BSD	100-41-4	Ethylbenzene	BSD	RPD	3	%	20
V3D8051-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	84	%	70-130
V3D8051-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	1	%	20
V3D8051-BSD	591-78-6	2-Hexanone	BSD	REC	123	%	70-130
V3D8051-BSD	591-78-6	2-Hexanone	BSD	RPD	2	%	20
V3D8051-BSD	98-82-8	Isopropylbenzene	BSD	REC	102	%	70-130
V3D8051-BSD	98-82-8	Isopropylbenzene	BSD	RPD	3	%	20
V3D8051-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	96	%	70-130
V3D8051-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	1	%	20
V3D8051-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	100	%	70-130
V3D8051-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	1	%	20
V3D8051-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	113	%	70-130
V3D8051-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	2	%	20
V3D8051-BSD	74-95-3	Methylene bromide	BSD	REC	99	%	70-130
V3D8051-BSD	74-95-3	Methylene bromide	BSD	RPD	2	%	20
V3D8051-BSD	75-09-2	Methylene chloride	BSD	REC	86	%	70-130
V3D8051-BSD	75-09-2	Methylene chloride	BSD	RPD	3	%	20
V3D8051-BSD	91-20-3	Naphthalene	BSD	REC	90	%	70-130
V3D8051-BSD	91-20-3	Naphthalene	BSD	RPD	6	%	20
V3D8051-BSD	103-65-1	n-Propylbenzene	BSD	REC	91	%	70-130
V3D8051-BSD	103-65-1	n-Propylbenzene	BSD	RPD	3	%	20

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BSD	100-42-5	Styrene	BSD	REC	105	%	70-130
V3D8051-BSD	100-42-5	Styrene	BSD	RPD	3	%	20
V3D8051-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	105	%	70-130
V3D8051-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	1	%	20
V3D8051-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	98	%	70-130
V3D8051-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	2	%	20
V3D8051-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	99	%	70-130
V3D8051-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	1	%	20
V3D8051-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	87	%	70-130
V3D8051-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	2	%	20
V3D8051-BSD	127-18-4	Tetrachloroethene	BSD	REC	95	%	70-130
V3D8051-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
V3D8051-BSD	109-99-9	Tetrahydrofuran	BSD	REC	103	%	70-130
V3D8051-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	1	%	20
V3D8051-BSD	108-88-3	Toluene	BSD	REC	96	%	70-130
V3D8051-BSD	108-88-3	Toluene	BSD	RPD	3	%	20
V3D8051-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8051-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	6	%	20
V3D8051-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	90	%	70-130
V3D8051-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	3	%	20
V3D8051-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	95	%	70-130
V3D8051-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
V3D8051-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	92	%	70-130
V3D8051-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	1	%	20
V3D8051-BSD	79-01-6	Trichloroethene	BSD	REC	101	%	70-130
V3D8051-BSD	79-01-6	Trichloroethene	BSD	RPD	4	%	20
V3D8051-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	93	%	70-130
V3D8051-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	4	%	20
V3D8051-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	94	%	70-130
V3D8051-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	3	%	20
V3D8051-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	91	%	70-130
V3D8051-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	1	%	20
V3D8051-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	94	%	70-130
V3D8051-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	2	%	20
V3D8051-BSD	75-01-4	Vinyl chloride	BSD	REC	105	%	70-130
V3D8051-BSD	75-01-4	Vinyl chloride	BSD	RPD	3	%	20
V3D8051-BSD		m,p-Xylene	BSD	REC	101	%	70-130
V3D8051-BSD		m,p-Xylene	BSD	RPD	2	%	20
V3D8051-BSD	95-47-6	o-Xylene	BSD	REC	99	%	70-130
V3D8051-BSD	95-47-6	o-Xylene	BSD	RPD	2	%	20
V3D8051-BSD	1330-20-7	Xylene (total)	BSD	REC	100	%	70-130
V3D8051-BSD	1330-20-7	Xylene (total)	BSD	RPD	2	%	20
V3D8051-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	95	%	70-130
V3D8051-BSD	2037-26-5	Toluene-D8	BSD	SURR	95	%	70-130
V3D8051-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	92	%	70-130

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-MB	1868-53-7	Dibromofluoromethane	MB	SURR	93	%	70-130
V3D8051-MB	2037-26-5	Toluene-D8	MB	SURR	96	%	70-130
V3D8051-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	90	%	70-130
JD73274-2	1868-53-7	Dibromofluoromethane	SAMP	SURR	92	%	70-130
JD73274-2	2037-26-5	Toluene-D8	SAMP	SURR	94	%	70-130
JD73274-2	460-00-4	4-Bromofluorobenzene	SAMP	SURR	90	%	70-130
V3D8053	SW846 8260D						
V3D8053-BS	127-18-4	Tetrachloroethene	BSP	REC	98	%	70-130
V3D8053-BS	79-01-6	Trichloroethene	BSP	REC	106	%	70-130
V3D8053-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	90	%	70-130
V3D8053-BS	2037-26-5	Toluene-D8	BSP	SURR	95	%	70-130
V3D8053-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	92	%	70-130
V3D8053-BSD	127-18-4	Tetrachloroethene	BSD	REC	102	%	70-130
V3D8053-BSD	127-18-4	Tetrachloroethene	BSD	RPD	4	%	20
V3D8053-BSD	79-01-6	Trichloroethene	BSD	REC	110	%	70-130
V3D8053-BSD	79-01-6	Trichloroethene	BSD	RPD	3	%	20
V3D8053-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	91	%	70-130
V3D8053-BSD	2037-26-5	Toluene-D8	BSD	SURR	93	%	70-130
V3D8053-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	91	%	70-130
V3D8053-MB	1868-53-7	Dibromofluoromethane	MB	SURR	88	%	70-130
V3D8053-MB	2037-26-5	Toluene-D8	MB	SURR	93	%	70-130
V3D8053-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	91	%	70-130
JD73274-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	87	%	70-130
JD73274-1	2037-26-5	Toluene-D8	SAMP	SURR	94	%	70-130
JD73274-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	91	%	70-130
VI10236	SW846 8260D						
VI10236-BS	67-64-1	Acetone	BSP	REC	130	%	70-130
VI10236-BS	71-43-2	Benzene	BSP	REC	97	%	70-130
VI10236-BS	108-86-1	Bromobenzene	BSP	REC	99	%	70-130
VI10236-BS	74-97-5	Bromochloromethane	BSP	REC	104	%	70-130
VI10236-BS	75-27-4	Bromodichloromethane	BSP	REC	99	%	70-130
VI10236-BS	75-25-2	Bromoform	BSP	REC	101	%	70-130
VI10236-BS	74-83-9	Bromomethane	BSP	REC	101	%	70-130
VI10236-BS	78-93-3	2-Butanone (MEK)	BSP	REC	127	%	70-130
VI10236-BS	104-51-8	n-Butylbenzene	BSP	REC	100	%	70-130
VI10236-BS	135-98-8	sec-Butylbenzene	BSP	REC	97	%	70-130
VI10236-BS	98-06-6	tert-Butylbenzene	BSP	REC	96	%	70-130
VI10236-BS	75-15-0	Carbon disulfide	BSP	REC	97	%	70-130
VI10236-BS	56-23-5	Carbon tetrachloride	BSP	REC	98	%	70-130
VI10236-BS	108-90-7	Chlorobenzene	BSP	REC	99	%	70-130
VI10236-BS	75-00-3	Chloroethane	BSP	REC	94	%	70-130

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BS	67-66-3	Chloroform	BSP	REC	94	%	70-130
VI10236-BS	74-87-3	Chloromethane	BSP	REC	91	%	70-130
VI10236-BS	95-49-8	o-Chlorotoluene	BSP	REC	99	%	70-130
VI10236-BS	106-43-4	p-Chlorotoluene	BSP	REC	98	%	70-130
VI10236-BS	108-20-3	Di-Isopropyl ether	BSP	REC	95	%	70-130
VI10236-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	102	%	70-130
VI10236-BS	124-48-1	Dibromochloromethane	BSP	REC	102	%	70-130
VI10236-BS	106-93-4	1,2-Dibromoethane	BSP	REC	102	%	70-130
VI10236-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	98	%	70-130
VI10236-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	96	%	70-130
VI10236-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	99	%	70-130
VI10236-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	98	%	70-130
VI10236-BS	75-34-3	1,1-Dichloroethane	BSP	REC	100	%	70-130
VI10236-BS	107-06-2	1,2-Dichloroethane	BSP	REC	93	%	70-130
VI10236-BS	75-35-4	1,1-Dichloroethene	BSP	REC	100	%	70-130
VI10236-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	101	%	70-130
VI10236-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	98	%	70-130
VI10236-BS	78-87-5	1,2-Dichloropropane	BSP	REC	95	%	70-130
VI10236-BS	142-28-9	1,3-Dichloropropane	BSP	REC	101	%	70-130
VI10236-BS	594-20-7	2,2-Dichloropropane	BSP	REC	98	%	70-130
VI10236-BS	563-58-6	1,1-Dichloropropene	BSP	REC	96	%	70-130
VI10236-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	100	%	70-130
VI10236-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	104	%	70-130
VI10236-BS	123-91-1	1,4-Dioxane	BSP	REC	103	%	70-130
VI10236-BS	60-29-7	Ethyl Ether	BSP	REC	100	%	70-130
VI10236-BS	100-41-4	Ethylbenzene	BSP	REC	98	%	70-130
VI10236-BS	87-68-3	Hexachlorobutadiene	BSP	REC	99	%	70-130
VI10236-BS	591-78-6	2-Hexanone	BSP	REC	122	%	70-130
VI10236-BS	98-82-8	Isopropylbenzene	BSP	REC	96	%	70-130
VI10236-BS	99-87-6	p-Isopropyltoluene	BSP	REC	99	%	70-130
VI10236-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	96	%	70-130
VI10236-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	104	%	70-130
VI10236-BS	74-95-3	Methylene bromide	BSP	REC	99	%	70-130
VI10236-BS	75-09-2	Methylene chloride	BSP	REC	93	%	70-130
VI10236-BS	91-20-3	Naphthalene	BSP	REC	96	%	70-130
VI10236-BS	103-65-1	n-Propylbenzene	BSP	REC	99	%	70-130
VI10236-BS	100-42-5	Styrene	BSP	REC	102	%	70-130
VI10236-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	101	%	70-130
VI10236-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	97	%	70-130
VI10236-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	104	%	70-130
VI10236-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	93	%	70-130
VI10236-BS	127-18-4	Tetrachloroethene	BSP	REC	101	%	70-130
VI10236-BS	109-99-9	Tetrahydrofuran	BSP	REC	91	%	70-130
VI10236-BS	108-88-3	Toluene	BSP	REC	97	%	70-130
VI10236-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	98	%	70-130

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	100	%	70-130
VI10236-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	98	%	70-130
VI10236-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	100	%	70-130
VI10236-BS	79-01-6	Trichloroethene	BSP	REC	94	%	70-130
VI10236-BS	75-69-4	Trichlorofluoromethane	BSP	REC	100	%	70-130
VI10236-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	97	%	70-130
VI10236-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	97	%	70-130
VI10236-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	99	%	70-130
VI10236-BS	75-01-4	Vinyl chloride	BSP	REC	94	%	70-130
VI10236-BS		m,p-Xylene	BSP	REC	101	%	70-130
VI10236-BS	95-47-6	o-Xylene	BSP	REC	101	%	70-130
VI10236-BS	1330-20-7	Xylene (total)	BSP	REC	101	%	70-130
VI10236-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	101	%	70-130
VI10236-BS	2037-26-5	Toluene-D8	BSP	SURR	101	%	70-130
VI10236-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	97	%	70-130
VI10236-BSD	67-64-1	Acetone	BSD	REC	133	%	70-130
VI10236-BSD	67-64-1	Acetone	BSD	RPD	2	%	20
VI10236-BSD	71-43-2	Benzene	BSD	REC	96	%	70-130
VI10236-BSD	71-43-2	Benzene	BSD	RPD	1	%	20
VI10236-BSD	108-86-1	Bromobenzene	BSD	REC	101	%	70-130
VI10236-BSD	108-86-1	Bromobenzene	BSD	RPD	2	%	20
VI10236-BSD	74-97-5	Bromochloromethane	BSD	REC	101	%	70-130
VI10236-BSD	74-97-5	Bromochloromethane	BSD	RPD	3	%	20
VI10236-BSD	75-27-4	Bromodichloromethane	BSD	REC	100	%	70-130
VI10236-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
VI10236-BSD	75-25-2	Bromoform	BSD	REC	104	%	70-130
VI10236-BSD	75-25-2	Bromoform	BSD	RPD	3	%	20
VI10236-BSD	74-83-9	Bromomethane	BSD	REC	100	%	70-130
VI10236-BSD	74-83-9	Bromomethane	BSD	RPD	1	%	20
VI10236-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	130	%	70-130
VI10236-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	2	%	20
VI10236-BSD	104-51-8	n-Butylbenzene	BSD	REC	98	%	70-130
VI10236-BSD	104-51-8	n-Butylbenzene	BSD	RPD	2	%	20
VI10236-BSD	135-98-8	sec-Butylbenzene	BSD	REC	96	%	70-130
VI10236-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	1	%	20
VI10236-BSD	98-06-6	tert-Butylbenzene	BSD	REC	97	%	70-130
VI10236-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
VI10236-BSD	75-15-0	Carbon disulfide	BSD	REC	95	%	70-130
VI10236-BSD	75-15-0	Carbon disulfide	BSD	RPD	3	%	20
VI10236-BSD	56-23-5	Carbon tetrachloride	BSD	REC	97	%	70-130
VI10236-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	1	%	20
VI10236-BSD	108-90-7	Chlorobenzene	BSD	REC	99	%	70-130
VI10236-BSD	108-90-7	Chlorobenzene	BSD	RPD	0	%	20
VI10236-BSD	75-00-3	Chloroethane	BSD	REC	95	%	70-130
VI10236-BSD	75-00-3	Chloroethane	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BSD	67-66-3	Chloroform	BSD	REC	92	%	70-130
VI10236-BSD	67-66-3	Chloroform	BSD	RPD	2	%	20
VI10236-BSD	74-87-3	Chloromethane	BSD	REC	89	%	70-130
VI10236-BSD	74-87-3	Chloromethane	BSD	RPD	2	%	20
VI10236-BSD	95-49-8	o-Chlorotoluene	BSD	REC	100	%	70-130
VI10236-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	1	%	20
VI10236-BSD	106-43-4	p-Chlorotoluene	BSD	REC	97	%	70-130
VI10236-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	1	%	20
VI10236-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	94	%	70-130
VI10236-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	1	%	20
VI10236-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	104	%	70-130
VI10236-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	2	%	20
VI10236-BSD	124-48-1	Dibromochloromethane	BSD	REC	103	%	70-130
VI10236-BSD	124-48-1	Dibromochloromethane	BSD	RPD	1	%	20
VI10236-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	103	%	70-130
VI10236-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	1	%	20
VI10236-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	99	%	70-130
VI10236-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
VI10236-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	97	%	70-130
VI10236-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
VI10236-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	100	%	70-130
VI10236-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	1	%	20
VI10236-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	97	%	70-130
VI10236-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	1	%	20
VI10236-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	96	%	70-130
VI10236-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	3	%	20
VI10236-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	93	%	70-130
VI10236-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	0	%	20
VI10236-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	96	%	70-130
VI10236-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	3	%	20
VI10236-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	99	%	70-130
VI10236-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	2	%	20
VI10236-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	94	%	70-130
VI10236-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	5	%	20
VI10236-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	93	%	70-130
VI10236-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
VI10236-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	101	%	70-130
VI10236-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	0	%	20
VI10236-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	95	%	70-130
VI10236-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	2	%	20
VI10236-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	94	%	70-130
VI10236-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	3	%	20
VI10236-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	101	%	70-130
VI10236-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
VI10236-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	104	%	70-130

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	0	%	20
VI10236-BSD	123-91-1	1,4-Dioxane	BSD	REC	108	%	70-130
VI10236-BSD	123-91-1	1,4-Dioxane	BSD	RPD	5	%	20
VI10236-BSD	60-29-7	Ethyl Ether	BSD	REC	100	%	70-130
VI10236-BSD	60-29-7	Ethyl Ether	BSD	RPD	0	%	20
VI10236-BSD	100-41-4	Ethylbenzene	BSD	REC	98	%	70-130
VI10236-BSD	100-41-4	Ethylbenzene	BSD	RPD	0	%	20
VI10236-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	100	%	70-130
VI10236-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	1	%	20
VI10236-BSD	591-78-6	2-Hexanone	BSD	REC	122	%	70-130
VI10236-BSD	591-78-6	2-Hexanone	BSD	RPD	0	%	20
VI10236-BSD	98-82-8	Isopropylbenzene	BSD	REC	97	%	70-130
VI10236-BSD	98-82-8	Isopropylbenzene	BSD	RPD	1	%	20
VI10236-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	98	%	70-130
VI10236-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	1	%	20
VI10236-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	96	%	70-130
VI10236-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	0	%	20
VI10236-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	107	%	70-130
VI10236-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	3	%	20
VI10236-BSD	74-95-3	Methylene bromide	BSD	REC	99	%	70-130
VI10236-BSD	74-95-3	Methylene bromide	BSD	RPD	0	%	20
VI10236-BSD	75-09-2	Methylene chloride	BSD	REC	92	%	70-130
VI10236-BSD	75-09-2	Methylene chloride	BSD	RPD	1	%	20
VI10236-BSD	91-20-3	Naphthalene	BSD	REC	98	%	70-130
VI10236-BSD	91-20-3	Naphthalene	BSD	RPD	2	%	20
VI10236-BSD	103-65-1	n-Propylbenzene	BSD	REC	98	%	70-130
VI10236-BSD	103-65-1	n-Propylbenzene	BSD	RPD	0	%	20
VI10236-BSD	100-42-5	Styrene	BSD	REC	102	%	70-130
VI10236-BSD	100-42-5	Styrene	BSD	RPD	0	%	20
VI10236-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	102	%	70-130
VI10236-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	2	%	20
VI10236-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	97	%	70-130
VI10236-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	0	%	20
VI10236-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	104	%	70-130
VI10236-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	0	%	20
VI10236-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	95	%	70-130
VI10236-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	1	%	20
VI10236-BSD	127-18-4	Tetrachloroethene	BSD	REC	99	%	70-130
VI10236-BSD	127-18-4	Tetrachloroethene	BSD	RPD	1	%	20
VI10236-BSD	109-99-9	Tetrahydrofuran	BSD	REC	92	%	70-130
VI10236-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	1	%	20
VI10236-BSD	108-88-3	Toluene	BSD	REC	97	%	70-130
VI10236-BSD	108-88-3	Toluene	BSD	RPD	0	%	20
VI10236-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	99	%	70-130
VI10236-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73274

QC Evaluation: MA MCP Limits

Job Number: JD73274
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/21/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	101	%	70-130
VI10236-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	1	%	20
VI10236-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	96	%	70-130
VI10236-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
VI10236-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	102	%	70-130
VI10236-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	1	%	20
VI10236-BSD	79-01-6	Trichloroethene	BSD	REC	94	%	70-130
VI10236-BSD	79-01-6	Trichloroethene	BSD	RPD	0	%	20
VI10236-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	99	%	70-130
VI10236-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	1	%	20
VI10236-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	104	%	70-130
VI10236-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	6	%	20
VI10236-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	97	%	70-130
VI10236-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	0	%	20
VI10236-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	99	%	70-130
VI10236-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	0	%	20
VI10236-BSD	75-01-4	Vinyl chloride	BSD	REC	92	%	70-130
VI10236-BSD	75-01-4	Vinyl chloride	BSD	RPD	3	%	20
VI10236-BSD		m,p-Xylene	BSD	REC	101	%	70-130
VI10236-BSD		m,p-Xylene	BSD	RPD	0	%	20
VI10236-BSD	95-47-6	o-Xylene	BSD	REC	101	%	70-130
VI10236-BSD	95-47-6	o-Xylene	BSD	RPD	0	%	20
VI10236-BSD	1330-20-7	Xylene (total)	BSD	REC	101	%	70-130
VI10236-BSD	1330-20-7	Xylene (total)	BSD	RPD	1	%	20
VI10236-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	99	%	70-130
VI10236-BSD	2037-26-5	Toluene-D8	BSD	SURR	100	%	70-130
VI10236-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	99	%	70-130
VI10236-MB	1868-53-7	Dibromofluoromethane	MB	SURR	104	%	70-130
VI10236-MB	2037-26-5	Toluene-D8	MB	SURR	99	%	70-130
VI10236-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	98	%	70-130
JD73274-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	109	%	70-130
JD73274-1	2037-26-5	Toluene-D8	SAMP	SURR	98	%	70-130
JD73274-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130
JD73274-3	1868-53-7	Dibromofluoromethane	SAMP	SURR	104	%	70-130
JD73274-3	2037-26-5	Toluene-D8	SAMP	SURR	100	%	70-130
JD73274-3	460-00-4	4-Bromofluorobenzene	SAMP	SURR	95	%	70-130

(a) High percent recovery and no associated positive reported in the QC batch.

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* Sample used for QC is not from job JD73274

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-MB	3D192654.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-2

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	

Method Blank Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-MB	3D192654.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-2

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

Method Blank Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-MB	3D192654.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-2

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	96%	79-125%
460-00-4	4-Bromofluorobenzene	90%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	System artifact	1.27	390	ug/kg	J
	System artifact	1.76	290	ug/kg	J
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-MB	I252316.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1, JD73274-3

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-MB	I252316.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1, JD73274-3

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-MB	I252316.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1, JD73274-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	104%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	99%	79-125%
460-00-4	4-Bromofluorobenzene	98%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8053-MB	3D192718.D	1	09/27/23	JN	n/a	n/a	V3D8053

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1

CAS No.	Compound	Result	RL	Units	Q
127-18-4	Tetrachloroethene	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	88%	80-124%
17060-07-0	1,2-Dichloroethane-D4	98%	75-133%
2037-26-5	Toluene-D8	93%	79-125%
460-00-4	4-Bromofluorobenzene	91%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.28	380	ug/kg	J
	Total TIC, Volatile		0	ug/kg	
	Total Alkanes		0	ug/kg	

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-BS	3D192651.D	1	09/25/23	JN	n/a	n/a	V3D8051
V3D8051-BSD	3D192652.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	10000	15600	156	16100	161* [a]	3	52-156/12
71-43-2	Benzene	2500	2600	104	2540	102	2	82-119/10
108-86-1	Bromobenzene	2500	2230	89	2220	89	0	82-115/10
74-97-5	Bromochloromethane	2500	2550	102	2470	99	3	82-123/10
75-27-4	Bromodichloromethane	2500	2480	99	2460	98	1	83-121/10
75-25-2	Bromoform	2500	2440	98	2420	97	1	74-138/10
74-83-9	Bromomethane	2500	2560	102	2620	105	2	56-150/12
78-93-3	2-Butanone (MEK)	10000	13200	132	13700	137	4	72-138/10
104-51-8	n-Butylbenzene	2500	2450	98	2420	97	1	81-124/11
135-98-8	sec-Butylbenzene	2500	2440	98	2400	96	2	78-120/10
98-06-6	tert-Butylbenzene	2500	2420	97	2370	95	2	78-121/10
75-15-0	Carbon disulfide	2500	2420	97	2320	93	4	67-131/11
56-23-5	Carbon tetrachloride	2500	2560	102	2500	100	2	72-130/11
108-90-7	Chlorobenzene	2500	2460	98	2390	96	3	83-114/10
75-00-3	Chloroethane	2500	2800	112	2680	107	4	67-141/12
67-66-3	Chloroform	2500	2280	91	2210	88	3	76-115/10
74-87-3	Chloromethane	2500	2520	101	2370	95	6	57-141/13
95-49-8	o-Chlorotoluene	2500	2310	92	2280	91	1	81-118/10
106-43-4	p-Chlorotoluene	2500	2290	92	2300	92	0	78-117/10
108-20-3	Di-Isopropyl ether	2500	2640	106	2600	104	2	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	2500	2130	85	2250	90	5	72-131/11
124-48-1	Dibromochloromethane	2500	2480	99	2420	97	2	80-128/10
106-93-4	1,2-Dibromoethane	2500	2360	94	2330	93	1	58-145/10
95-50-1	1,2-Dichlorobenzene	2500	2340	94	2380	95	2	83-117/10
541-73-1	1,3-Dichlorobenzene	2500	2360	94	2350	94	0	82-114/10
106-46-7	1,4-Dichlorobenzene	2500	2300	92	2280	91	1	79-114/10
75-71-8	Dichlorodifluoromethane	2500	2630	105	2550	102	3	49-146/13
75-34-3	1,1-Dichloroethane	2500	2440	98	2350	94	4	76-126/10
107-06-2	1,2-Dichloroethane	2500	2460	98	2440	98	1	76-118/10
75-35-4	1,1-Dichloroethene	2500	2460	98	2360	94	4	72-125/11
156-59-2	cis-1,2-Dichloroethene	2500	2450	98	2410	96	2	80-118/10
156-60-5	trans-1,2-Dichloroethene	2500	2350	94	2290	92	3	76-122/10
78-87-5	1,2-Dichloropropane	2500	2540	102	2500	100	2	82-123/10
142-28-9	1,3-Dichloropropane	2500	2330	93	2310	92	1	84-120/10
594-20-7	2,2-Dichloropropane	2500	2460	98	2340	94	5	66-130/11
563-58-6	1,1-Dichloropropene	2500	2490	100	2410	96	3	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-BS	3D192651.D	1	09/25/23	JN	n/a	n/a	V3D8051
V3D8051-BSD	3D192652.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	2500	2630	105	2570	103	2	83-123/10
10061-02-6	trans-1,3-Dichloropropene	2500	2460	98	2390	96	3	83-123/10
123-91-1	1,4-Dioxane	62500	64100	103	68200	109	6	64-163/20
60-29-7	Ethyl Ether	2500	2400	96	2370	95	1	78-131/10
100-41-4	Ethylbenzene	2500	2490	100	2410	96	3	83-115/10
87-68-3	Hexachlorobutadiene	2500	2110	84	2090	84	1	65-130/11
591-78-6	2-Hexanone	10000	12000	120	12300	123	2	73-138/10
98-82-8	Isopropylbenzene	2500	2620	105	2540	102	3	81-122/11
99-87-6	p-Isopropyltoluene	2500	2420	97	2400	96	1	80-120/10
1634-04-4	Methyl Tert Butyl Ether	2500	2530	101	2510	100	1	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	10000	11100	111	11300	113	2	71-138/10
74-95-3	Methylene bromide	2500	2430	97	2470	99	2	81-122/10
75-09-2	Methylene chloride	2500	2200	88	2140	86	3	73-122/10
91-20-3	Naphthalene	2500	2110	84	2250	90	6	71-129/14
103-65-1	n-Propylbenzene	2500	2340	94	2270	91	3	77-120/10
100-42-5	Styrene	2500	2690	108	2620	105	3	84-122/10
994-05-8	tert-Amyl Methyl Ether	2500	2660	106	2630	105	1	77-125/11
637-92-3	tert-Butyl Ethyl Ether	2500	2500	100	2450	98	2	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	2500	2500	100	2480	99	1	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	2500	2120	85	2170	87	2	75-127/10
127-18-4	Tetrachloroethene	2500	2450	98	2380	95	3	73-125/11
109-99-9	Tetrahydrofuran	2500	2550	102	2580	103	1	61-136/11
108-88-3	Toluene	2500	2480	99	2410	96	3	82-118/10
87-61-6	1,2,3-Trichlorobenzene	2500	2090	84	2210	88	6	68-132/13
120-82-1	1,2,4-Trichlorobenzene	2500	2200	88	2260	90	3	72-133/12
71-55-6	1,1,1-Trichloroethane	2500	2420	97	2370	95	2	77-124/11
79-00-5	1,1,2-Trichloroethane	2500	2310	92	2290	92	1	83-122/10
79-01-6	Trichloroethene	2500	2630	105	2520	101	4	80-122/10
75-69-4	Trichlorofluoromethane	2500	2420	97	2320	93	4	69-132/11
96-18-4	1,2,3-Trichloropropane	2500	2270	91	2350	94	3	80-120/10
95-63-6	1,2,4-Trimethylbenzene	2500	2300	92	2280	91	1	80-119/10
108-67-8	1,3,5-Trimethylbenzene	2500	2390	96	2350	94	2	79-120/10
75-01-4	Vinyl chloride	2500	2690	108	2620	105	3	60-144/13
	m,p-Xylene	5000	5130	103	5030	101	2	82-119/10
95-47-6	o-Xylene	2500	2540	102	2480	99	2	84-120/10
1330-20-7	Xylene (total)	7500	7670	102	7520	100	2	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-BS	3D192651.D	1	09/25/23	JN	n/a	n/a	V3D8051
V3D8051-BSD	3D192652.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	96%	95%	80-124%
17060-07-0	1,2-Dichloroethane-D4	99%	99%	75-133%
2037-26-5	Toluene-D8	96%	95%	79-125%
460-00-4	4-Bromofluorobenzene	90%	92%	58-148%

(a) High percent recovery and no associated positive reported in the QC batch.

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-BS	I252313.D	1	09/26/23	JN	n/a	n/a	VI10236
VI10236-BSD	I252314.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1, JD73274-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	259	130	265	133	2	52-156/12
71-43-2	Benzene	50	48.5	97	47.9	96	1	82-119/10
108-86-1	Bromobenzene	50	49.7	99	50.5	101	2	82-115/10
74-97-5	Bromochloromethane	50	52.2	104	50.6	101	3	82-123/10
75-27-4	Bromodichloromethane	50	49.5	99	50.0	100	1	83-121/10
75-25-2	Bromoform	50	50.3	101	52.0	104	3	74-138/10
74-83-9	Bromomethane	50	50.6	101	50.0	100	1	56-150/12
78-93-3	2-Butanone (MEK)	200	253	127	259	130	2	72-138/10
104-51-8	n-Butylbenzene	50	50.1	100	49.2	98	2	81-124/11
135-98-8	sec-Butylbenzene	50	48.6	97	48.2	96	1	78-120/10
98-06-6	tert-Butylbenzene	50	48.2	96	48.6	97	1	78-121/10
75-15-0	Carbon disulfide	50	48.6	97	47.3	95	3	67-131/11
56-23-5	Carbon tetrachloride	50	48.9	98	48.3	97	1	72-130/11
108-90-7	Chlorobenzene	50	49.4	99	49.4	99	0	83-114/10
75-00-3	Chloroethane	50	46.9	94	47.4	95	1	67-141/12
67-66-3	Chloroform	50	46.9	94	46.0	92	2	76-115/10
74-87-3	Chloromethane	50	45.5	91	44.7	89	2	57-141/13
95-49-8	o-Chlorotoluene	50	49.6	99	49.9	100	1	81-118/10
106-43-4	p-Chlorotoluene	50	49.0	98	48.7	97	1	78-117/10
108-20-3	Di-Isopropyl ether	50	47.4	95	47.1	94	1	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	51.1	102	52.1	104	2	72-131/11
124-48-1	Dibromochloromethane	50	50.9	102	51.6	103	1	80-128/10
106-93-4	1,2-Dibromoethane	50	51.2	102	51.5	103	1	58-145/10
95-50-1	1,2-Dichlorobenzene	50	49.2	98	49.5	99	1	83-117/10
541-73-1	1,3-Dichlorobenzene	50	48.2	96	48.4	97	0	82-114/10
106-46-7	1,4-Dichlorobenzene	50	49.4	99	49.8	100	1	79-114/10
75-71-8	Dichlorodifluoromethane	50	48.8	98	48.5	97	1	49-146/13
75-34-3	1,1-Dichloroethane	50	49.8	100	48.2	96	3	76-126/10
107-06-2	1,2-Dichloroethane	50	46.5	93	46.6	93	0	76-118/10
75-35-4	1,1-Dichloroethene	50	49.8	100	48.1	96	3	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	50.5	101	49.5	99	2	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	49.2	98	46.9	94	5	76-122/10
78-87-5	1,2-Dichloropropane	50	47.6	95	46.7	93	2	82-123/10
142-28-9	1,3-Dichloropropane	50	50.7	101	50.6	101	0	84-120/10
594-20-7	2,2-Dichloropropane	50	48.9	98	47.7	95	2	66-130/11
563-58-6	1,1-Dichloropropene	50	48.1	96	46.9	94	3	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-BS	I252313.D	1	09/26/23	JN	n/a	n/a	VI10236
VI10236-BSD	I252314.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1, JD73274-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	50.0	100	50.4	101	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	51.9	104	52.1	104	0	83-123/10
123-91-1	1,4-Dioxane	1250	1290	103	1350	108	5	64-163/20
60-29-7	Ethyl Ether	50	49.9	100	49.8	100	0	78-131/10
100-41-4	Ethylbenzene	50	48.8	98	48.9	98	0	83-115/10
87-68-3	Hexachlorobutadiene	50	49.5	99	50.0	100	1	65-130/11
591-78-6	2-Hexanone	200	243	122	244	122	0	73-138/10
98-82-8	Isopropylbenzene	50	48.0	96	48.4	97	1	81-122/11
99-87-6	p-Isopropyltoluene	50	49.4	99	48.9	98	1	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	47.9	96	47.9	96	0	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	207	104	214	107	3	71-138/10
74-95-3	Methylene bromide	50	49.4	99	49.4	99	0	81-122/10
75-09-2	Methylene chloride	50	46.4	93	45.8	92	1	73-122/10
91-20-3	Naphthalene	50	47.9	96	49.0	98	2	71-129/14
103-65-1	n-Propylbenzene	50	49.3	99	49.1	98	0	77-120/10
100-42-5	Styrene	50	50.8	102	51.0	102	0	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	50.3	101	51.1	102	2	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	48.3	97	48.5	97	0	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	52.2	104	52.2	104	0	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	46.6	93	47.3	95	1	75-127/10
127-18-4	Tetrachloroethene	50	50.4	101	49.7	99	1	73-125/11
109-99-9	Tetrahydrofuran	50	45.6	91	46.1	92	1	61-136/11
108-88-3	Toluene	50	48.7	97	48.6	97	0	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	49.1	98	49.4	99	1	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	50.0	100	50.7	101	1	72-133/12
71-55-6	1,1,1-Trichloroethane	50	49.2	98	48.2	96	2	77-124/11
79-00-5	1,1,2-Trichloroethane	50	50.2	100	50.8	102	1	83-122/10
79-01-6	Trichloroethene	50	47.2	94	47.1	94	0	80-122/10
75-69-4	Trichlorofluoromethane	50	50.0	100	49.7	99	1	69-132/11
96-18-4	1,2,3-Trichloropropane	50	48.6	97	51.8	104	6	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	48.7	97	48.6	97	0	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	49.7	99	49.7	99	0	79-120/10
75-01-4	Vinyl chloride	50	47.0	94	45.8	92	3	60-144/13
	m,p-Xylene	100	101	101	101	101	0	82-119/10
95-47-6	o-Xylene	50	50.4	101	50.4	101	0	84-120/10
1330-20-7	Xylene (total)	150	152	101	151	101	1	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-BS	I252313.D	1	09/26/23	JN	n/a	n/a	VI10236
VI10236-BSD	I252314.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1, JD73274-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	101%	99%	80-124%
17060-07-0	1,2-Dichloroethane-D4	93%	94%	75-133%
2037-26-5	Toluene-D8	101%	100%	79-125%
460-00-4	4-Bromofluorobenzene	97%	99%	58-148%

---

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8053-BS	3D192715.D	1	09/27/23	JN	n/a	n/a	V3D8053
V3D8053-BSD	3D192716.D	1	09/27/23	JN	n/a	n/a	V3D8053

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73274-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
127-18-4	Tetrachloroethene	2500	2460	98	2560	102	4	73-125/11
79-01-6	Trichloroethene	2500	2650	106	2740	110	3	80-122/10

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	90%	91%	80-124%
17060-07-0	1,2-Dichloroethane-D4	97%	97%	75-133%
2037-26-5	Toluene-D8	95%	93%	79-125%
460-00-4	4-Bromofluorobenzene	92%	91%	58-148%

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* = Outside of Control Limits.

Internal Standard Area Summary

Page 1 of 1

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: V3D8051-CC8035
Lab File ID: 3D192650.D
Instrument ID: GCMS3D
Injection Date: 09/25/23
Injection Time: 09:53
Method: SW846 8260D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	200829	2.69	471334	3.86	887667	4.40	831755	6.76	388703	8.94
Upper Limit [a]	401658	3.19	942668	4.36	1775334	4.90	1663510	7.26	777406	9.44
Lower Limit [b]	100415	2.19	235667	3.36	443834	3.90	415878	6.26	194352	8.44

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
V3D8051-BS	191675	2.69	500893	3.86	931565	4.40	867266	6.76	421523	8.94
V3D8051-BSD	211102	2.69	504706	3.86	934178	4.40	873471	6.76	419139	8.94
V3D8051-MB	201105	2.70	479149	3.86	895292	4.40	817626	6.76	372732	8.94
ZZZZZZ	201105	2.70	479149	3.86	895292	4.40	817626	6.76	372732	8.94
ZZZZZZ	187178	2.70	451464	3.86	839357	4.40	769253	6.76	353706	8.94
ZZZZZZ	178117	2.70	458116	3.86	843957	4.40	779744	6.76	357773	8.94
ZZZZZZ	192194	2.70	468399	3.86	873120	4.40	798355	6.76	362476	8.94
ZZZZZZ	176006	2.70	435224	3.86	808270	4.40	738151	6.76	343880	8.94
ZZZZZZ	161463	2.70	439605	3.86	813852	4.40	752914	6.76	344605	8.94
ZZZZZZ	178523	2.70	437443	3.86	818449	4.40	758551	6.76	342293	8.94
JD73274-2	184881	2.70	441252	3.86	823046	4.40	752218	6.76	342191	8.94
ZZZZZZ	181102	2.70	437701	3.86	819125	4.40	746533	6.76	345415	8.94
JD73193-2	227562	2.70	551497	3.86	1020141	4.40	904929	6.76	426047	8.94
ZZZZZZ	198301	2.69	515271	3.86	947385	4.40	877185	6.76	393186	8.94
ZZZZZZ	185853	2.69	491274	3.86	912594	4.40	857482	6.76	431328	8.94
JD73193-2MS	188888	2.70	493216	3.86	913702	4.40	841475	6.76	432776	8.94
JD73193-2MSD	221980	2.70	511256	3.86	942352	4.40	863551	6.76	443819	8.94
ZZZZZZ	194966	2.69	477688	3.86	877635	4.40	801512	6.76	361999	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Page 1 of 1

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std:	V3D8053-CC8035	**Injection Date:**	09/27/23
Lab File ID:	3D192713.D	**Injection Time:**	10:07
Instrument ID:	GCMS3D	**Method:**	SW846 8260D

	IS 1 AREA	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
Check Std	179832	2.69	499943	3.86	893326	4.40	854782	6.76	398122	8.94
Upper Limit [a]	359664	3.19	999886	4.36	1786652	4.90	1709564	7.26	796244	9.44
Lower Limit [b]	89916	2.19	249972	3.36	446663	3.90	427391	6.26	199061	8.44

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
V3D8053-BS	161158	2.69	516715	3.86	914783	4.40	854080	6.76	417063	8.94
V3D8053-BSD	162467	2.69	518666	3.86	914726	4.40	861388	6.76	414128	8.94
ZZZZZZ	161655	2.70	468515	3.86	839569	4.40	783086	6.76	354871	8.94
V3D8053-MB	161655	2.70	468515	3.86	839569	4.40	783086	6.76	354871	8.94
ZZZZZZ	169687	2.70	478564	3.86	863465	4.40	803983	6.76	373825	8.94
ZZZZZZ	189220	2.70	482754	3.86	923657	4.40	975504	6.76	537386	8.94
JD73274-1	224114	2.70	501653	3.86	896047	4.40	832848	6.76	393445	8.94
ZZZZZZ	220476	2.69	500172	3.86	905593	4.40	861894	6.76	413775	8.94
ZZZZZZ	196330	2.70	476356	3.86	857517	4.40	799030	6.76	371570	8.94
JD73509-1	211692	2.70	474250	3.86	858874	4.40	815171	6.76	394409	8.94
ZZZZZZ	171442	2.69	486786	3.86	870916	4.40	802732	6.76	374504	8.94
ZZZZZZ	169934	2.69	484426	3.86	867654	4.40	814425	6.76	370658	8.94
ZZZZZZ	161142	2.70	478529	3.86	912653	4.40	919477	6.76	482059	8.94
JD73509-1MS	199456	2.70	542922	3.86	990384	4.40	930682	6.76	471681	8.94
JD73509-1MSD	207793	2.70	546886	3.86	983028	4.40	926853	6.76	467483	8.94
ZZZZZZ	155192	2.69	513138	3.86	916833	4.40	858983	6.76	450510	8.94
ZZZZZZ	190693	2.69	529627	3.86	1010155	4.40	986783	6.76	558544	8.94
ZZZZZZ	228996	2.70	563237	3.86	1006374	4.40	928716	6.76	456539	8.94
ZZZZZZ	220557	2.70	534494	3.86	957439	4.40	880749	6.76	408421	8.94
ZZZZZZ	212184	2.70	516146	3.86	924055	4.40	860696	6.76	400526	8.94
ZZZZZZ	205423	2.70	505664	3.86	907393	4.40	840661	6.76	393616	8.94
ZZZZZZ	206929	2.70	505561	3.86	940123	4.40	965401	6.76	576815	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Page 1 of 1

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std:	VI10236-CC10232	**Injection Date:**	09/26/23
Lab File ID:	I252312.D	**Injection Time:**	09:22
Instrument ID:	GCMSI	**Method:**	SW846 8260D

	IS 1 AREA	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
Check Std	156551	4.45	596722	5.54	901771	6.07	669277	7.99	316739	9.52
Upper Limit [a]	313102	4.95	1193444	6.04	1803542	6.57	1338554	8.49	633478	10.02
Lower Limit [b]	78276	3.95	298361	5.04	450886	5.57	334639	7.49	158370	9.02

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
VI10236-BS	162344	4.44	614882	5.54	925542	6.07	679928	7.99	316062	9.52
VI10236-BSD	167354	4.44	621131	5.54	932259	6.07	693911	7.99	323906	9.52
VI10236-MB	173067	4.44	596719	5.54	918111	6.07	688237	7.99	301419	9.52
ZZZZZZ	148774	4.44	586320	5.54	917397	6.07	671677	7.99	292113	9.52
JD73274-3	152766	4.44	573908	5.54	892350	6.07	668203	7.99	295492	9.52
JD73274-1	176338	4.44	579269	5.54	881438	6.07	697546	7.99	303863	9.52
JD73466-2	148056	4.44	572281	5.54	901847	6.07	676868	7.99	295482	9.52
JD73466-3	139790	4.44	568676	5.54	909277	6.07	684577	7.99	296091	9.52
ZZZZZZ	136835	4.44	571028	5.54	906118	6.07	673369	7.99	293528	9.52
ZZZZZZ	135572	4.44	564654	5.54	897834	6.07	666215	7.99	293858	9.52
ZZZZZZ	147043	4.44	582214	5.54	918716	6.07	682492	7.99	292798	9.52
JD73466-2MS	142648	4.44	597144	5.54	924269	6.07	689944	7.99	319507	9.52
JD73466-3DUP	136830	4.44	581368	5.54	916384	6.07	684766	7.99	300545	9.52
ZZZZZZ	135064	4.44	562185	5.54	901042	6.07	667037	7.99	286475	9.52
ZZZZZZ	141637	4.44	565199	5.54	911348	6.07	672934	7.99	306731	9.52
ZZZZZZ	141969	4.44	574609	5.54	896977	6.07	663316	7.99	291815	9.52
ZZZZZZ	145895	4.44	580945	5.54	915063	6.07	667691	7.99	288953	9.52
ZZZZZZ	139005	4.44	581124	5.54	904342	6.07	672684	7.99	287878	9.52
ZZZZZZ	145492	4.44	584948	5.54	915206	6.07	680090	7.99	294839	9.52
ZZZZZZ	137294	4.44	567696	5.54	898847	6.07	664786	7.99	290741	9.52
ZZZZZZ	166945	4.44	575647	5.54	900085	6.07	677030	7.99	283424	9.52
ZZZZZZ	167020	4.44	621404	5.54	949965	6.07	714332	7.99	320842	9.52
ZZZZZZ	164221	4.44	625168	5.54	941266	6.07	694420	7.99	304188	9.52
ZZZZZZ	169154	4.44	609112	5.54	873173	6.07	712296	7.99	474997	9.52

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Surrogate Recovery Summary

Job Number: JD73274
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Method: SW846 8260D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JD73274-1	3D192721.D	87	99	94	91
JD73274-1	I252319.D	109	110	98	96
JD73274-2	3D192661.D	92	98	94	90
JD73274-3	I252318.D	104	99	100	95
V3D8051-BS	3D192651.D	96	99	96	90
V3D8051-BSD	3D192652.D	95	99	95	92
V3D8051-MB	3D192654.D	93	100	96	90
V3D8053-BS	3D192715.D	90	97	95	92
V3D8053-BSD	3D192716.D	91	97	93	91
V3D8053-MB	3D192718.D	88	98	93	91
VI10236-BS	I252313.D	101	93	101	97
VI10236-BSD	I252314.D	99	94	100	99
VI10236-MB	I252316.D	104	100	99	98

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-124%
S2 = 1,2-Dichloroethane-D4	75-133%
S3 = Toluene-D8	79-125%
S4 = 4-Bromofluorobenzene	58-148%

Dayton, NJ

09/28/23

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Jacobs Engineering

Varian, Beverly, MA

VARMS111.A.CS.EV.02.FI PO#148048917

SGS Job Number: JD73383

Sampling Date: 09/22/23

Report to:

Jacobs Engineering
120 St. James Avenue
Boston, MA 02116
Raymond.cadorette@jacobs.com; Bernice.Kidd@jacobs.com;
EDMData@jacobs.com
ATTN: Raymond J. Cadorette

Total number of pages in report: **60**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Victoria Pushkova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Jacobs Engineering

Job No: JD73383

Varian, Beverly, MA
Project No: VARMS111.A.CS.EV.02.FI PO#148048917

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD73383-1	09/22/23	13:00	DK	09/22/23	SO	Soil	VAR-PSL10-SO-OB62_15-17_20230922
JD73383-2	09/22/23	13:00	DK	09/22/23	SO	Trip Blank Methanol	TB_20230922_SO_03M
JD73383-3	09/22/23	13:00	DK	09/22/23	SO	Trip Blank Soil	TB_20230922_SO_03L

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the RL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Jacobs Engineering **Job No:** JD73383

Site: Varian, Beverly, MA **Report Date** 9/28/2023 4:07:28 PM

On 09/22/2023, 1 sample(s), 2 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0.4 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD73383 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report’s Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** V3D8051

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73383-2 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73383-2 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73383-2 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.

Matrix: SO **Batch ID:** VI10236

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73383-3 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73383-3 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73383-3 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the RCP limits in the associated BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

Matrix: SO **Batch ID:** VI10237

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73383-1 for Acetone: Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73383-1 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73383-1 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO **Batch ID:** GN46323

- The data for SM2540 G 18TH ED MOD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73383-1	**VAR-PSL10-SO-OB62_15-17_20230922**					
Acetone [a]		10.3	8.0		ug/kg	SW846 8260D
JD73383-2	**TB_20230922_SO_03M**					
No hits reported in this sample.						
JD73383-3	**TB_20230922_SO_03L**					
No hits reported in this sample.						

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VAR-PSL10-SO-OB62_15-17_20230922			
Lab Sample ID:	JD73383-1		**Date Sampled:**	09/22/23
Matrix:	SO - Soil		**Date Received:**	09/22/23
Method:	SW846 8260D		**Percent Solids:**	92.9
Project:	Varian, Beverly, MA			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252354.D	1	09/27/23 12:51	JN	n/a	n/a	VI10237
Run #2							

	Initial Weight
Run #1	6.7 g
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	10.3	8.0	ug/kg	
71-43-2	Benzene	ND	0.40	ug/kg	
108-86-1	Bromobenzene	ND	4.0	ug/kg	
74-97-5	Bromochloromethane	ND	4.0	ug/kg	
75-27-4	Bromodichloromethane	ND	1.6	ug/kg	
75-25-2	Bromoform	ND	4.0	ug/kg	
74-83-9	Bromomethane	ND	4.0	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	8.0	ug/kg	
104-51-8	n-Butylbenzene	ND	1.6	ug/kg	
135-98-8	sec-Butylbenzene	ND	1.6	ug/kg	
98-06-6	tert-Butylbenzene	ND	1.6	ug/kg	
75-15-0	Carbon disulfide	ND	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.6	ug/kg	
108-90-7	Chlorobenzene	ND	1.6	ug/kg	
75-00-3	Chloroethane	ND	4.0	ug/kg	
67-66-3	Chloroform	ND	1.6	ug/kg	
74-87-3	Chloromethane	ND	4.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	1.6	ug/kg	
106-43-4	p-Chlorotoluene	ND	1.6	ug/kg	
108-20-3	Di-Isopropyl ether	ND	1.6	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	1.6	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.80	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.80	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.80	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.80	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.80	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.80	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.80	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.80	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.80	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR-PSL10-SO-OB62_15-17_20230922		
Lab Sample ID:	JD73383-1	**Date Sampled:**	09/22/23
Matrix:	SO - Soil	**Date Received:**	09/22/23
Method:	SW846 8260D	**Percent Solids:**	92.9
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	1.6	ug/kg	
142-28-9	1,3-Dichloropropane	ND	1.6	ug/kg	
594-20-7	2,2-Dichloropropane	ND	1.6	ug/kg	
563-58-6	1,1-Dichloropropene	ND	1.6	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.6	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.6	ug/kg	
123-91-1	1,4-Dioxane	ND	100	ug/kg	
60-29-7	Ethyl Ether	ND	1.6	ug/kg	
100-41-4	Ethylbenzene	ND	0.80	ug/kg	
87-68-3	Hexachlorobutadiene	ND	4.0	ug/kg	
591-78-6	2-Hexanone ^{c}	ND	4.0	ug/kg	
98-82-8	Isopropylbenzene	ND	1.6	ug/kg	
99-87-6	p-Isopropyltoluene	ND	1.6	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.80	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.0	ug/kg	
74-95-3	Methylene bromide	ND	4.0	ug/kg	
75-09-2	Methylene chloride	ND	4.0	ug/kg	
91-20-3	Naphthalene	ND	4.0	ug/kg	
103-65-1	n-Propylbenzene	ND	1.6	ug/kg	
100-42-5	Styrene	ND	1.6	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	1.6	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	1.6	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.6	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.6	ug/kg	
127-18-4	Tetrachloroethene	ND	1.6	ug/kg	
109-99-9	Tetrahydrofuran	ND	8.0	ug/kg	
108-88-3	Toluene	ND	0.80	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.6	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.6	ug/kg	
79-01-6	Trichloroethene	ND	0.80	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	4.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	1.6	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	1.6	ug/kg	
75-01-4	Vinyl chloride	ND	1.6	ug/kg	
	m,p-Xylene	ND	0.80	ug/kg	
95-47-6	o-Xylene	ND	0.80	ug/kg	
1330-20-7	Xylene (total)	ND	0.80	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR-PSL10-SO-OB62_15-17_20230922		
Lab Sample ID:	JD73383-1	**Date Sampled:**	09/22/23
Matrix:	SO - Soil	**Date Received:**	09/22/23
Method:	SW846 8260D	**Percent Solids:**	92.9
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		80-124%
17060-07-0	1,2-Dichloroethane-D4	101%		75-133%
2037-26-5	Toluene-D8	99%		79-125%
460-00-4	4-Bromofluorobenzene	96%		58-148%

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230922_SO_03M		
Lab Sample ID:	JD73383-2	**Date Sampled:**	09/22/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/22/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D192662.D	1	09/25/23 14:57	JN	n/a	n/a	V3D8051
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK) [a]	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230922_SO_03M		
Lab Sample ID:	JD73383-2	**Date Sampled:**	09/22/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/22/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone [b]	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230922_SO_03M		
Lab Sample ID:	JD73383-2	**Date Sampled:**	09/22/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/22/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		80-124%
17060-07-0	1,2-Dichloroethane-D4	98%		75-133%
2037-26-5	Toluene-D8	96%		79-125%
460-00-4	4-Bromofluorobenzene	90%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	J = Indicates an estimated value
RL = Reporting Limit	B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range	N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230922_SO_03L
Lab Sample ID: JD73383-3
Matrix: SO - Trip Blank Soil
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/22/23
Date Received: 09/22/23
Percent Solids: n/a

	File ID	**DF**	**Analyzed**	**By**	**Prep Date**	**Prep Batch**	**Analytical Batch**
Run #1	I252317.D	1	09/26/23 12:03	JN	n/a	n/a	VI10236
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA MCP List

CAS No.	**Compound**	**Result**	**RL**	**Units**	**Q**
67-64-1	Acetone [a]	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230922_SO_03L		
Lab Sample ID:	JD73383-3	**Date Sampled:**	09/22/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/22/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone [c]	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230922_SO_03L		
Lab Sample ID:	JD73383-3	**Date Sampled:**	09/22/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/22/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		80-124%
17060-07-0	1,2-Dichloroethane-D4	97%		75-133%
2037-26-5	Toluene-D8	100%		79-125%
460-00-4	4-Bromofluorobenzene	96%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the RCP limits in the associated BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

(b) Associated CCV outside of control limits high, sample was ND. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

(c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- MCP Form
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits

SGS

EHSA-QAC-0023-04-FORM-Standard COC

SO
SLL
MTB
SSTB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

Page 1 of 1

FED-EX Tracking #:
Bottle Order Control #: VP-088023-128
SGS Quote #:
SGS Job #: JD73383

Client / Reporting Information

Company Name: Jacobs Engineering
Street Address: 120 St James Ave
City: Boston State: MA Zip:
Project Contact: E-mail: Bernice.Kidd@Jacobs.com
Phone #: ~~508~~ (98) 530-209-3480
Sampler(s) Name(s): D.Kearney Phone #: 781-710-4276

Project Information

Project Name: Varian Medical Systems
Street: 150 Sohier Rd
City: Beverly State: MA
Project #: VARMS111.A.CS.EV.02F1
Client Purchase Order #: 14804891 7
Project Manager: Raymond Cadorette

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Requested Analysis: SW 8260C

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Collection Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO_3	H_2SO_4	NONE	DI Water	MEOH	ENCORE	SW 8260C	pH Check (Lab Use Only)	LAB USE ONLY
1	VAR-PSU0-SO_OB62_15-17_		9/22/23	1300	DK	G		SO	4					V	2	1		X	6.6 PPM	P77
	20230922																	X		14K3
2	TB_20230922_SO_03M															1		X		4933
3	TB_20230922_SO_03L														2			X		

Initial Assessment ZAEN
Label Verification

SGS Courier

Turn Around Time (Business Days)

☐ 10 Business Days
☑ 5 Business Days
☐ 3 Business Days*
☐ 2 Business Days*
☐ 1 Business Day*
☐ Other
All data available via Lablink

Approved By (SGS PM): / Date:

* Approval needed for 1-3 Business Day TAT

Deliverable

☐ Commercial "A" (Level 1)
☐ Commercial "B" (Level 2)
☐ NJ Reduced (Level 3)
☐ Full Tier I (Level 4)
☐ Commercial "C"
☐ NJ DKQP
☐ NYASP Category A
☐ NYASP Category B
☐ MA MCP Criteria
☐ CT RCP Criteria
☐ State Forms
☐ EDD Format
☐ DOD-QSM5

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Please analyze either method or low level vial based on PID readings and instrument sensitivity. Analyze trip blank for both

SGS Service Center
Northborough, MA

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by:	Date / Time:	Received By:	Relinquished By:	Date / Time:	Received By:
1	1620 9/22/23	1 Mike Drell	2 Mike Drell	9/22/23 1940	2 Brandon Malley
3 Brandon Malley	9-22-23 2310	3 James Kuo	4		4
5		5	Custody Seal #	☐ Intact ☐ Not intact Absent ☐	Therm ID: See Sample Receipt Summary On Ice ☑ Cooler Temp. °C 0.7

5.1

5

JD73383: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: JD73383 **Client:** JACOBS ENGINEERING **Project:** VARIAN, BEVERLY, MA

Date / Time Received: 9/22/2023 11:10:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (0.7);

Cooler Temps (Corrected) °C: Cooler 1: (0.4);

Cooler Security	**Y**	**N**		**Y**	**N**
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	**Y**	**N**
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun 40	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservatio	**Y**	**N**	**N/A**
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	**Y**	**N**
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	**Y**	**N**
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	**Y**	**N**	**N/A**
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup		
	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	SGS North America Inc. - Dayton	Project #:	JD73383
Project Location:	Varian, Beverly, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
JD73383-1,JD73383-2,JD73383-3

Matrices: Groundwater/Surface Water ( ) Soil/Sediment (x) Drinking Water ( ) Air ( ) Other ( )

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr ( ) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC ( ) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals ( ) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total ( ) Cyanide/PAC CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No

Responses to questions G, H, and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☑ Yes	☐ No [1]
	<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.		
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes	☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No [1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:
Position: **General Manager**

Printed Name: David Chastain
Date: **28-Sep-23**

Internal Sample Tracking Chronicle

Jacobs Engineering

Job No: JD73383

Varian, Beverly, MA
Project No: VARMS111.A.CS.EV.02.FI PO#148048917

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD73383-1	Collected: 22-SEP-23 13:00 By: DK		Received: 22-SEP-23 By: JK			
VAR-PSL10-SO-OB62_15-17_20230922						
JD73383-1	SM2540 G 18TH ED MOD	24-SEP-23 11:00	MK			SOL104
JD73383-1	SW846 8260D	27-SEP-23 12:51	JN			V8260MCP
JD73383-2	Collected: 22-SEP-23 13:00 By: DK		Received: 22-SEP-23 By: JK			
TB_20230922_SO_03M						
JD73383-2	SW846 8260D	25-SEP-23 14:57	JN			V8260MCP
JD73383-3	Collected: 22-SEP-23 13:00 By: DK		Received: 22-SEP-23 By: JK			
TB_20230922_SO_03L						
JD73383-3	SW846 8260D	26-SEP-23 12:03	JN			V8260MCP

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051	SW846 8260D						
V3D8051-BS	67-64-1	Acetone	BSP	REC	156	%	70-130
V3D8051-BS	71-43-2	Benzene	BSP	REC	104	%	70-130
V3D8051-BS	108-86-1	Bromobenzene	BSP	REC	89	%	70-130
V3D8051-BS	74-97-5	Bromochloromethane	BSP	REC	102	%	70-130
V3D8051-BS	75-27-4	Bromodichloromethane	BSP	REC	99	%	70-130
V3D8051-BS	75-25-2	Bromoform	BSP	REC	98	%	70-130
V3D8051-BS	74-83-9	Bromomethane	BSP	REC	102	%	70-130
V3D8051-BS	78-93-3	2-Butanone (MEK)	BSP	REC	132	%	70-130
V3D8051-BS	104-51-8	n-Butylbenzene	BSP	REC	98	%	70-130
V3D8051-BS	135-98-8	sec-Butylbenzene	BSP	REC	98	%	70-130
V3D8051-BS	98-06-6	tert-Butylbenzene	BSP	REC	97	%	70-130
V3D8051-BS	75-15-0	Carbon disulfide	BSP	REC	97	%	70-130
V3D8051-BS	56-23-5	Carbon tetrachloride	BSP	REC	102	%	70-130
V3D8051-BS	108-90-7	Chlorobenzene	BSP	REC	98	%	70-130
V3D8051-BS	75-00-3	Chloroethane	BSP	REC	112	%	70-130
V3D8051-BS	67-66-3	Chloroform	BSP	REC	91	%	70-130
V3D8051-BS	74-87-3	Chloromethane	BSP	REC	101	%	70-130
V3D8051-BS	95-49-8	o-Chlorotoluene	BSP	REC	92	%	70-130
V3D8051-BS	106-43-4	p-Chlorotoluene	BSP	REC	92	%	70-130
V3D8051-BS	108-20-3	Di-Isopropyl ether	BSP	REC	106	%	70-130
V3D8051-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	85	%	70-130
V3D8051-BS	124-48-1	Dibromochloromethane	BSP	REC	99	%	70-130
V3D8051-BS	106-93-4	1,2-Dibromoethane	BSP	REC	94	%	70-130
V3D8051-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	94	%	70-130
V3D8051-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	94	%	70-130
V3D8051-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	92	%	70-130
V3D8051-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	105	%	70-130
V3D8051-BS	75-34-3	1,1-Dichloroethane	BSP	REC	98	%	70-130
V3D8051-BS	107-06-2	1,2-Dichloroethane	BSP	REC	98	%	70-130
V3D8051-BS	75-35-4	1,1-Dichloroethene	BSP	REC	98	%	70-130
V3D8051-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	98	%	70-130
V3D8051-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	94	%	70-130
V3D8051-BS	78-87-5	1,2-Dichloropropane	BSP	REC	102	%	70-130
V3D8051-BS	142-28-9	1,3-Dichloropropane	BSP	REC	93	%	70-130
V3D8051-BS	594-20-7	2,2-Dichloropropane	BSP	REC	98	%	70-130
V3D8051-BS	563-58-6	1,1-Dichloropropene	BSP	REC	100	%	70-130
V3D8051-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	105	%	70-130
V3D8051-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	98	%	70-130
V3D8051-BS	123-91-1	1,4-Dioxane	BSP	REC	103	%	70-130
V3D8051-BS	60-29-7	Ethyl Ether	BSP	REC	96	%	70-130
V3D8051-BS	100-41-4	Ethylbenzene	BSP	REC	100	%	70-130
V3D8051-BS	87-68-3	Hexachlorobutadiene	BSP	REC	84	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BS	591-78-6	2-Hexanone	BSP	REC	120	%	70-130
V3D8051-BS	98-82-8	Isopropylbenzene	BSP	REC	105	%	70-130
V3D8051-BS	99-87-6	p-Isopropyltoluene	BSP	REC	97	%	70-130
V3D8051-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	101	%	70-130
V3D8051-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	111	%	70-130
V3D8051-BS	74-95-3	Methylene bromide	BSP	REC	97	%	70-130
V3D8051-BS	75-09-2	Methylene chloride	BSP	REC	88	%	70-130
V3D8051-BS	91-20-3	Naphthalene	BSP	REC	84	%	70-130
V3D8051-BS	103-65-1	n-Propylbenzene	BSP	REC	94	%	70-130
V3D8051-BS	100-42-5	Styrene	BSP	REC	108	%	70-130
V3D8051-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	106	%	70-130
V3D8051-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	100	%	70-130
V3D8051-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	100	%	70-130
V3D8051-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	85	%	70-130
V3D8051-BS	127-18-4	Tetrachloroethene	BSP	REC	98	%	70-130
V3D8051-BS	109-99-9	Tetrahydrofuran	BSP	REC	102	%	70-130
V3D8051-BS	108-88-3	Toluene	BSP	REC	99	%	70-130
V3D8051-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8051-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	88	%	70-130
V3D8051-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	97	%	70-130
V3D8051-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	92	%	70-130
V3D8051-BS	79-01-6	Trichloroethene	BSP	REC	105	%	70-130
V3D8051-BS	75-69-4	Trichlorofluoromethane	BSP	REC	97	%	70-130
V3D8051-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	91	%	70-130
V3D8051-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	92	%	70-130
V3D8051-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	96	%	70-130
V3D8051-BS	75-01-4	Vinyl chloride	BSP	REC	108	%	70-130
V3D8051-BS		m,p-Xylene	BSP	REC	103	%	70-130
V3D8051-BS	95-47-6	o-Xylene	BSP	REC	102	%	70-130
V3D8051-BS	1330-20-7	Xylene (total)	BSP	REC	102	%	70-130
V3D8051-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	96	%	70-130
V3D8051-BS	2037-26-5	Toluene-D8	BSP	SURR	96	%	70-130
V3D8051-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	90	%	70-130
V3D8051-BSD	67-64-1	Acetone	BSD	REC	161 [a]	%	70-130
V3D8051-BSD	67-64-1	Acetone	BSD	RPD	3	%	20
V3D8051-BSD	71-43-2	Benzene	BSD	REC	102	%	70-130
V3D8051-BSD	71-43-2	Benzene	BSD	RPD	2	%	20
V3D8051-BSD	108-86-1	Bromobenzene	BSD	REC	89	%	70-130
V3D8051-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
V3D8051-BSD	74-97-5	Bromochloromethane	BSD	REC	99	%	70-130
V3D8051-BSD	74-97-5	Bromochloromethane	BSD	RPD	3	%	20
V3D8051-BSD	75-27-4	Bromodichloromethane	BSD	REC	98	%	70-130
V3D8051-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
V3D8051-BSD	75-25-2	Bromoform	BSD	REC	97	%	70-130
V3D8051-BSD	75-25-2	Bromoform	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BSD	74-83-9	Bromomethane	BSD	REC	105	%	70-130
V3D8051-BSD	74-83-9	Bromomethane	BSD	RPD	2	%	20
V3D8051-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	137	%	70-130
V3D8051-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	4	%	20
V3D8051-BSD	104-51-8	n-Butylbenzene	BSD	REC	97	%	70-130
V3D8051-BSD	104-51-8	n-Butylbenzene	BSD	RPD	1	%	20
V3D8051-BSD	135-98-8	sec-Butylbenzene	BSD	REC	96	%	70-130
V3D8051-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	2	%	20
V3D8051-BSD	98-06-6	tert-Butylbenzene	BSD	REC	95	%	70-130
V3D8051-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	2	%	20
V3D8051-BSD	75-15-0	Carbon disulfide	BSD	REC	93	%	70-130
V3D8051-BSD	75-15-0	Carbon disulfide	BSD	RPD	4	%	20
V3D8051-BSD	56-23-5	Carbon tetrachloride	BSD	REC	100	%	70-130
V3D8051-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	2	%	20
V3D8051-BSD	108-90-7	Chlorobenzene	BSD	REC	96	%	70-130
V3D8051-BSD	108-90-7	Chlorobenzene	BSD	RPD	3	%	20
V3D8051-BSD	75-00-3	Chloroethane	BSD	REC	107	%	70-130
V3D8051-BSD	75-00-3	Chloroethane	BSD	RPD	4	%	20
V3D8051-BSD	67-66-3	Chloroform	BSD	REC	88	%	70-130
V3D8051-BSD	67-66-3	Chloroform	BSD	RPD	3	%	20
V3D8051-BSD	74-87-3	Chloromethane	BSD	REC	95	%	70-130
V3D8051-BSD	74-87-3	Chloromethane	BSD	RPD	6	%	20
V3D8051-BSD	95-49-8	o-Chlorotoluene	BSD	REC	91	%	70-130
V3D8051-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	1	%	20
V3D8051-BSD	106-43-4	p-Chlorotoluene	BSD	REC	92	%	70-130
V3D8051-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
V3D8051-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	104	%	70-130
V3D8051-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	2	%	20
V3D8051-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	90	%	70-130
V3D8051-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	5	%	20
V3D8051-BSD	124-48-1	Dibromochloromethane	BSD	REC	97	%	70-130
V3D8051-BSD	124-48-1	Dibromochloromethane	BSD	RPD	2	%	20
V3D8051-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	93	%	70-130
V3D8051-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	1	%	20
V3D8051-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	95	%	70-130
V3D8051-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	2	%	20
V3D8051-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	94	%	70-130
V3D8051-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
V3D8051-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	91	%	70-130
V3D8051-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	1	%	20
V3D8051-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	102	%	70-130
V3D8051-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	3	%	20
V3D8051-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	94	%	70-130
V3D8051-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	4	%	20
V3D8051-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	98	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	1	%	20
V3D8051-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	94	%	70-130
V3D8051-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	4	%	20
V3D8051-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	96	%	70-130
V3D8051-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	2	%	20
V3D8051-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	92	%	70-130
V3D8051-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	3	%	20
V3D8051-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	100	%	70-130
V3D8051-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
V3D8051-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	92	%	70-130
V3D8051-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	1	%	20
V3D8051-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	94	%	70-130
V3D8051-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	5	%	20
V3D8051-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	96	%	70-130
V3D8051-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	3	%	20
V3D8051-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	103	%	70-130
V3D8051-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	2	%	20
V3D8051-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	96	%	70-130
V3D8051-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	3	%	20
V3D8051-BSD	123-91-1	1,4-Dioxane	BSD	REC	109	%	70-130
V3D8051-BSD	123-91-1	1,4-Dioxane	BSD	RPD	6	%	20
V3D8051-BSD	60-29-7	Ethyl Ether	BSD	REC	95	%	70-130
V3D8051-BSD	60-29-7	Ethyl Ether	BSD	RPD	1	%	20
V3D8051-BSD	100-41-4	Ethylbenzene	BSD	REC	96	%	70-130
V3D8051-BSD	100-41-4	Ethylbenzene	BSD	RPD	3	%	20
V3D8051-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	84	%	70-130
V3D8051-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	1	%	20
V3D8051-BSD	591-78-6	2-Hexanone	BSD	REC	123	%	70-130
V3D8051-BSD	591-78-6	2-Hexanone	BSD	RPD	2	%	20
V3D8051-BSD	98-82-8	Isopropylbenzene	BSD	REC	102	%	70-130
V3D8051-BSD	98-82-8	Isopropylbenzene	BSD	RPD	3	%	20
V3D8051-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	96	%	70-130
V3D8051-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	1	%	20
V3D8051-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	100	%	70-130
V3D8051-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	1	%	20
V3D8051-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	113	%	70-130
V3D8051-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	2	%	20
V3D8051-BSD	74-95-3	Methylene bromide	BSD	REC	99	%	70-130
V3D8051-BSD	74-95-3	Methylene bromide	BSD	RPD	2	%	20
V3D8051-BSD	75-09-2	Methylene chloride	BSD	REC	86	%	70-130
V3D8051-BSD	75-09-2	Methylene chloride	BSD	RPD	3	%	20
V3D8051-BSD	91-20-3	Naphthalene	BSD	REC	90	%	70-130
V3D8051-BSD	91-20-3	Naphthalene	BSD	RPD	6	%	20
V3D8051-BSD	103-65-1	n-Propylbenzene	BSD	REC	91	%	70-130
V3D8051-BSD	103-65-1	n-Propylbenzene	BSD	RPD	3	%	20

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-BSD	100-42-5	Styrene	BSD	REC	105	%	70-130
V3D8051-BSD	100-42-5	Styrene	BSD	RPD	3	%	20
V3D8051-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	105	%	70-130
V3D8051-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	1	%	20
V3D8051-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	98	%	70-130
V3D8051-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	2	%	20
V3D8051-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	99	%	70-130
V3D8051-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	1	%	20
V3D8051-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	87	%	70-130
V3D8051-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	2	%	20
V3D8051-BSD	127-18-4	Tetrachloroethene	BSD	REC	95	%	70-130
V3D8051-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
V3D8051-BSD	109-99-9	Tetrahydrofuran	BSD	REC	103	%	70-130
V3D8051-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	1	%	20
V3D8051-BSD	108-88-3	Toluene	BSD	REC	96	%	70-130
V3D8051-BSD	108-88-3	Toluene	BSD	RPD	3	%	20
V3D8051-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8051-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	6	%	20
V3D8051-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	90	%	70-130
V3D8051-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	3	%	20
V3D8051-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	95	%	70-130
V3D8051-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
V3D8051-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	92	%	70-130
V3D8051-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	1	%	20
V3D8051-BSD	79-01-6	Trichloroethene	BSD	REC	101	%	70-130
V3D8051-BSD	79-01-6	Trichloroethene	BSD	RPD	4	%	20
V3D8051-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	93	%	70-130
V3D8051-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	4	%	20
V3D8051-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	94	%	70-130
V3D8051-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	3	%	20
V3D8051-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	91	%	70-130
V3D8051-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	1	%	20
V3D8051-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	94	%	70-130
V3D8051-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	2	%	20
V3D8051-BSD	75-01-4	Vinyl chloride	BSD	REC	105	%	70-130
V3D8051-BSD	75-01-4	Vinyl chloride	BSD	RPD	3	%	20
V3D8051-BSD		m,p-Xylene	BSD	REC	101	%	70-130
V3D8051-BSD		m,p-Xylene	BSD	RPD	2	%	20
V3D8051-BSD	95-47-6	o-Xylene	BSD	REC	99	%	70-130
V3D8051-BSD	95-47-6	o-Xylene	BSD	RPD	2	%	20
V3D8051-BSD	1330-20-7	Xylene (total)	BSD	REC	100	%	70-130
V3D8051-BSD	1330-20-7	Xylene (total)	BSD	RPD	2	%	20
V3D8051-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	95	%	70-130
V3D8051-BSD	2037-26-5	Toluene-D8	BSD	SURR	95	%	70-130
V3D8051-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	92	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8051-MB	1868-53-7	Dibromofluoromethane	MB	SURR	93	%	70-130
V3D8051-MB	2037-26-5	Toluene-D8	MB	SURR	96	%	70-130
V3D8051-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	90	%	70-130
JD73383-2	1868-53-7	Dibromofluoromethane	SAMP	SURR	91	%	70-130
JD73383-2	2037-26-5	Toluene-D8	SAMP	SURR	96	%	70-130
JD73383-2	460-00-4	4-Bromofluorobenzene	SAMP	SURR	90	%	70-130
VI10236	SW846 8260D						
VI10236-BS	67-64-1	Acetone	BSP	REC	130	%	70-130
VI10236-BS	71-43-2	Benzene	BSP	REC	97	%	70-130
VI10236-BS	108-86-1	Bromobenzene	BSP	REC	99	%	70-130
VI10236-BS	74-97-5	Bromochloromethane	BSP	REC	104	%	70-130
VI10236-BS	75-27-4	Bromodichloromethane	BSP	REC	99	%	70-130
VI10236-BS	75-25-2	Bromoform	BSP	REC	101	%	70-130
VI10236-BS	74-83-9	Bromomethane	BSP	REC	101	%	70-130
VI10236-BS	78-93-3	2-Butanone (MEK)	BSP	REC	127	%	70-130
VI10236-BS	104-51-8	n-Butylbenzene	BSP	REC	100	%	70-130
VI10236-BS	135-98-8	sec-Butylbenzene	BSP	REC	97	%	70-130
VI10236-BS	98-06-6	tert-Butylbenzene	BSP	REC	96	%	70-130
VI10236-BS	75-15-0	Carbon disulfide	BSP	REC	97	%	70-130
VI10236-BS	56-23-5	Carbon tetrachloride	BSP	REC	98	%	70-130
VI10236-BS	108-90-7	Chlorobenzene	BSP	REC	99	%	70-130
VI10236-BS	75-00-3	Chloroethane	BSP	REC	94	%	70-130
VI10236-BS	67-66-3	Chloroform	BSP	REC	94	%	70-130
VI10236-BS	74-87-3	Chloromethane	BSP	REC	91	%	70-130
VI10236-BS	95-49-8	o-Chlorotoluene	BSP	REC	99	%	70-130
VI10236-BS	106-43-4	p-Chlorotoluene	BSP	REC	98	%	70-130
VI10236-BS	108-20-3	Di-Isopropyl ether	BSP	REC	95	%	70-130
VI10236-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	102	%	70-130
VI10236-BS	124-48-1	Dibromochloromethane	BSP	REC	102	%	70-130
VI10236-BS	106-93-4	1,2-Dibromoethane	BSP	REC	102	%	70-130
VI10236-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	98	%	70-130
VI10236-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	96	%	70-130
VI10236-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	99	%	70-130
VI10236-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	98	%	70-130
VI10236-BS	75-34-3	1,1-Dichloroethane	BSP	REC	100	%	70-130
VI10236-BS	107-06-2	1,2-Dichloroethane	BSP	REC	93	%	70-130
VI10236-BS	75-35-4	1,1-Dichloroethene	BSP	REC	100	%	70-130
VI10236-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	101	%	70-130
VI10236-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	98	%	70-130
VI10236-BS	78-87-5	1,2-Dichloropropane	BSP	REC	95	%	70-130
VI10236-BS	142-28-9	1,3-Dichloropropane	BSP	REC	101	%	70-130
VI10236-BS	594-20-7	2,2-Dichloropropane	BSP	REC	98	%	70-130
VI10236-BS	563-58-6	1,1-Dichloropropene	BSP	REC	96	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	100	%	70-130
VI10236-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	104	%	70-130
VI10236-BS	123-91-1	1,4-Dioxane	BSP	REC	103	%	70-130
VI10236-BS	60-29-7	Ethyl Ether	BSP	REC	100	%	70-130
VI10236-BS	100-41-4	Ethylbenzene	BSP	REC	98	%	70-130
VI10236-BS	87-68-3	Hexachlorobutadiene	BSP	REC	99	%	70-130
VI10236-BS	591-78-6	2-Hexanone	BSP	REC	122	%	70-130
VI10236-BS	98-82-8	Isopropylbenzene	BSP	REC	96	%	70-130
VI10236-BS	99-87-6	p-Isopropyltoluene	BSP	REC	99	%	70-130
VI10236-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	96	%	70-130
VI10236-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	104	%	70-130
VI10236-BS	74-95-3	Methylene bromide	BSP	REC	99	%	70-130
VI10236-BS	75-09-2	Methylene chloride	BSP	REC	93	%	70-130
VI10236-BS	91-20-3	Naphthalene	BSP	REC	96	%	70-130
VI10236-BS	103-65-1	n-Propylbenzene	BSP	REC	99	%	70-130
VI10236-BS	100-42-5	Styrene	BSP	REC	102	%	70-130
VI10236-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	101	%	70-130
VI10236-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	97	%	70-130
VI10236-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	104	%	70-130
VI10236-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	93	%	70-130
VI10236-BS	127-18-4	Tetrachloroethene	BSP	REC	101	%	70-130
VI10236-BS	109-99-9	Tetrahydrofuran	BSP	REC	91	%	70-130
VI10236-BS	108-88-3	Toluene	BSP	REC	97	%	70-130
VI10236-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	98	%	70-130
VI10236-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	100	%	70-130
VI10236-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	98	%	70-130
VI10236-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	100	%	70-130
VI10236-BS	79-01-6	Trichloroethene	BSP	REC	94	%	70-130
VI10236-BS	75-69-4	Trichlorofluoromethane	BSP	REC	100	%	70-130
VI10236-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	97	%	70-130
VI10236-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	97	%	70-130
VI10236-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	99	%	70-130
VI10236-BS	75-01-4	Vinyl chloride	BSP	REC	94	%	70-130
VI10236-BS		m,p-Xylene	BSP	REC	101	%	70-130
VI10236-BS	95-47-6	o-Xylene	BSP	REC	101	%	70-130
VI10236-BS	1330-20-7	Xylene (total)	BSP	REC	101	%	70-130
VI10236-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	101	%	70-130
VI10236-BS	2037-26-5	Toluene-D8	BSP	SURR	101	%	70-130
VI10236-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	97	%	70-130
VI10236-BSD	67-64-1	Acetone	BSD	REC	133	%	70-130
VI10236-BSD	67-64-1	Acetone	BSD	RPD	2	%	20
VI10236-BSD	71-43-2	Benzene	BSD	REC	96	%	70-130
VI10236-BSD	71-43-2	Benzene	BSD	RPD	1	%	20
VI10236-BSD	108-86-1	Bromobenzene	BSD	REC	101	%	70-130
VI10236-BSD	108-86-1	Bromobenzene	BSD	RPD	2	%	20

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BSD	74-97-5	Bromochloromethane	BSD	REC	101	%	70-130
VI10236-BSD	74-97-5	Bromochloromethane	BSD	RPD	3	%	20
VI10236-BSD	75-27-4	Bromodichloromethane	BSD	REC	100	%	70-130
VI10236-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
VI10236-BSD	75-25-2	Bromoform	BSD	REC	104	%	70-130
VI10236-BSD	75-25-2	Bromoform	BSD	RPD	3	%	20
VI10236-BSD	74-83-9	Bromomethane	BSD	REC	100	%	70-130
VI10236-BSD	74-83-9	Bromomethane	BSD	RPD	1	%	20
VI10236-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	130	%	70-130
VI10236-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	2	%	20
VI10236-BSD	104-51-8	n-Butylbenzene	BSD	REC	98	%	70-130
VI10236-BSD	104-51-8	n-Butylbenzene	BSD	RPD	2	%	20
VI10236-BSD	135-98-8	sec-Butylbenzene	BSD	REC	96	%	70-130
VI10236-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	1	%	20
VI10236-BSD	98-06-6	tert-Butylbenzene	BSD	REC	97	%	70-130
VI10236-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
VI10236-BSD	75-15-0	Carbon disulfide	BSD	REC	95	%	70-130
VI10236-BSD	75-15-0	Carbon disulfide	BSD	RPD	3	%	20
VI10236-BSD	56-23-5	Carbon tetrachloride	BSD	REC	97	%	70-130
VI10236-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	1	%	20
VI10236-BSD	108-90-7	Chlorobenzene	BSD	REC	99	%	70-130
VI10236-BSD	108-90-7	Chlorobenzene	BSD	RPD	0	%	20
VI10236-BSD	75-00-3	Chloroethane	BSD	REC	95	%	70-130
VI10236-BSD	75-00-3	Chloroethane	BSD	RPD	1	%	20
VI10236-BSD	67-66-3	Chloroform	BSD	REC	92	%	70-130
VI10236-BSD	67-66-3	Chloroform	BSD	RPD	2	%	20
VI10236-BSD	74-87-3	Chloromethane	BSD	REC	89	%	70-130
VI10236-BSD	74-87-3	Chloromethane	BSD	RPD	2	%	20
VI10236-BSD	95-49-8	o-Chlorotoluene	BSD	REC	100	%	70-130
VI10236-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	1	%	20
VI10236-BSD	106-43-4	p-Chlorotoluene	BSD	REC	97	%	70-130
VI10236-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	1	%	20
VI10236-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	94	%	70-130
VI10236-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	1	%	20
VI10236-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	104	%	70-130
VI10236-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	2	%	20
VI10236-BSD	124-48-1	Dibromochloromethane	BSD	REC	103	%	70-130
VI10236-BSD	124-48-1	Dibromochloromethane	BSD	RPD	1	%	20
VI10236-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	103	%	70-130
VI10236-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	1	%	20
VI10236-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	99	%	70-130
VI10236-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
VI10236-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	97	%	70-130
VI10236-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
VI10236-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	100	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	1	%	20
VI10236-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	97	%	70-130
VI10236-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	1	%	20
VI10236-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	96	%	70-130
VI10236-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	3	%	20
VI10236-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	93	%	70-130
VI10236-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	0	%	20
VI10236-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	96	%	70-130
VI10236-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	3	%	20
VI10236-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	99	%	70-130
VI10236-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	2	%	20
VI10236-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	94	%	70-130
VI10236-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	5	%	20
VI10236-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	93	%	70-130
VI10236-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
VI10236-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	101	%	70-130
VI10236-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	0	%	20
VI10236-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	95	%	70-130
VI10236-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	2	%	20
VI10236-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	94	%	70-130
VI10236-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	3	%	20
VI10236-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	101	%	70-130
VI10236-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
VI10236-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	104	%	70-130
VI10236-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	0	%	20
VI10236-BSD	123-91-1	1,4-Dioxane	BSD	REC	108	%	70-130
VI10236-BSD	123-91-1	1,4-Dioxane	BSD	RPD	5	%	20
VI10236-BSD	60-29-7	Ethyl Ether	BSD	REC	100	%	70-130
VI10236-BSD	60-29-7	Ethyl Ether	BSD	RPD	0	%	20
VI10236-BSD	100-41-4	Ethylbenzene	BSD	REC	98	%	70-130
VI10236-BSD	100-41-4	Ethylbenzene	BSD	RPD	0	%	20
VI10236-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	100	%	70-130
VI10236-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	1	%	20
VI10236-BSD	591-78-6	2-Hexanone	BSD	REC	122	%	70-130
VI10236-BSD	591-78-6	2-Hexanone	BSD	RPD	0	%	20
VI10236-BSD	98-82-8	Isopropylbenzene	BSD	REC	97	%	70-130
VI10236-BSD	98-82-8	Isopropylbenzene	BSD	RPD	1	%	20
VI10236-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	98	%	70-130
VI10236-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	1	%	20
VI10236-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	96	%	70-130
VI10236-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	0	%	20
VI10236-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	107	%	70-130
VI10236-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	3	%	20
VI10236-BSD	74-95-3	Methylene bromide	BSD	REC	99	%	70-130
VI10236-BSD	74-95-3	Methylene bromide	BSD	RPD	0	%	20

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BSD	75-09-2	Methylene chloride	BSD	REC	92	%	70-130
VI10236-BSD	75-09-2	Methylene chloride	BSD	RPD	1	%	20
VI10236-BSD	91-20-3	Naphthalene	BSD	REC	98	%	70-130
VI10236-BSD	91-20-3	Naphthalene	BSD	RPD	2	%	20
VI10236-BSD	103-65-1	n-Propylbenzene	BSD	REC	98	%	70-130
VI10236-BSD	103-65-1	n-Propylbenzene	BSD	RPD	0	%	20
VI10236-BSD	100-42-5	Styrene	BSD	REC	102	%	70-130
VI10236-BSD	100-42-5	Styrene	BSD	RPD	0	%	20
VI10236-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	102	%	70-130
VI10236-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	2	%	20
VI10236-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	97	%	70-130
VI10236-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	0	%	20
VI10236-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	104	%	70-130
VI10236-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	0	%	20
VI10236-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	95	%	70-130
VI10236-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	1	%	20
VI10236-BSD	127-18-4	Tetrachloroethene	BSD	REC	99	%	70-130
VI10236-BSD	127-18-4	Tetrachloroethene	BSD	RPD	1	%	20
VI10236-BSD	109-99-9	Tetrahydrofuran	BSD	REC	92	%	70-130
VI10236-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	1	%	20
VI10236-BSD	108-88-3	Toluene	BSD	REC	97	%	70-130
VI10236-BSD	108-88-3	Toluene	BSD	RPD	0	%	20
VI10236-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	99	%	70-130
VI10236-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	1	%	20
VI10236-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	101	%	70-130
VI10236-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	1	%	20
VI10236-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	96	%	70-130
VI10236-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
VI10236-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	102	%	70-130
VI10236-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	1	%	20
VI10236-BSD	79-01-6	Trichloroethene	BSD	REC	94	%	70-130
VI10236-BSD	79-01-6	Trichloroethene	BSD	RPD	0	%	20
VI10236-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	99	%	70-130
VI10236-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	1	%	20
VI10236-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	104	%	70-130
VI10236-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	6	%	20
VI10236-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	97	%	70-130
VI10236-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	0	%	20
VI10236-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	99	%	70-130
VI10236-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	0	%	20
VI10236-BSD	75-01-4	Vinyl chloride	BSD	REC	92	%	70-130
VI10236-BSD	75-01-4	Vinyl chloride	BSD	RPD	3	%	20
VI10236-BSD		m,p-Xylene	BSD	REC	101	%	70-130
VI10236-BSD		m,p-Xylene	BSD	RPD	0	%	20
VI10236-BSD	95-47-6	o-Xylene	BSD	REC	101	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10236-BSD	95-47-6	o-Xylene	BSD	RPD	0	%	20
VI10236-BSD	1330-20-7	Xylene (total)	BSD	REC	101	%	70-130
VI10236-BSD	1330-20-7	Xylene (total)	BSD	RPD	1	%	20
VI10236-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	99	%	70-130
VI10236-BSD	2037-26-5	Toluene-D8	BSD	SURR	100	%	70-130
VI10236-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	99	%	70-130
VI10236-MB	1868-53-7	Dibromofluoromethane	MB	SURR	104	%	70-130
VI10236-MB	2037-26-5	Toluene-D8	MB	SURR	99	%	70-130
VI10236-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	98	%	70-130
JD73383-3	1868-53-7	Dibromofluoromethane	SAMP	SURR	104	%	70-130
JD73383-3	2037-26-5	Toluene-D8	SAMP	SURR	100	%	70-130
JD73383-3	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130
VI10237	SW846 8260D						
VI10237-BS	67-64-1	Acetone	BSP	REC	130	%	70-130
VI10237-BS	71-43-2	Benzene	BSP	REC	99	%	70-130
VI10237-BS	108-86-1	Bromobenzene	BSP	REC	102	%	70-130
VI10237-BS	74-97-5	Bromochloromethane	BSP	REC	106	%	70-130
VI10237-BS	75-27-4	Bromodichloromethane	BSP	REC	104	%	70-130
VI10237-BS	75-25-2	Bromoform	BSP	REC	105	%	70-130
VI10237-BS	74-83-9	Bromomethane	BSP	REC	108	%	70-130
VI10237-BS	78-93-3	2-Butanone (MEK)	BSP	REC	132	%	70-130
VI10237-BS	104-51-8	n-Butylbenzene	BSP	REC	106	%	70-130
VI10237-BS	135-98-8	sec-Butylbenzene	BSP	REC	103	%	70-130
VI10237-BS	98-06-6	tert-Butylbenzene	BSP	REC	103	%	70-130
VI10237-BS	75-15-0	Carbon disulfide	BSP	REC	102	%	70-130
VI10237-BS	56-23-5	Carbon tetrachloride	BSP	REC	108	%	70-130
VI10237-BS	108-90-7	Chlorobenzene	BSP	REC	104	%	70-130
VI10237-BS	75-00-3	Chloroethane	BSP	REC	103	%	70-130
VI10237-BS	67-66-3	Chloroform	BSP	REC	98	%	70-130
VI10237-BS	74-87-3	Chloromethane	BSP	REC	96	%	70-130
VI10237-BS	95-49-8	o-Chlorotoluene	BSP	REC	102	%	70-130
VI10237-BS	106-43-4	p-Chlorotoluene	BSP	REC	99	%	70-130
VI10237-BS	108-20-3	Di-Isopropyl ether	BSP	REC	93	%	70-130
VI10237-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	105	%	70-130
VI10237-BS	124-48-1	Dibromochloromethane	BSP	REC	107	%	70-130
VI10237-BS	106-93-4	1,2-Dibromoethane	BSP	REC	104	%	70-130
VI10237-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	101	%	70-130
VI10237-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	99	%	70-130
VI10237-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	101	%	70-130
VI10237-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	105	%	70-130
VI10237-BS	75-34-3	1,1-Dichloroethane	BSP	REC	103	%	70-130
VI10237-BS	107-06-2	1,2-Dichloroethane	BSP	REC	96	%	70-130
VI10237-BS	75-35-4	1,1-Dichloroethene	BSP	REC	107	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10237-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	105	%	70-130
VI10237-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	103	%	70-130
VI10237-BS	78-87-5	1,2-Dichloropropane	BSP	REC	95	%	70-130
VI10237-BS	142-28-9	1,3-Dichloropropane	BSP	REC	102	%	70-130
VI10237-BS	594-20-7	2,2-Dichloropropane	BSP	REC	108	%	70-130
VI10237-BS	563-58-6	1,1-Dichloropropene	BSP	REC	103	%	70-130
VI10237-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	103	%	70-130
VI10237-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	108	%	70-130
VI10237-BS	123-91-1	1,4-Dioxane	BSP	REC	107	%	70-130
VI10237-BS	60-29-7	Ethyl Ether	BSP	REC	101	%	70-130
VI10237-BS	100-41-4	Ethylbenzene	BSP	REC	104	%	70-130
VI10237-BS	87-68-3	Hexachlorobutadiene	BSP	REC	111	%	70-130
VI10237-BS	591-78-6	2-Hexanone	BSP	REC	127	%	70-130
VI10237-BS	98-82-8	Isopropylbenzene	BSP	REC	104	%	70-130
VI10237-BS	99-87-6	p-Isopropyltoluene	BSP	REC	104	%	70-130
VI10237-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	96	%	70-130
VI10237-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	100	%	70-130
VI10237-BS	74-95-3	Methylene bromide	BSP	REC	100	%	70-130
VI10237-BS	75-09-2	Methylene chloride	BSP	REC	92	%	70-130
VI10237-BS	91-20-3	Naphthalene	BSP	REC	96	%	70-130
VI10237-BS	103-65-1	n-Propylbenzene	BSP	REC	103	%	70-130
VI10237-BS	100-42-5	Styrene	BSP	REC	105	%	70-130
VI10237-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	101	%	70-130
VI10237-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	97	%	70-130
VI10237-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	111	%	70-130
VI10237-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	90	%	70-130
VI10237-BS	127-18-4	Tetrachloroethene	BSP	REC	110	%	70-130
VI10237-BS	109-99-9	Tetrahydrofuran	BSP	REC	91	%	70-130
VI10237-BS	108-88-3	Toluene	BSP	REC	103	%	70-130
VI10237-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	100	%	70-130
VI10237-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	105	%	70-130
VI10237-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	108	%	70-130
VI10237-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	101	%	70-130
VI10237-BS	79-01-6	Trichloroethene	BSP	REC	101	%	70-130
VI10237-BS	75-69-4	Trichlorofluoromethane	BSP	REC	110	%	70-130
VI10237-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	97	%	70-130
VI10237-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	100	%	70-130
VI10237-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	103	%	70-130
VI10237-BS	75-01-4	Vinyl chloride	BSP	REC	101	%	70-130
VI10237-BS		m,p-Xylene	BSP	REC	107	%	70-130
VI10237-BS	95-47-6	o-Xylene	BSP	REC	104	%	70-130
VI10237-BS	1330-20-7	Xylene (total)	BSP	REC	106	%	70-130
VI10237-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	101	%	70-130
VI10237-BS	2037-26-5	Toluene-D8	BSP	SURR	101	%	70-130
VI10237-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	96	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10237-BSD	67-64-1	Acetone	BSD	REC	134	%	70-130
VI10237-BSD	67-64-1	Acetone	BSD	RPD	3	%	20
VI10237-BSD	71-43-2	Benzene	BSD	REC	99	%	70-130
VI10237-BSD	71-43-2	Benzene	BSD	RPD	0	%	20
VI10237-BSD	108-86-1	Bromobenzene	BSD	REC	105	%	70-130
VI10237-BSD	108-86-1	Bromobenzene	BSD	RPD	4	%	20
VI10237-BSD	74-97-5	Bromochloromethane	BSD	REC	105	%	70-130
VI10237-BSD	74-97-5	Bromochloromethane	BSD	RPD	2	%	20
VI10237-BSD	75-27-4	Bromodichloromethane	BSD	REC	103	%	70-130
VI10237-BSD	75-27-4	Bromodichloromethane	BSD	RPD	0	%	20
VI10237-BSD	75-25-2	Bromoform	BSD	REC	106	%	70-130
VI10237-BSD	75-25-2	Bromoform	BSD	RPD	1	%	20
VI10237-BSD	74-83-9	Bromomethane	BSD	REC	107	%	70-130
VI10237-BSD	74-83-9	Bromomethane	BSD	RPD	1	%	20
VI10237-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	129	%	70-130
VI10237-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	2	%	20
VI10237-BSD	104-51-8	n-Butylbenzene	BSD	REC	106	%	70-130
VI10237-BSD	104-51-8	n-Butylbenzene	BSD	RPD	0	%	20
VI10237-BSD	135-98-8	sec-Butylbenzene	BSD	REC	103	%	70-130
VI10237-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	0	%	20
VI10237-BSD	98-06-6	tert-Butylbenzene	BSD	REC	103	%	70-130
VI10237-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	0	%	20
VI10237-BSD	75-15-0	Carbon disulfide	BSD	REC	99	%	70-130
VI10237-BSD	75-15-0	Carbon disulfide	BSD	RPD	4	%	20
VI10237-BSD	56-23-5	Carbon tetrachloride	BSD	REC	106	%	70-130
VI10237-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	2	%	20
VI10237-BSD	108-90-7	Chlorobenzene	BSD	REC	104	%	70-130
VI10237-BSD	108-90-7	Chlorobenzene	BSD	RPD	0	%	20
VI10237-BSD	75-00-3	Chloroethane	BSD	REC	100	%	70-130
VI10237-BSD	75-00-3	Chloroethane	BSD	RPD	2	%	20
VI10237-BSD	67-66-3	Chloroform	BSD	REC	95	%	70-130
VI10237-BSD	67-66-3	Chloroform	BSD	RPD	3	%	20
VI10237-BSD	74-87-3	Chloromethane	BSD	REC	93	%	70-130
VI10237-BSD	74-87-3	Chloromethane	BSD	RPD	2	%	20
VI10237-BSD	95-49-8	o-Chlorotoluene	BSD	REC	102	%	70-130
VI10237-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	0	%	20
VI10237-BSD	106-43-4	p-Chlorotoluene	BSD	REC	100	%	70-130
VI10237-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	1	%	20
VI10237-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	91	%	70-130
VI10237-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	2	%	20
VI10237-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	106	%	70-130
VI10237-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	1	%	20
VI10237-BSD	124-48-1	Dibromochloromethane	BSD	REC	106	%	70-130
VI10237-BSD	124-48-1	Dibromochloromethane	BSD	RPD	0	%	20
VI10237-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	105	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10237-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	1	%	20
VI10237-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	102	%	70-130
VI10237-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
VI10237-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	100	%	70-130
VI10237-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	1	%	20
VI10237-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	102	%	70-130
VI10237-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	1	%	20
VI10237-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	103	%	70-130
VI10237-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	2	%	20
VI10237-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	100	%	70-130
VI10237-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	3	%	20
VI10237-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	96	%	70-130
VI10237-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	0	%	20
VI10237-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	102	%	70-130
VI10237-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	5	%	20
VI10237-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	102	%	70-130
VI10237-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	3	%	20
VI10237-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	100	%	70-130
VI10237-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	3	%	20
VI10237-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	95	%	70-130
VI10237-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	1	%	20
VI10237-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	101	%	70-130
VI10237-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	1	%	20
VI10237-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	102	%	70-130
VI10237-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	5	%	20
VI10237-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	102	%	70-130
VI10237-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	1	%	20
VI10237-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	104	%	70-130
VI10237-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
VI10237-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	108	%	70-130
VI10237-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	0	%	20
VI10237-BSD	123-91-1	1,4-Dioxane	BSD	REC	105	%	70-130
VI10237-BSD	123-91-1	1,4-Dioxane	BSD	RPD	2	%	20
VI10237-BSD	60-29-7	Ethyl Ether	BSD	REC	99	%	70-130
VI10237-BSD	60-29-7	Ethyl Ether	BSD	RPD	2	%	20
VI10237-BSD	100-41-4	Ethylbenzene	BSD	REC	104	%	70-130
VI10237-BSD	100-41-4	Ethylbenzene	BSD	RPD	0	%	20
VI10237-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	110	%	70-130
VI10237-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	1	%	20
VI10237-BSD	591-78-6	2-Hexanone	BSD	REC	129	%	70-130
VI10237-BSD	591-78-6	2-Hexanone	BSD	RPD	2	%	20
VI10237-BSD	98-82-8	Isopropylbenzene	BSD	REC	104	%	70-130
VI10237-BSD	98-82-8	Isopropylbenzene	BSD	RPD	0	%	20
VI10237-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	104	%	70-130
VI10237-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	0	%	20

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10237-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	96	%	70-130
VI10237-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	0	%	20
VI10237-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	104	%	70-130
VI10237-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	4	%	20
VI10237-BSD	74-95-3	Methylene bromide	BSD	REC	102	%	70-130
VI10237-BSD	74-95-3	Methylene bromide	BSD	RPD	1	%	20
VI10237-BSD	75-09-2	Methylene chloride	BSD	REC	91	%	70-130
VI10237-BSD	75-09-2	Methylene chloride	BSD	RPD	1	%	20
VI10237-BSD	91-20-3	Naphthalene	BSD	REC	98	%	70-130
VI10237-BSD	91-20-3	Naphthalene	BSD	RPD	3	%	20
VI10237-BSD	103-65-1	n-Propylbenzene	BSD	REC	103	%	70-130
VI10237-BSD	103-65-1	n-Propylbenzene	BSD	RPD	0	%	20
VI10237-BSD	100-42-5	Styrene	BSD	REC	106	%	70-130
VI10237-BSD	100-42-5	Styrene	BSD	RPD	1	%	20
VI10237-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	103	%	70-130
VI10237-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	2	%	20
VI10237-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	96	%	70-130
VI10237-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	1	%	20
VI10237-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	111	%	70-130
VI10237-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	0	%	20
VI10237-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	92	%	70-130
VI10237-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	2	%	20
VI10237-BSD	127-18-4	Tetrachloroethene	BSD	REC	109	%	70-130
VI10237-BSD	127-18-4	Tetrachloroethene	BSD	RPD	0	%	20
VI10237-BSD	109-99-9	Tetrahydrofuran	BSD	REC	88	%	70-130
VI10237-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	3	%	20
VI10237-BSD	108-88-3	Toluene	BSD	REC	102	%	70-130
VI10237-BSD	108-88-3	Toluene	BSD	RPD	0	%	20
VI10237-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	101	%	70-130
VI10237-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	2	%	20
VI10237-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	105	%	70-130
VI10237-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	0	%	20
VI10237-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	105	%	70-130
VI10237-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	3	%	20
VI10237-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	104	%	70-130
VI10237-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	2	%	20
VI10237-BSD	79-01-6	Trichloroethene	BSD	REC	101	%	70-130
VI10237-BSD	79-01-6	Trichloroethene	BSD	RPD	0	%	20
VI10237-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	107	%	70-130
VI10237-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	3	%	20
VI10237-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	97	%	70-130
VI10237-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	0	%	20
VI10237-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	102	%	70-130
VI10237-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	2	%	20
VI10237-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	104	%	70-130

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* Sample used for QC is not from job JD73383

QC Evaluation: MA MCP Limits

Job Number: JD73383
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/22/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10237-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	1	%	20
VI10237-BSD	75-01-4	Vinyl chloride	BSD	REC	98	%	70-130
VI10237-BSD	75-01-4	Vinyl chloride	BSD	RPD	3	%	20
VI10237-BSD		m,p-Xylene	BSD	REC	107	%	70-130
VI10237-BSD		m,p-Xylene	BSD	RPD	0	%	20
VI10237-BSD	95-47-6	o-Xylene	BSD	REC	106	%	70-130
VI10237-BSD	95-47-6	o-Xylene	BSD	RPD	1	%	20
VI10237-BSD	1330-20-7	Xylene (total)	BSD	REC	107	%	70-130
VI10237-BSD	1330-20-7	Xylene (total)	BSD	RPD	1	%	20
VI10237-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	98	%	70-130
VI10237-BSD	2037-26-5	Toluene-D8	BSD	SURR	100	%	70-130
VI10237-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	98	%	70-130
VI10237-MB	1868-53-7	Dibromofluoromethane	MB	SURR	101	%	70-130
VI10237-MB	2037-26-5	Toluene-D8	MB	SURR	98	%	70-130
VI10237-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	95	%	70-130
JD73383-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	105	%	70-130
JD73383-1	2037-26-5	Toluene-D8	SAMP	SURR	99	%	70-130
JD73383-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130

(a) High percent recovery and no associated positive reported in the QC batch.

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* Sample used for QC is not from job JD73383

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-MB	3D192654.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-2

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-MB	3D192654.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-2

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-MB	3D192654.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-2

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	93%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	96%	79-125%
460-00-4	4-Bromofluorobenzene	90%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	System artifact	1.27	390	ug/kg	J
	System artifact	1.76	290	ug/kg	J
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-MB	I252316.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-3

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-MB	I252316.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-3

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-MB	I252316.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	104%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	99%	79-125%
460-00-4	4-Bromofluorobenzene	98%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10237-MB	I252352.D	1	09/27/23	JN	n/a	n/a	VI10237

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-1

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10237-MB	I252352.D	1	09/27/23	JN	n/a	n/a	VI10237

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-1

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10237-MB	I252352.D	1	09/27/23	JN	n/a	n/a	VI10237

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-1

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	101%	80-124%
17060-07-0	1,2-Dichloroethane-D4	101%	75-133%
2037-26-5	Toluene-D8	98%	79-125%
460-00-4	4-Bromofluorobenzene	95%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-BS	3D192651.D	1	09/25/23	JN	n/a	n/a	V3D8051
V3D8051-BSD	3D192652.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	10000	15600	156	16100	161* [a]	3	52-156/12
71-43-2	Benzene	2500	2600	104	2540	102	2	82-119/10
108-86-1	Bromobenzene	2500	2230	89	2220	89	0	82-115/10
74-97-5	Bromochloromethane	2500	2550	102	2470	99	3	82-123/10
75-27-4	Bromodichloromethane	2500	2480	99	2460	98	1	83-121/10
75-25-2	Bromoform	2500	2440	98	2420	97	1	74-138/10
74-83-9	Bromomethane	2500	2560	102	2620	105	2	56-150/12
78-93-3	2-Butanone (MEK)	10000	13200	132	13700	137	4	72-138/10
104-51-8	n-Butylbenzene	2500	2450	98	2420	97	1	81-124/11
135-98-8	sec-Butylbenzene	2500	2440	98	2400	96	2	78-120/10
98-06-6	tert-Butylbenzene	2500	2420	97	2370	95	2	78-121/10
75-15-0	Carbon disulfide	2500	2420	97	2320	93	4	67-131/11
56-23-5	Carbon tetrachloride	2500	2560	102	2500	100	2	72-130/11
108-90-7	Chlorobenzene	2500	2460	98	2390	96	3	83-114/10
75-00-3	Chloroethane	2500	2800	112	2680	107	4	67-141/12
67-66-3	Chloroform	2500	2280	91	2210	88	3	76-115/10
74-87-3	Chloromethane	2500	2520	101	2370	95	6	57-141/13
95-49-8	o-Chlorotoluene	2500	2310	92	2280	91	1	81-118/10
106-43-4	p-Chlorotoluene	2500	2290	92	2300	92	0	78-117/10
108-20-3	Di-Isopropyl ether	2500	2640	106	2600	104	2	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	2500	2130	85	2250	90	5	72-131/11
124-48-1	Dibromochloromethane	2500	2480	99	2420	97	2	80-128/10
106-93-4	1,2-Dibromoethane	2500	2360	94	2330	93	1	58-145/10
95-50-1	1,2-Dichlorobenzene	2500	2340	94	2380	95	2	83-117/10
541-73-1	1,3-Dichlorobenzene	2500	2360	94	2350	94	0	82-114/10
106-46-7	1,4-Dichlorobenzene	2500	2300	92	2280	91	1	79-114/10
75-71-8	Dichlorodifluoromethane	2500	2630	105	2550	102	3	49-146/13
75-34-3	1,1-Dichloroethane	2500	2440	98	2350	94	4	76-126/10
107-06-2	1,2-Dichloroethane	2500	2460	98	2440	98	1	76-118/10
75-35-4	1,1-Dichloroethene	2500	2460	98	2360	94	4	72-125/11
156-59-2	cis-1,2-Dichloroethene	2500	2450	98	2410	96	2	80-118/10
156-60-5	trans-1,2-Dichloroethene	2500	2350	94	2290	92	3	76-122/10
78-87-5	1,2-Dichloropropane	2500	2540	102	2500	100	2	82-123/10
142-28-9	1,3-Dichloropropane	2500	2330	93	2310	92	1	84-120/10
594-20-7	2,2-Dichloropropane	2500	2460	98	2340	94	5	66-130/11
563-58-6	1,1-Dichloropropene	2500	2490	100	2410	96	3	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-BS	3D192651.D	1	09/25/23	JN	n/a	n/a	V3D8051
V3D8051-BSD	3D192652.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	2500	2630	105	2570	103	2	83-123/10
10061-02-6	trans-1,3-Dichloropropene	2500	2460	98	2390	96	3	83-123/10
123-91-1	1,4-Dioxane	62500	64100	103	68200	109	6	64-163/20
60-29-7	Ethyl Ether	2500	2400	96	2370	95	1	78-131/10
100-41-4	Ethylbenzene	2500	2490	100	2410	96	3	83-115/10
87-68-3	Hexachlorobutadiene	2500	2110	84	2090	84	1	65-130/11
591-78-6	2-Hexanone	10000	12000	120	12300	123	2	73-138/10
98-82-8	Isopropylbenzene	2500	2620	105	2540	102	3	81-122/11
99-87-6	p-Isopropyltoluene	2500	2420	97	2400	96	1	80-120/10
1634-04-4	Methyl Tert Butyl Ether	2500	2530	101	2510	100	1	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	10000	11100	111	11300	113	2	71-138/10
74-95-3	Methylene bromide	2500	2430	97	2470	99	2	81-122/10
75-09-2	Methylene chloride	2500	2200	88	2140	86	3	73-122/10
91-20-3	Naphthalene	2500	2110	84	2250	90	6	71-129/14
103-65-1	n-Propylbenzene	2500	2340	94	2270	91	3	77-120/10
100-42-5	Styrene	2500	2690	108	2620	105	3	84-122/10
994-05-8	tert-Amyl Methyl Ether	2500	2660	106	2630	105	1	77-125/11
637-92-3	tert-Butyl Ethyl Ether	2500	2500	100	2450	98	2	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	2500	2500	100	2480	99	1	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	2500	2120	85	2170	87	2	75-127/10
127-18-4	Tetrachloroethene	2500	2450	98	2380	95	3	73-125/11
109-99-9	Tetrahydrofuran	2500	2550	102	2580	103	1	61-136/11
108-88-3	Toluene	2500	2480	99	2410	96	3	82-118/10
87-61-6	1,2,3-Trichlorobenzene	2500	2090	84	2210	88	6	68-132/13
120-82-1	1,2,4-Trichlorobenzene	2500	2200	88	2260	90	3	72-133/12
71-55-6	1,1,1-Trichloroethane	2500	2420	97	2370	95	2	77-124/11
79-00-5	1,1,2-Trichloroethane	2500	2310	92	2290	92	1	83-122/10
79-01-6	Trichloroethene	2500	2630	105	2520	101	4	80-122/10
75-69-4	Trichlorofluoromethane	2500	2420	97	2320	93	4	69-132/11
96-18-4	1,2,3-Trichloropropane	2500	2270	91	2350	94	3	80-120/10
95-63-6	1,2,4-Trimethylbenzene	2500	2300	92	2280	91	1	80-119/10
108-67-8	1,3,5-Trimethylbenzene	2500	2390	96	2350	94	2	79-120/10
75-01-4	Vinyl chloride	2500	2690	108	2620	105	3	60-144/13
	m,p-Xylene	5000	5130	103	5030	101	2	82-119/10
95-47-6	o-Xylene	2500	2540	102	2480	99	2	84-120/10
1330-20-7	Xylene (total)	7500	7670	102	7520	100	2	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8051-BS	3D192651.D	1	09/25/23	JN	n/a	n/a	V3D8051
V3D8051-BSD	3D192652.D	1	09/25/23	JN	n/a	n/a	V3D8051

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	96%	95%	80-124%
17060-07-0	1,2-Dichloroethane-D4	99%	99%	75-133%
2037-26-5	Toluene-D8	96%	95%	79-125%
460-00-4	4-Bromofluorobenzene	90%	92%	58-148%

(a) High percent recovery and no associated positive reported in the QC batch.

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-BS	I252313.D	1	09/26/23	JN	n/a	n/a	VI10236
VI10236-BSD	I252314.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	259	130	265	133	2	52-156/12
71-43-2	Benzene	50	48.5	97	47.9	96	1	82-119/10
108-86-1	Bromobenzene	50	49.7	99	50.5	101	2	82-115/10
74-97-5	Bromochloromethane	50	52.2	104	50.6	101	3	82-123/10
75-27-4	Bromodichloromethane	50	49.5	99	50.0	100	1	83-121/10
75-25-2	Bromoform	50	50.3	101	52.0	104	3	74-138/10
74-83-9	Bromomethane	50	50.6	101	50.0	100	1	56-150/12
78-93-3	2-Butanone (MEK)	200	253	127	259	130	2	72-138/10
104-51-8	n-Butylbenzene	50	50.1	100	49.2	98	2	81-124/11
135-98-8	sec-Butylbenzene	50	48.6	97	48.2	96	1	78-120/10
98-06-6	tert-Butylbenzene	50	48.2	96	48.6	97	1	78-121/10
75-15-0	Carbon disulfide	50	48.6	97	47.3	95	3	67-131/11
56-23-5	Carbon tetrachloride	50	48.9	98	48.3	97	1	72-130/11
108-90-7	Chlorobenzene	50	49.4	99	49.4	99	0	83-114/10
75-00-3	Chloroethane	50	46.9	94	47.4	95	1	67-141/12
67-66-3	Chloroform	50	46.9	94	46.0	92	2	76-115/10
74-87-3	Chloromethane	50	45.5	91	44.7	89	2	57-141/13
95-49-8	o-Chlorotoluene	50	49.6	99	49.9	100	1	81-118/10
106-43-4	p-Chlorotoluene	50	49.0	98	48.7	97	1	78-117/10
108-20-3	Di-Isopropyl ether	50	47.4	95	47.1	94	1	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	51.1	102	52.1	104	2	72-131/11
124-48-1	Dibromochloromethane	50	50.9	102	51.6	103	1	80-128/10
106-93-4	1,2-Dibromoethane	50	51.2	102	51.5	103	1	58-145/10
95-50-1	1,2-Dichlorobenzene	50	49.2	98	49.5	99	1	83-117/10
541-73-1	1,3-Dichlorobenzene	50	48.2	96	48.4	97	0	82-114/10
106-46-7	1,4-Dichlorobenzene	50	49.4	99	49.8	100	1	79-114/10
75-71-8	Dichlorodifluoromethane	50	48.8	98	48.5	97	1	49-146/13
75-34-3	1,1-Dichloroethane	50	49.8	100	48.2	96	3	76-126/10
107-06-2	1,2-Dichloroethane	50	46.5	93	46.6	93	0	76-118/10
75-35-4	1,1-Dichloroethene	50	49.8	100	48.1	96	3	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	50.5	101	49.5	99	2	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	49.2	98	46.9	94	5	76-122/10
78-87-5	1,2-Dichloropropane	50	47.6	95	46.7	93	2	82-123/10
142-28-9	1,3-Dichloropropane	50	50.7	101	50.6	101	0	84-120/10
594-20-7	2,2-Dichloropropane	50	48.9	98	47.7	95	2	66-130/11
563-58-6	1,1-Dichloropropene	50	48.1	96	46.9	94	3	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-BS	I252313.D	1	09/26/23	JN	n/a	n/a	VI10236
VI10236-BSD	I252314.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	50.0	100	50.4	101	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	51.9	104	52.1	104	0	83-123/10
123-91-1	1,4-Dioxane	1250	1290	103	1350	108	5	64-163/20
60-29-7	Ethyl Ether	50	49.9	100	49.8	100	0	78-131/10
100-41-4	Ethylbenzene	50	48.8	98	48.9	98	0	83-115/10
87-68-3	Hexachlorobutadiene	50	49.5	99	50.0	100	1	65-130/11
591-78-6	2-Hexanone	200	243	122	244	122	0	73-138/10
98-82-8	Isopropylbenzene	50	48.0	96	48.4	97	1	81-122/11
99-87-6	p-Isopropyltoluene	50	49.4	99	48.9	98	1	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	47.9	96	47.9	96	0	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	207	104	214	107	3	71-138/10
74-95-3	Methylene bromide	50	49.4	99	49.4	99	0	81-122/10
75-09-2	Methylene chloride	50	46.4	93	45.8	92	1	73-122/10
91-20-3	Naphthalene	50	47.9	96	49.0	98	2	71-129/14
103-65-1	n-Propylbenzene	50	49.3	99	49.1	98	0	77-120/10
100-42-5	Styrene	50	50.8	102	51.0	102	0	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	50.3	101	51.1	102	2	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	48.3	97	48.5	97	0	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	52.2	104	52.2	104	0	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	46.6	93	47.3	95	1	75-127/10
127-18-4	Tetrachloroethene	50	50.4	101	49.7	99	1	73-125/11
109-99-9	Tetrahydrofuran	50	45.6	91	46.1	92	1	61-136/11
108-88-3	Toluene	50	48.7	97	48.6	97	0	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	49.1	98	49.4	99	1	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	50.0	100	50.7	101	1	72-133/12
71-55-6	1,1,1-Trichloroethane	50	49.2	98	48.2	96	2	77-124/11
79-00-5	1,1,2-Trichloroethane	50	50.2	100	50.8	102	1	83-122/10
79-01-6	Trichloroethene	50	47.2	94	47.1	94	0	80-122/10
75-69-4	Trichlorofluoromethane	50	50.0	100	49.7	99	1	69-132/11
96-18-4	1,2,3-Trichloropropane	50	48.6	97	51.8	104	6	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	48.7	97	48.6	97	0	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	49.7	99	49.7	99	0	79-120/10
75-01-4	Vinyl chloride	50	47.0	94	45.8	92	3	60-144/13
	m,p-Xylene	100	101	101	101	101	0	82-119/10
95-47-6	o-Xylene	50	50.4	101	50.4	101	0	84-120/10
1330-20-7	Xylene (total)	150	152	101	151	101	1	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10236-BS	I252313.D	1	09/26/23	JN	n/a	n/a	VI10236
VI10236-BSD	I252314.D	1	09/26/23	JN	n/a	n/a	VI10236

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	101%	99%	80-124%
17060-07-0	1,2-Dichloroethane-D4	93%	94%	75-133%
2037-26-5	Toluene-D8	101%	100%	79-125%
460-00-4	4-Bromofluorobenzene	97%	99%	58-148%

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10237-BS	I252349.D	1	09/27/23	JN	n/a	n/a	VI10237
VI10237-BSD	I252350.D	1	09/27/23	JN	n/a	n/a	VI10237

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	260	130	267	134	3	52-156/12
71-43-2	Benzene	50	49.6	99	49.6	99	0	82-119/10
108-86-1	Bromobenzene	50	50.8	102	52.7	105	4	82-115/10
74-97-5	Bromochloromethane	50	53.2	106	52.3	105	2	82-123/10
75-27-4	Bromodichloromethane	50	51.8	104	51.7	103	0	83-121/10
75-25-2	Bromoform	50	52.4	105	52.9	106	1	74-138/10
74-83-9	Bromomethane	50	54.2	108	53.4	107	1	56-150/12
78-93-3	2-Butanone (MEK)	200	263	132	258	129	2	72-138/10
104-51-8	n-Butylbenzene	50	52.9	106	52.9	106	0	81-124/11
135-98-8	sec-Butylbenzene	50	51.3	103	51.5	103	0	78-120/10
98-06-6	tert-Butylbenzene	50	51.5	103	51.7	103	0	78-121/10
75-15-0	Carbon disulfide	50	51.2	102	49.4	99	4	67-131/11
56-23-5	Carbon tetrachloride	50	54.2	108	53.0	106	2	72-130/11
108-90-7	Chlorobenzene	50	52.0	104	52.2	104	0	83-114/10
75-00-3	Chloroethane	50	51.3	103	50.1	100	2	67-141/12
67-66-3	Chloroform	50	49.0	98	47.4	95	3	76-115/10
74-87-3	Chloromethane	50	47.8	96	46.7	93	2	57-141/13
95-49-8	o-Chlorotoluene	50	51.1	102	50.9	102	0	81-118/10
106-43-4	p-Chlorotoluene	50	49.7	99	50.2	100	1	78-117/10
108-20-3	Di-Isopropyl ether	50	46.5	93	45.7	91	2	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	52.3	105	52.8	106	1	72-131/11
124-48-1	Dibromochloromethane	50	53.3	107	53.2	106	0	80-128/10
106-93-4	1,2-Dibromoethane	50	52.2	104	52.6	105	1	58-145/10
95-50-1	1,2-Dichlorobenzene	50	50.3	101	51.0	102	1	83-117/10
541-73-1	1,3-Dichlorobenzene	50	49.6	99	50.1	100	1	82-114/10
106-46-7	1,4-Dichlorobenzene	50	50.4	101	50.8	102	1	79-114/10
75-71-8	Dichlorodifluoromethane	50	52.3	105	51.3	103	2	49-146/13
75-34-3	1,1-Dichloroethane	50	51.3	103	49.9	100	3	76-126/10
107-06-2	1,2-Dichloroethane	50	48.2	96	48.2	96	0	76-118/10
75-35-4	1,1-Dichloroethene	50	53.7	107	51.2	102	5	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	52.5	105	51.0	102	3	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	51.4	103	50.1	100	3	76-122/10
78-87-5	1,2-Dichloropropane	50	47.4	95	47.7	95	1	82-123/10
142-28-9	1,3-Dichloropropane	50	51.0	102	50.5	101	1	84-120/10
594-20-7	2,2-Dichloropropane	50	53.8	108	51.1	102	5	66-130/11
563-58-6	1,1-Dichloropropene	50	51.5	103	50.9	102	1	78-122/10

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10237-BS	I252349.D	1	09/27/23	JN	n/a	n/a	VI10237
VI10237-BSD	I252350.D	1	09/27/23	JN	n/a	n/a	VI10237

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	51.5	103	52.0	104	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	54.0	108	54.0	108	0	83-123/10
123-91-1	1,4-Dioxane	1250	1340	107	1310	105	2	64-163/20
60-29-7	Ethyl Ether	50	50.6	101	49.4	99	2	78-131/10
100-41-4	Ethylbenzene	50	51.8	104	51.8	104	0	83-115/10
87-68-3	Hexachlorobutadiene	50	55.4	111	55.0	110	1	65-130/11
591-78-6	2-Hexanone	200	253	127	257	129	2	73-138/10
98-82-8	Isopropylbenzene	50	51.8	104	52.0	104	0	81-122/11
99-87-6	p-Isopropyltoluene	50	52.1	104	52.2	104	0	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	48.1	96	47.9	96	0	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	200	100	208	104	4	71-138/10
74-95-3	Methylene bromide	50	50.1	100	50.8	102	1	81-122/10
75-09-2	Methylene chloride	50	45.8	92	45.4	91	1	73-122/10
91-20-3	Naphthalene	50	47.9	96	49.2	98	3	71-129/14
103-65-1	n-Propylbenzene	50	51.3	103	51.5	103	0	77-120/10
100-42-5	Styrene	50	52.7	105	53.0	106	1	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	50.7	101	51.7	103	2	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	48.4	97	47.8	96	1	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	55.3	111	55.3	111	0	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	45.2	90	46.1	92	2	75-127/10
127-18-4	Tetrachloroethene	50	54.8	110	54.6	109	0	73-125/11
109-99-9	Tetrahydrofuran	50	45.3	91	44.1	88	3	61-136/11
108-88-3	Toluene	50	51.4	103	51.2	102	0	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	49.8	100	50.7	101	2	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	52.6	105	52.5	105	0	72-133/12
71-55-6	1,1,1-Trichloroethane	50	54.2	108	52.4	105	3	77-124/11
79-00-5	1,1,2-Trichloroethane	50	50.6	101	51.8	104	2	83-122/10
79-01-6	Trichloroethene	50	50.6	101	50.5	101	0	80-122/10
75-69-4	Trichlorofluoromethane	50	55.0	110	53.3	107	3	69-132/11
96-18-4	1,2,3-Trichloropropane	50	48.5	97	48.5	97	0	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	50.2	100	51.0	102	2	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	51.6	103	52.2	104	1	79-120/10
75-01-4	Vinyl chloride	50	50.6	101	49.1	98	3	60-144/13
	m,p-Xylene	100	107	107	107	107	0	82-119/10
95-47-6	o-Xylene	50	52.1	104	52.8	106	1	84-120/10
1330-20-7	Xylene (total)	150	159	106	160	107	1	83-119/10

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10237-BS	I252349.D	1	09/27/23	JN	n/a	n/a	VI10237
VI10237-BSD	I252350.D	1	09/27/23	JN	n/a	n/a	VI10237

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73383-1

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	101%	98%	80-124%
17060-07-0	1,2-Dichloroethane-D4	96%	95%	75-133%
2037-26-5	Toluene-D8	101%	100%	79-125%
460-00-4	4-Bromofluorobenzene	96%	98%	58-148%

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* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: V3D8051-CC8035
Lab File ID: 3D192650.D
Instrument ID: GCMS3D
Injection Date: 09/25/23
Injection Time: 09:53
Method: SW846 8260D

	IS 1 AREA	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
Check Std	200829	2.69	471334	3.86	887667	4.40	831755	6.76	388703	8.94
Upper Limit [a]	401658	3.19	942668	4.36	1775334	4.90	1663510	7.26	777406	9.44
Lower Limit [b]	100415	2.19	235667	3.36	443834	3.90	415878	6.26	194352	8.44

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
V3D8051-BS	191675	2.69	500893	3.86	931565	4.40	867266	6.76	421523	8.94
V3D8051-BSD	211102	2.69	504706	3.86	934178	4.40	873471	6.76	419139	8.94
V3D8051-MB	201105	2.70	479149	3.86	895292	4.40	817626	6.76	372732	8.94
ZZZZZZ	201105	2.70	479149	3.86	895292	4.40	817626	6.76	372732	8.94
ZZZZZZ	187178	2.70	451464	3.86	839357	4.40	769253	6.76	353706	8.94
ZZZZZZ	178117	2.70	458116	3.86	843957	4.40	779744	6.76	357773	8.94
ZZZZZZ	192194	2.70	468399	3.86	873120	4.40	798355	6.76	362476	8.94
ZZZZZZ	176006	2.70	435224	3.86	808270	4.40	738151	6.76	343880	8.94
ZZZZZZ	161463	2.70	439605	3.86	813852	4.40	752914	6.76	344605	8.94
ZZZZZZ	178523	2.70	437443	3.86	818449	4.40	758551	6.76	342293	8.94
ZZZZZZ	184881	2.70	441252	3.86	823046	4.40	752218	6.76	342191	8.94
JD73383-2	181102	2.70	437701	3.86	819125	4.40	746533	6.76	345415	8.94
JD73193-2	227562	2.70	551497	3.86	1020141	4.40	904929	6.76	426047	8.94
ZZZZZZ	198301	2.69	515271	3.86	947385	4.40	877185	6.76	393186	8.94
ZZZZZZ	185853	2.69	491274	3.86	912594	4.40	857482	6.76	431328	8.94
JD73193-2MS	188888	2.70	493216	3.86	913702	4.40	841475	6.76	432776	8.94
JD73193-2MSD	221980	2.70	511256	3.86	942352	4.40	863551	6.76	443819	8.94
ZZZZZZ	194966	2.69	477688	3.86	877635	4.40	801512	6.76	361999	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: VI10236-CC10232
Lab File ID: I252312.D
Instrument ID: GCMSI
Injection Date: 09/26/23
Injection Time: 09:22
Method: SW846 8260D

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	156551	4.45	596722	5.54	901771	6.07	669277	7.99	316739	9.52
Upper Limit [a]	313102	4.95	1193444	6.04	1803542	6.57	1338554	8.49	633478	10.02
Lower Limit [b]	78276	3.95	298361	5.04	450886	5.57	334639	7.49	158370	9.02

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VI10236-BS	162344	4.44	614882	5.54	925542	6.07	679928	7.99	316062	9.52
VI10236-BSD	167354	4.44	621131	5.54	932259	6.07	693911	7.99	323906	9.52
VI10236-MB	173067	4.44	596719	5.54	918111	6.07	688237	7.99	301419	9.52
JD73383-3	148774	4.44	586320	5.54	917397	6.07	671677	7.99	292113	9.52
ZZZZZZ	152766	4.44	573908	5.54	892350	6.07	668203	7.99	295492	9.52
ZZZZZZ	176338	4.44	579269	5.54	881438	6.07	697546	7.99	303863	9.52
JD73466-2	148056	4.44	572281	5.54	901847	6.07	676868	7.99	295482	9.52
JD73466-3	139790	4.44	568676	5.54	909277	6.07	684577	7.99	296091	9.52
ZZZZZZ	136835	4.44	571028	5.54	906118	6.07	673369	7.99	293528	9.52
ZZZZZZ	135572	4.44	564654	5.54	897834	6.07	666215	7.99	293858	9.52
ZZZZZZ	147043	4.44	582214	5.54	918716	6.07	682492	7.99	292798	9.52
JD73466-2MS	142648	4.44	597144	5.54	924269	6.07	689944	7.99	319507	9.52
JD73466-3DUP	136830	4.44	581368	5.54	916384	6.07	684766	7.99	300545	9.52
ZZZZZZ	135064	4.44	562185	5.54	901042	6.07	667037	7.99	286475	9.52
ZZZZZZ	141637	4.44	565199	5.54	911348	6.07	672934	7.99	306731	9.52
ZZZZZZ	141969	4.44	574609	5.54	896977	6.07	663316	7.99	291815	9.52
ZZZZZZ	145895	4.44	580945	5.54	915063	6.07	667691	7.99	288953	9.52
ZZZZZZ	139005	4.44	581124	5.54	904342	6.07	672684	7.99	287878	9.52
ZZZZZZ	145492	4.44	584948	5.54	915206	6.07	680090	7.99	294839	9.52
ZZZZZZ	137294	4.44	567696	5.54	898847	6.07	664786	7.99	290741	9.52
ZZZZZZ	166945	4.44	575647	5.54	900085	6.07	677030	7.99	283424	9.52
ZZZZZZ	167020	4.44	621404	5.54	949965	6.07	714332	7.99	320842	9.52
ZZZZZZ	164221	4.44	625168	5.54	941266	6.07	694420	7.99	304188	9.52
ZZZZZZ	169154	4.44	609112	5.54	873173	6.07	712296	7.99	474997	9.52

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: VI10237-CC10232
Lab File ID: I252348.D
Instrument ID: GCMSI
Injection Date: 09/27/23
Injection Time: 09:51
Method: SW846 8260D

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	162104	4.44	647730	5.54	954626	6.07	693876	7.99	328283	9.52
Upper Limit [a]	324208	4.94	1295460	6.04	1909252	6.57	1387752	8.49	656566	10.02
Lower Limit [b]	81052	3.94	323865	5.04	477313	5.57	346938	7.49	164142	9.02

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
VI10237-BS	166191	4.44	650773	5.54	973439	6.07	702638	7.99	335011	9.52
VI10237-BSD	173633	4.44	661442	5.54	975674	6.07	712939	7.99	337528	9.52
VI10237-MB	168555	4.44	647782	5.54	976146	6.07	726240	7.99	321387	9.52
ZZZZZZ	168555	4.44	647782	5.54	976146	6.07	726240	7.99	321387	9.52
ZZZZZZ	151776	4.44	625044	5.54	965243	6.07	705625	7.99	311049	9.52
JD73383-1	154295	4.44	621420	5.54	959020	6.07	711709	7.99	320132	9.52
ZZZZZZ	163631	4.44	565886	5.54	888219	6.07	664660	7.99	295434	9.52
JD73565-2	152511	4.44	580195	5.54	893846	6.07	658923	7.99	283072	9.52
JD73565-3	204426	4.44	614764	5.54	941596	6.07	710275	7.99	318299	9.52
ZZZZZZ	157290	4.44	590010	5.54	912189	6.07	683534	7.99	300751	9.52
ZZZZZZ	218603	4.44	576476	5.54	895329	6.07	673582	7.99	304827	9.52
ZZZZZZ	155209	4.44	608464	5.54	953837	6.07	704666	7.99	308957	9.52
ZZZZZZ	152434	4.44	608432	5.54	948131	6.07	701522	7.99	300167	9.52
ZZZZZZ	150121	4.44	599531	5.54	931285	6.07	695385	7.99	308632	9.52
ZZZZZZ	155860	4.44	580519	5.54	923676	6.07	687913	7.99	303083	9.52
ZZZZZZ	147834	4.44	580052	5.54	909902	6.07	675267	7.99	290667	9.52
ZZZZZZ	151180	4.44	594320	5.54	939696	6.07	699688	7.99	303272	9.52
JD73565-2MS	153570	4.44	609714	5.54	945433	6.07	691170	7.99	305659	9.52
JD73565-3DUP	182698	4.44	596083	5.54	926072	6.07	689936	7.99	300252	9.52
ZZZZZZ	153174	4.44	613319	5.54	948158	6.07	704297	7.99	306630	9.52
ZZZZZZ	152712	4.44	608674	5.54	947561	6.07	707637	7.99	306643	9.52
ZZZZZZ	164007	4.44	594656	5.54	952340	6.07	710134	7.99	309397	9.52
ZZZZZZ	130452	4.44	524404	5.54	814406	6.07	545332	7.99	186185	9.52
ZZZZZZ	147525	4.44	609980	5.54	954342	6.07	712910	7.99	311492	9.52
ZZZZZZ	115404	4.44	463472	5.54	727509	6.07	461163	7.99	131631[c]	9.52

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
(c) Outside control limits due to matrix interference.

Surrogate Recovery Summary

Job Number: JD73383
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Method: SW846 8260D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JD73383-1	I252354.D	105	101	99	96
JD73383-2	3D192662.D	91	98	96	90
JD73383-3	I252317.D	104	97	100	96
V3D8051-BS	3D192651.D	96	99	96	90
V3D8051-BSD	3D192652.D	95	99	95	92
V3D8051-MB	3D192654.D	93	100	96	90
VI10236-BS	I252313.D	101	93	101	97
VI10236-BSD	I252314.D	99	94	100	99
VI10236-MB	I252316.D	104	100	99	98
VI10237-BS	I252349.D	101	96	101	96
VI10237-BSD	I252350.D	98	95	100	98
VI10237-MB	I252352.D	101	101	98	95

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-124%
S2 = 1,2-Dichloroethane-D4	75-133%
S3 = Toluene-D8	79-125%
S4 = 4-Bromofluorobenzene	58-148%

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Jacobs Engineering

Varian, Beverly, MA

VARMS111.A.CS.EV.02.FL PO#148048917

SGS Job Number: JD73654

Sampling Date: 09/26/23

Report to:

Jacobs Engineering
120 St. James Avenue
Boston, MA 02116
Raymond.cadorette@jacobs.com; Bernice.Kidd@jacobs.com;
EDMData@jacobs.com
ATTN: Raymond J. Cadorette

Total number of pages in report: **48**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Victoria Pushkova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Jacobs Engineering

Job No: JD73654

Varian, Beverly, MA
Project No: VARMS111.A.CS.EV.02.FL PO#148048917

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD73654-1	09/26/23	14:50	SF	09/27/23	SO	Soil	VAR_PSL10_SO_OB64_20-22_20230926
JD73654-2	09/26/23	14:50		09/27/23	SO	Trip Blank Methanol	TB_20230926_SO_3M
JD73654-3	09/26/23	14:50		09/27/23	SO	Trip Blank Soil	TB_20230926_SO_03L

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the RL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Jacobs Engineering **Job No:** JD73654

Site: Varian, Beverly, MA **Report Date** 10/4/2023 10:50:22 A

On 09/27/2023, 1 sample(s), 2 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0.5 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD73654 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** V3D8057

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- The blank spike (BS) / blank spike duplicate (BSD) recovery(s) of 2-Butanone (MEK), Acetone, Bromomethane, Chloroethane, Chloromethane, Vinyl chloride are outside control limits. High percent recovery and no associated positive reported in the QC batch.
- RPD of V3D8057-BSD for Chloromethane: Outside in house control limits.
- V3D8057-BSD for 2-Hexanone: Outside in house control limits.
- JD73654-2 for 4-Methyl-2-pentanone(MIBK): Associated CCV outside of control limits high, sample was ND.
- JD73654-2 for Tetrahydrofuran: Associated CCV outside of control limits high, sample was ND.
- JD73654-2 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73654-2 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73654-2 for Bromomethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73654-2 for Chloroethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73654-2 for Vinyl chloride: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73654-2 for Chloromethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73654-2 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- Not all RL meet the requirement.

Matrix: SO **Batch ID:** VI10238

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73654-1 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73654-3 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73654-1 for Acetone: This compound is outside the MCP limits in the associated BS biased high.Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high.
- JD73654-3 for Acetone: This compound is outside the MCP limits in the associated BS biased high.Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high.
- JD73654-1 for 2-Butanone (MEK): This compound is outside the MCP limits in the associated BS biased high.Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high.

MS Volatiles By Method SW846 8260D

Matrix:	SO	**Batch ID:**	VI10238

- JD73654-3 for 2-Butanone (MEK): This compound is outside the MCP limits in the associated BS biased high.Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high, sample was ND.
- Not all RL meet the requirement.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix:	SO	**Batch ID:**	GN46468

- The data for SM2540 G 18TH ED MOD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73654-1	**VAR_PSL10_SO_OB64_20-22_20230926**					
Acetone [a]		81.1	11		ug/kg	SW846 8260D
2-Butanone (MEK) [a]		11.4	11		ug/kg	SW846 8260D
Trichloroethene		3.1	1.1		ug/kg	SW846 8260D
JD73654-2	**TB_20230926_SO_3M**					
No hits reported in this sample.						
JD73654-3	**TB_20230926_SO_03L**					
No hits reported in this sample.						

(a) This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB64_20-22_20230926		
Lab Sample ID:	JD73654-1	**Date Sampled:**	09/26/23
Matrix:	SO - Soil	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	92.4
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252411.D	1	09/28/23 21:04	JN	n/a	n/a	VI10238
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	81.1	11	ug/kg	
71-43-2	Benzene	ND	0.54	ug/kg	
108-86-1	Bromobenzene	ND	5.4	ug/kg	
74-97-5	Bromochloromethane	ND	5.4	ug/kg	
75-27-4	Bromodichloromethane	ND	2.2	ug/kg	
75-25-2	Bromoform	ND	5.4	ug/kg	
74-83-9	Bromomethane	ND	5.4	ug/kg	
78-93-3	2-Butanone (MEK) [a]	11.4	11	ug/kg	
104-51-8	n-Butylbenzene	ND	2.2	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.2	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.2	ug/kg	
75-15-0	Carbon disulfide	ND	2.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.2	ug/kg	
108-90-7	Chlorobenzene	ND	2.2	ug/kg	
75-00-3	Chloroethane	ND	5.4	ug/kg	
67-66-3	Chloroform	ND	2.2	ug/kg	
74-87-3	Chloromethane	ND	5.4	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.2	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.2	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.2	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.2	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.4	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB64_20-22_20230926		
Lab Sample ID:	JD73654-1	**Date Sampled:**	09/26/23
Matrix:	SO - Soil	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	92.4
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.2	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.2	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.2	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.2	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.2	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.2	ug/kg	
123-91-1	1,4-Dioxane	ND	140	ug/kg	
60-29-7	Ethyl Ether	ND	2.2	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.4	ug/kg	
591-78-6	2-Hexanone [b]	ND	5.4	ug/kg	
98-82-8	Isopropylbenzene	ND	2.2	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.4	ug/kg	
74-95-3	Methylene bromide	ND	5.4	ug/kg	
75-09-2	Methylene chloride	ND	5.4	ug/kg	
91-20-3	Naphthalene	ND	5.4	ug/kg	
103-65-1	n-Propylbenzene	ND	2.2	ug/kg	
100-42-5	Styrene	ND	2.2	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.2	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.2	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.2	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.2	ug/kg	
127-18-4	Tetrachloroethene	ND	2.2	ug/kg	
109-99-9	Tetrahydrofuran	ND	11	ug/kg	
108-88-3	Toluene	ND	1.1	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.2	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.2	ug/kg	
79-01-6	Trichloroethene	3.1	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.4	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.4	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.2	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.2	ug/kg	
75-01-4	Vinyl chloride	ND	2.2	ug/kg	
	m,p-Xylene	ND	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VAR_PSL10_SO_OB64_20-22_20230926
Lab Sample ID: JD73654-1
Matrix: SO - Soil
Method: SW846 8260D
Project: Varian, Beverly, MA
Date Sampled: 09/26/23
Date Received: 09/27/23
Percent Solids: 92.4

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		80-124%
17060-07-0	1,2-Dichloroethane-D4	105%		75-133%
2037-26-5	Toluene-D8	99%		79-125%
460-00-4	4-Bromofluorobenzene	97%		58-148%

(a) This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230926_SO_3M		
Lab Sample ID:	JD73654-2	**Date Sampled:**	09/26/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D192848.D	1	10/02/23 14:13	JN	n/a	n/a	V3D8057
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane [a]	ND	250	ug/kg	
78-93-3	2-Butanone (MEK) [a]	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane [a]	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane [a]	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230926_SO_3M		
Lab Sample ID:	JD73654-2	**Date Sampled:**	09/26/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone [a]	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK [b]	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran [b]	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride [a]	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230926_SO_3M		
Lab Sample ID:	JD73654-2	**Date Sampled:**	09/26/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/27/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	88%		80-124%
17060-07-0	1,2-Dichloroethane-D4	96%		75-133%
2037-26-5	Toluene-D8	97%		79-125%
460-00-4	4-Bromofluorobenzene	88%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230926_SO_03L
Lab Sample ID: JD73654-3
Matrix: SO - Trip Blank Soil
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/26/23
Date Received: 09/27/23
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252399.D	1	09/28/23 16:39	JN	n/a	n/a	VI10238
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230926_SO_03L
Lab Sample ID: JD73654-3
Matrix: SO - Trip Blank Soil
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/26/23
Date Received: 09/27/23
Percent Solids: n/a

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone ^{c}	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230926_SO_03L
Lab Sample ID: JD73654-3
Matrix: SO - Trip Blank Soil
Method: SW846 8260D
Project: Varian, Beverly, MA
Date Sampled: 09/26/23
Date Received: 09/27/23
Percent Solids: n/a

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		80-124%
17060-07-0	1,2-Dichloroethane-D4	96%		75-133%
2037-26-5	Toluene-D8	100%		79-125%
460-00-4	4-Bromofluorobenzene	97%		58-148%

(a) This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high.
(b) This compound is outside the MCP limits in the associated BS biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations. Associated CCV outside of control limits high, sample was ND.
(c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- MCP Form
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits

SGS

SO
SLL
MTB
SSTB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200
www.sgs.com/ehsusa

Page 1 of 1

FED-EX Tracking #
Bottle Order Control # VP-083023-128
SGS Quote #
SGS Job # JD73654

Client / Reporting Information

Company Name: Jacobs Engineering
Street Address: 120 St. James Ave
City: Boston State: MA Zip: 02116
Project Contact / E-mail: Bernice.Kidd@jacobs.com
Phone #: 530-209-3480
Sampler(s) Name(s): Steve Fox Phone #: 508-250-3394

Project Information

Project Name: Varian Medical Systems
Street: 150 Sohier
City: State:
Project #: VARMS111.A.CS.EV.02FL
Client Purchase Order #: 148048917
Project Manager: Raymond Cadorette

Billing Information (if different from Report to)
Company Name:
Street Address:
City: State: Zip:
Attention:

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

			Collection						Number of Bottles										pH Check (Lab Use Only)											
SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO$_3$	H$_2$SO$_4$	NONE	DI Water	MEOH	ENCORE		SW 8260C											LAB USE ONLY
1	VAR_PS40_SO_OB64-		9/26/23	1450	SF	G		SO	4					1	2	1			X						0.7		P/M			P4
~~2~~	20-22_20230926																													1443
3 ~~3~~	TB_20230926_SO_03M <- 2															1			X											4943
4 ~~4~~	TB_20230926_SO_03L <- 3														2				X											

SGS Courier

Turn Around Time (Business Days)

Approved By (SGS PM) / Date:

☐ 10 Business Days
☑ 5 Business Days
☐ 3 Business Days*
☐ 2 Business Days*
☐ 1 Business Day*
☐ Other

All data available via SGS Engage
* Approval needed for 1-3 BD TAT

Deliverable

☐ Commercial "A" (Level 1)
☐ Commercial "B" (Level 2)
☐ NJ Reduced (Level 3)
☐ Full Tier I (Level 4)
☐ Commercial "C"
☐ NJ DKQP

☐ NYASP Category A
☐ NYASP Category B
☐ MA MCP Criteria
☐ CT RCP Criteria
☐ State Forms
☐ EDD Format

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Initial Assessment 3B-JCC

Label Verification

Comments / Special Instructions

Please analyze either methanol or low level vial based on PID reading and instrument sensitivity. Analyze Trip blank for both

SGS Service Center
Northborough, MA
9/27

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by:	Date / Time:	Received By:	Relinquished By:	Date / Time:	Received By:
1	9/27/23 1443	1	2	9/27/23 16:45	2
3	9/27/23 19:30	3 Brandon Malloy	4 Brandon Malloy	9-27-23 23:00	4
5		5	Custody Seal #		

☐ Intact
☐ Not intact
☐ Absent

Therm ID:
See Sample Receipt Summary
On Ice ☑
Cooler Temp. °C 0.8

EHSA-QAC-0023-05 Rev.Date:8/5/22

SGS Sample Receipt Summary

Job Number: JD73654 **Client:** JACOBS ENGINEERING **Project:** VARIAN, BEVERLY, MA

Date / Time Received: 9/27/2023 11:00:00 PM **Delivery Method:** SGS COURIER **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (0.8);

Cooler Temps (Corrected) °C: Cooler 1: (0.5);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐

2. Cooler temp verification: IR Gun 40
3. Cooler media: Ice (Bag)
4. No. Coolers: 1

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☑	☐	☐
2. Trip Blank listed on COC:	☑	☐	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐

3. Condition of sample: Intact

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JD73654: Chain of Custody
Page 2 of 2

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	SGS North America Inc. - Dayton	Project #:	JD73654
Project Location:	Varian, Beverly, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
JD73654-1,JD73654-2,JD73654-3

Matrices: Groundwater/Surface Water ( ) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other (X)

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr ( ) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC ( ) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals ( ) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total ( ) Cyanide/PAC CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No

Responses to questions G, H, and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☐ Yes	☑ No [1]
	<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.		
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes	☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No [1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:		**Position:**	**General Manager**
Printed Name:	David Chastain	**Date:**	**04-Oct-23**

Internal Sample Tracking Chronicle

Jacobs Engineering

Job No: JD73654

Varian, Beverly, MA
Project No: VARMS111.A.CS.EV.02.FL PO#148048917

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD73654-1	Collected: 26-SEP-23 14:50 By: SF		Received: 27-SEP-23 By: JR			
VAR_PSL10_SO_OB64_20-22_20230926						
JD73654-1	SM2540 G 18TH ED MOD	28-SEP-23 18:00	MK			SOL104
JD73654-1	SW846 8260D	28-SEP-23 21:04	JN			V8260MCP
JD73654-2	Collected: 26-SEP-23 14:50 By:		Received: 27-SEP-23 By: JR			
TB_20230926_SO_3M						
JD73654-2	SW846 8260D	02-OCT-23 14:13	JN			V8260MCP
JD73654-3	Collected: 26-SEP-23 14:50 By:		Received: 27-SEP-23 By: JR			
TB_20230926_SO_03L						
JD73654-3	SW846 8260D	28-SEP-23 16:39	JN			V8260MCP

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057	SW846 8260D						
V3D8057-BS	67-64-1	Acetone	BSP	REC	180 [a]	%	70-130
V3D8057-BS	71-43-2	Benzene	BSP	REC	106	%	70-130
V3D8057-BS	108-86-1	Bromobenzene	BSP	REC	84	%	70-130
V3D8057-BS	74-97-5	Bromochloromethane	BSP	REC	98	%	70-130
V3D8057-BS	75-27-4	Bromodichloromethane	BSP	REC	99	%	70-130
V3D8057-BS	75-25-2	Bromoform	BSP	REC	98	%	70-130
V3D8057-BS	74-83-9	Bromomethane	BSP	REC	193 [a]	%	70-130
V3D8057-BS	78-93-3	2-Butanone (MEK)	BSP	REC	145 [a]	%	70-130
V3D8057-BS	104-51-8	n-Butylbenzene	BSP	REC	94	%	70-130
V3D8057-BS	135-98-8	sec-Butylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	98-06-6	tert-Butylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	75-15-0	Carbon disulfide	BSP	REC	92	%	70-130
V3D8057-BS	56-23-5	Carbon tetrachloride	BSP	REC	92	%	70-130
V3D8057-BS	108-90-7	Chlorobenzene	BSP	REC	94	%	70-130
V3D8057-BS	75-00-3	Chloroethane	BSP	REC	226 [a]	%	70-130
V3D8057-BS	67-66-3	Chloroform	BSP	REC	87	%	70-130
V3D8057-BS	74-87-3	Chloromethane	BSP	REC	148 [a]	%	70-130
V3D8057-BS	95-49-8	o-Chlorotoluene	BSP	REC	88	%	70-130
V3D8057-BS	106-43-4	p-Chlorotoluene	BSP	REC	86	%	70-130
V3D8057-BS	108-20-3	Di-Isopropyl ether	BSP	REC	114	%	70-130
V3D8057-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	86	%	70-130
V3D8057-BS	124-48-1	Dibromochloromethane	BSP	REC	97	%	70-130
V3D8057-BS	106-93-4	1,2-Dibromoethane	BSP	REC	95	%	70-130
V3D8057-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	92	%	70-130
V3D8057-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	89	%	70-130
V3D8057-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	89	%	70-130
V3D8057-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	96	%	70-130
V3D8057-BS	75-34-3	1,1-Dichloroethane	BSP	REC	99	%	70-130
V3D8057-BS	107-06-2	1,2-Dichloroethane	BSP	REC	102	%	70-130
V3D8057-BS	75-35-4	1,1-Dichloroethene	BSP	REC	95	%	70-130
V3D8057-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	99	%	70-130
V3D8057-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	92	%	70-130
V3D8057-BS	78-87-5	1,2-Dichloropropane	BSP	REC	110	%	70-130
V3D8057-BS	142-28-9	1,3-Dichloropropane	BSP	REC	97	%	70-130
V3D8057-BS	594-20-7	2,2-Dichloropropane	BSP	REC	94	%	70-130
V3D8057-BS	563-58-6	1,1-Dichloropropene	BSP	REC	97	%	70-130
V3D8057-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	109	%	70-130
V3D8057-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	100	%	70-130
V3D8057-BS	123-91-1	1,4-Dioxane	BSP	REC	95	%	70-130
V3D8057-BS	60-29-7	Ethyl Ether	BSP	REC	104	%	70-130
V3D8057-BS	100-41-4	Ethylbenzene	BSP	REC	99	%	70-130
V3D8057-BS	87-68-3	Hexachlorobutadiene	BSP	REC	74	%	70-130

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BS	591-78-6	2-Hexanone	BSP	REC	138	%	70-130
V3D8057-BS	98-82-8	Isopropylbenzene	BSP	REC	100	%	70-130
V3D8057-BS	99-87-6	p-Isopropyltoluene	BSP	REC	88	%	70-130
V3D8057-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	105	%	70-130
V3D8057-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	128	%	70-130
V3D8057-BS	74-95-3	Methylene bromide	BSP	REC	102	%	70-130
V3D8057-BS	75-09-2	Methylene chloride	BSP	REC	88	%	70-130
V3D8057-BS	91-20-3	Naphthalene	BSP	REC	85	%	70-130
V3D8057-BS	103-65-1	n-Propylbenzene	BSP	REC	86	%	70-130
V3D8057-BS	100-42-5	Styrene	BSP	REC	107	%	70-130
V3D8057-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	110	%	70-130
V3D8057-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	102	%	70-130
V3D8057-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	100	%	70-130
V3D8057-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	88	%	70-130
V3D8057-BS	127-18-4	Tetrachloroethene	BSP	REC	90	%	70-130
V3D8057-BS	109-99-9	Tetrahydrofuran	BSP	REC	118	%	70-130
V3D8057-BS	108-88-3	Toluene	BSP	REC	96	%	70-130
V3D8057-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8057-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8057-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	88	%	70-130
V3D8057-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	96	%	70-130
V3D8057-BS	79-01-6	Trichloroethene	BSP	REC	100	%	70-130
V3D8057-BS	75-69-4	Trichlorofluoromethane	BSP	REC	101	%	70-130
V3D8057-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	90	%	70-130
V3D8057-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	89	%	70-130
V3D8057-BS	75-01-4	Vinyl chloride	BSP	REC	184 [a]	%	70-130
V3D8057-BS		m,p-Xylene	BSP	REC	100	%	70-130
V3D8057-BS	95-47-6	o-Xylene	BSP	REC	100	%	70-130
V3D8057-BS	1330-20-7	Xylene (total)	BSP	REC	100	%	70-130
V3D8057-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	95	%	70-130
V3D8057-BS	2037-26-5	Toluene-D8	BSP	SURR	96	%	70-130
V3D8057-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	86	%	70-130
V3D8057-BSD	67-64-1	Acetone	BSD	REC	195 [a]	%	70-130
V3D8057-BSD	67-64-1	Acetone	BSD	RPD	8	%	20
V3D8057-BSD	71-43-2	Benzene	BSD	REC	104	%	70-130
V3D8057-BSD	71-43-2	Benzene	BSD	RPD	2	%	20
V3D8057-BSD	108-86-1	Bromobenzene	BSD	REC	84	%	70-130
V3D8057-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
V3D8057-BSD	74-97-5	Bromochloromethane	BSD	REC	99	%	70-130
V3D8057-BSD	74-97-5	Bromochloromethane	BSD	RPD	1	%	20
V3D8057-BSD	75-27-4	Bromodichloromethane	BSD	REC	100	%	70-130
V3D8057-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
V3D8057-BSD	75-25-2	Bromoform	BSD	REC	106	%	70-130
V3D8057-BSD	75-25-2	Bromoform	BSD	RPD	7	%	20

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	74-83-9	Bromomethane	BSD	REC	180[a]	%	70-130
V3D8057-BSD	74-83-9	Bromomethane	BSD	RPD	7	%	20
V3D8057-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	157[a]	%	70-130
V3D8057-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	8	%	20
V3D8057-BSD	104-51-8	n-Butylbenzene	BSD	REC	93	%	70-130
V3D8057-BSD	104-51-8	n-Butylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	135-98-8	sec-Butylbenzene	BSD	REC	87	%	70-130
V3D8057-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	98-06-6	tert-Butylbenzene	BSD	REC	87	%	70-130
V3D8057-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	75-15-0	Carbon disulfide	BSD	REC	90	%	70-130
V3D8057-BSD	75-15-0	Carbon disulfide	BSD	RPD	2	%	20
V3D8057-BSD	56-23-5	Carbon tetrachloride	BSD	REC	93	%	70-130
V3D8057-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	1	%	20
V3D8057-BSD	108-90-7	Chlorobenzene	BSD	REC	95	%	70-130
V3D8057-BSD	108-90-7	Chlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	75-00-3	Chloroethane	BSD	REC	218[a]	%	70-130
V3D8057-BSD	75-00-3	Chloroethane	BSD	RPD	3	%	20
V3D8057-BSD	67-66-3	Chloroform	BSD	REC	88	%	70-130
V3D8057-BSD	67-66-3	Chloroform	BSD	RPD	2	%	20
V3D8057-BSD	74-87-3	Chloromethane	BSD	REC	172[a]	%	70-130
V3D8057-BSD	74-87-3	Chloromethane	BSD	RPD	16[b]	%	20
V3D8057-BSD	95-49-8	o-Chlorotoluene	BSD	REC	84	%	70-130
V3D8057-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	4	%	20
V3D8057-BSD	106-43-4	p-Chlorotoluene	BSD	REC	86	%	70-130
V3D8057-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
V3D8057-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	114	%	70-130
V3D8057-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	1	%	20
V3D8057-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	94	%	70-130
V3D8057-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	8	%	20
V3D8057-BSD	124-48-1	Dibromochloromethane	BSD	REC	100	%	70-130
V3D8057-BSD	124-48-1	Dibromochloromethane	BSD	RPD	3	%	20
V3D8057-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	98	%	70-130
V3D8057-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	2	%	20
V3D8057-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	94	%	70-130
V3D8057-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
V3D8057-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	89	%	70-130
V3D8057-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	89	%	70-130
V3D8057-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	91	%	70-130
V3D8057-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	6	%	20
V3D8057-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	98	%	70-130
V3D8057-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	1	%	20
V3D8057-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	104	%	70-130

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	93	%	70-130
V3D8057-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	3	%	20
V3D8057-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	99	%	70-130
V3D8057-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	0	%	20
V3D8057-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	92	%	70-130
V3D8057-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	0	%	20
V3D8057-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	110	%	70-130
V3D8057-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	0	%	20
V3D8057-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	100	%	70-130
V3D8057-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	3	%	20
V3D8057-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	96	%	70-130
V3D8057-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	2	%	20
V3D8057-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	98	%	70-130
V3D8057-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	0	%	20
V3D8057-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	110	%	70-130
V3D8057-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
V3D8057-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	100	%	70-130
V3D8057-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	0	%	20
V3D8057-BSD	123-91-1	1,4-Dioxane	BSD	REC	113	%	70-130
V3D8057-BSD	123-91-1	1,4-Dioxane	BSD	RPD	17	%	20
V3D8057-BSD	60-29-7	Ethyl Ether	BSD	REC	108	%	70-130
V3D8057-BSD	60-29-7	Ethyl Ether	BSD	RPD	3	%	20
V3D8057-BSD	100-41-4	Ethylbenzene	BSD	REC	99	%	70-130
V3D8057-BSD	100-41-4	Ethylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	72	%	70-130
V3D8057-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	3	%	20
V3D8057-BSD	591-78-6	2-Hexanone	BSD	REC	148 [a]	%	70-130
V3D8057-BSD	591-78-6	2-Hexanone	BSD	RPD	7	%	20
V3D8057-BSD	98-82-8	Isopropylbenzene	BSD	REC	99	%	70-130
V3D8057-BSD	98-82-8	Isopropylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	89	%	70-130
V3D8057-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	0	%	20
V3D8057-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	110	%	70-130
V3D8057-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	4	%	20
V3D8057-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	137	%	70-130
V3D8057-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	7	%	20
V3D8057-BSD	74-95-3	Methylene bromide	BSD	REC	106	%	70-130
V3D8057-BSD	74-95-3	Methylene bromide	BSD	RPD	3	%	20
V3D8057-BSD	75-09-2	Methylene chloride	BSD	REC	86	%	70-130
V3D8057-BSD	75-09-2	Methylene chloride	BSD	RPD	2	%	20
V3D8057-BSD	91-20-3	Naphthalene	BSD	REC	94	%	70-130
V3D8057-BSD	91-20-3	Naphthalene	BSD	RPD	10	%	20
V3D8057-BSD	103-65-1	n-Propylbenzene	BSD	REC	85	%	70-130
V3D8057-BSD	103-65-1	n-Propylbenzene	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	100-42-5	Styrene	BSD	REC	108	%	70-130
V3D8057-BSD	100-42-5	Styrene	BSD	RPD	1	%	20
V3D8057-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	111	%	70-130
V3D8057-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	0	%	20
V3D8057-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	104	%	70-130
V3D8057-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	2	%	20
V3D8057-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	102	%	70-130
V3D8057-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	92	%	70-130
V3D8057-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	4	%	20
V3D8057-BSD	127-18-4	Tetrachloroethene	BSD	REC	88	%	70-130
V3D8057-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
V3D8057-BSD	109-99-9	Tetrahydrofuran	BSD	REC	124	%	70-130
V3D8057-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	4	%	20
V3D8057-BSD	108-88-3	Toluene	BSD	REC	95	%	70-130
V3D8057-BSD	108-88-3	Toluene	BSD	RPD	2	%	20
V3D8057-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8057-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	6	%	20
V3D8057-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8057-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	5	%	20
V3D8057-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	90	%	70-130
V3D8057-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	97	%	70-130
V3D8057-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-01-6	Trichloroethene	BSD	REC	99	%	70-130
V3D8057-BSD	79-01-6	Trichloroethene	BSD	RPD	1	%	20
V3D8057-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	99	%	70-130
V3D8057-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	2	%	20
V3D8057-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	94	%	70-130
V3D8057-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	5	%	20
V3D8057-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	88	%	70-130
V3D8057-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	88	%	70-130
V3D8057-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	2	%	20
V3D8057-BSD	75-01-4	Vinyl chloride	BSD	REC	210 [a]	%	70-130
V3D8057-BSD	75-01-4	Vinyl chloride	BSD	RPD	13	%	20
V3D8057-BSD		m,p-Xylene	BSD	REC	101	%	70-130
V3D8057-BSD		m,p-Xylene	BSD	RPD	1	%	20
V3D8057-BSD	95-47-6	o-Xylene	BSD	REC	102	%	70-130
V3D8057-BSD	95-47-6	o-Xylene	BSD	RPD	2	%	20
V3D8057-BSD	1330-20-7	Xylene (total)	BSD	REC	102	%	70-130
V3D8057-BSD	1330-20-7	Xylene (total)	BSD	RPD	1	%	20
V3D8057-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	97	%	70-130
V3D8057-BSD	2037-26-5	Toluene-D8	BSD	SURR	96	%	70-130
V3D8057-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	86	%	70-130

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-MB	1868-53-7	Dibromofluoromethane	MB	SURR	91	%	70-130
V3D8057-MB	2037-26-5	Toluene-D8	MB	SURR	95	%	70-130
V3D8057-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	90	%	70-130
JD73654-2	1868-53-7	Dibromofluoromethane	SAMP	SURR	88	%	70-130
JD73654-2	2037-26-5	Toluene-D8	SAMP	SURR	97	%	70-130
JD73654-2	460-00-4	4-Bromofluorobenzene	SAMP	SURR	88	%	70-130
VI10238	SW846 8260D						
VI10238-BS	67-64-1	Acetone	BSP	REC	132	%	70-130
VI10238-BS	71-43-2	Benzene	BSP	REC	92	%	70-130
VI10238-BS	108-86-1	Bromobenzene	BSP	REC	95	%	70-130
VI10238-BS	74-97-5	Bromochloromethane	BSP	REC	102	%	70-130
VI10238-BS	75-27-4	Bromodichloromethane	BSP	REC	97	%	70-130
VI10238-BS	75-25-2	Bromoform	BSP	REC	100	%	70-130
VI10238-BS	74-83-9	Bromomethane	BSP	REC	99	%	70-130
VI10238-BS	78-93-3	2-Butanone (MEK)	BSP	REC	135	%	70-130
VI10238-BS	104-51-8	n-Butylbenzene	BSP	REC	94	%	70-130
VI10238-BS	135-98-8	sec-Butylbenzene	BSP	REC	92	%	70-130
VI10238-BS	98-06-6	tert-Butylbenzene	BSP	REC	90	%	70-130
VI10238-BS	75-15-0	Carbon disulfide	BSP	REC	90	%	70-130
VI10238-BS	56-23-5	Carbon tetrachloride	BSP	REC	92	%	70-130
VI10238-BS	108-90-7	Chlorobenzene	BSP	REC	97	%	70-130
VI10238-BS	75-00-3	Chloroethane	BSP	REC	97	%	70-130
VI10238-BS	67-66-3	Chloroform	BSP	REC	90	%	70-130
VI10238-BS	74-87-3	Chloromethane	BSP	REC	90	%	70-130
VI10238-BS	95-49-8	o-Chlorotoluene	BSP	REC	95	%	70-130
VI10238-BS	106-43-4	p-Chlorotoluene	BSP	REC	93	%	70-130
VI10238-BS	108-20-3	Di-Isopropyl ether	BSP	REC	94	%	70-130
VI10238-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	100	%	70-130
VI10238-BS	124-48-1	Dibromochloromethane	BSP	REC	100	%	70-130
VI10238-BS	106-93-4	1,2-Dibromoethane	BSP	REC	101	%	70-130
VI10238-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	95	%	70-130
VI10238-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	95	%	70-130
VI10238-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	94	%	70-130
VI10238-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	99	%	70-130
VI10238-BS	75-34-3	1,1-Dichloroethane	BSP	REC	96	%	70-130
VI10238-BS	107-06-2	1,2-Dichloroethane	BSP	REC	89	%	70-130
VI10238-BS	75-35-4	1,1-Dichloroethene	BSP	REC	93	%	70-130
VI10238-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	98	%	70-130
VI10238-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	92	%	70-130
VI10238-BS	78-87-5	1,2-Dichloropropane	BSP	REC	92	%	70-130
VI10238-BS	142-28-9	1,3-Dichloropropane	BSP	REC	99	%	70-130
VI10238-BS	594-20-7	2,2-Dichloropropane	BSP	REC	93	%	70-130
VI10238-BS	563-58-6	1,1-Dichloropropene	BSP	REC	91	%	70-130

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10238-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	98	%	70-130
VI10238-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	102	%	70-130
VI10238-BS	123-91-1	1,4-Dioxane	BSP	REC	109	%	70-130
VI10238-BS	60-29-7	Ethyl Ether	BSP	REC	99	%	70-130
VI10238-BS	100-41-4	Ethylbenzene	BSP	REC	95	%	70-130
VI10238-BS	87-68-3	Hexachlorobutadiene	BSP	REC	94	%	70-130
VI10238-BS	591-78-6	2-Hexanone	BSP	REC	122	%	70-130
VI10238-BS	98-82-8	Isopropylbenzene	BSP	REC	93	%	70-130
VI10238-BS	99-87-6	p-Isopropyltoluene	BSP	REC	93	%	70-130
VI10238-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	94	%	70-130
VI10238-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	103	%	70-130
VI10238-BS	74-95-3	Methylene bromide	BSP	REC	96	%	70-130
VI10238-BS	75-09-2	Methylene chloride	BSP	REC	90	%	70-130
VI10238-BS	91-20-3	Naphthalene	BSP	REC	93	%	70-130
VI10238-BS	103-65-1	n-Propylbenzene	BSP	REC	93	%	70-130
VI10238-BS	100-42-5	Styrene	BSP	REC	100	%	70-130
VI10238-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	94	%	70-130
VI10238-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	95	%	70-130
VI10238-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	102	%	70-130
VI10238-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	92	%	70-130
VI10238-BS	127-18-4	Tetrachloroethene	BSP	REC	95	%	70-130
VI10238-BS	109-99-9	Tetrahydrofuran	BSP	REC	92	%	70-130
VI10238-BS	108-88-3	Toluene	BSP	REC	93	%	70-130
VI10238-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	95	%	70-130
VI10238-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	98	%	70-130
VI10238-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	93	%	70-130
VI10238-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	101	%	70-130
VI10238-BS	79-01-6	Trichloroethene	BSP	REC	89	%	70-130
VI10238-BS	75-69-4	Trichlorofluoromethane	BSP	REC	98	%	70-130
VI10238-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	95	%	70-130
VI10238-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	94	%	70-130
VI10238-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	93	%	70-130
VI10238-BS	75-01-4	Vinyl chloride	BSP	REC	91	%	70-130
VI10238-BS		m,p-Xylene	BSP	REC	97	%	70-130
VI10238-BS	95-47-6	o-Xylene	BSP	REC	98	%	70-130
VI10238-BS	1330-20-7	Xylene (total)	BSP	REC	97	%	70-130
VI10238-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	101	%	70-130
VI10238-BS	2037-26-5	Toluene-D8	BSP	SURR	101	%	70-130
VI10238-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	96	%	70-130
VI10238-BSD	67-64-1	Acetone	BSD	REC	131	%	70-130
VI10238-BSD	67-64-1	Acetone	BSD	RPD	1	%	20
VI10238-BSD	71-43-2	Benzene	BSD	REC	91	%	70-130
VI10238-BSD	71-43-2	Benzene	BSD	RPD	1	%	20
VI10238-BSD	108-86-1	Bromobenzene	BSD	REC	96	%	70-130
VI10238-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20

* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10238-BSD	74-97-5	Bromochloromethane	BSD	REC	100	%	70-130
VI10238-BSD	74-97-5	Bromochloromethane	BSD	RPD	1	%	20
VI10238-BSD	75-27-4	Bromodichloromethane	BSD	REC	95	%	70-130
VI10238-BSD	75-27-4	Bromodichloromethane	BSD	RPD	2	%	20
VI10238-BSD	75-25-2	Bromoform	BSD	REC	98	%	70-130
VI10238-BSD	75-25-2	Bromoform	BSD	RPD	2	%	20
VI10238-BSD	74-83-9	Bromomethane	BSD	REC	97	%	70-130
VI10238-BSD	74-83-9	Bromomethane	BSD	RPD	2	%	20
VI10238-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	131	%	70-130
VI10238-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	3	%	20
VI10238-BSD	104-51-8	n-Butylbenzene	BSD	REC	92	%	70-130
VI10238-BSD	104-51-8	n-Butylbenzene	BSD	RPD	3	%	20
VI10238-BSD	135-98-8	sec-Butylbenzene	BSD	REC	90	%	70-130
VI10238-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	2	%	20
VI10238-BSD	98-06-6	tert-Butylbenzene	BSD	REC	90	%	70-130
VI10238-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
VI10238-BSD	75-15-0	Carbon disulfide	BSD	REC	86	%	70-130
VI10238-BSD	75-15-0	Carbon disulfide	BSD	RPD	4	%	20
VI10238-BSD	56-23-5	Carbon tetrachloride	BSD	REC	89	%	70-130
VI10238-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	3	%	20
VI10238-BSD	108-90-7	Chlorobenzene	BSD	REC	94	%	70-130
VI10238-BSD	108-90-7	Chlorobenzene	BSD	RPD	3	%	20
VI10238-BSD	75-00-3	Chloroethane	BSD	REC	93	%	70-130
VI10238-BSD	75-00-3	Chloroethane	BSD	RPD	4	%	20
VI10238-BSD	67-66-3	Chloroform	BSD	REC	88	%	70-130
VI10238-BSD	67-66-3	Chloroform	BSD	RPD	2	%	20
VI10238-BSD	74-87-3	Chloromethane	BSD	REC	86	%	70-130
VI10238-BSD	74-87-3	Chloromethane	BSD	RPD	4	%	20
VI10238-BSD	95-49-8	o-Chlorotoluene	BSD	REC	92	%	70-130
VI10238-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	3	%	20
VI10238-BSD	106-43-4	p-Chlorotoluene	BSD	REC	92	%	70-130
VI10238-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	2	%	20
VI10238-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	91	%	70-130
VI10238-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	3	%	20
VI10238-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	98	%	70-130
VI10238-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	2	%	20
VI10238-BSD	124-48-1	Dibromochloromethane	BSD	REC	98	%	70-130
VI10238-BSD	124-48-1	Dibromochloromethane	BSD	RPD	3	%	20
VI10238-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	100	%	70-130
VI10238-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	0	%	20
VI10238-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	95	%	70-130
VI10238-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
VI10238-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	91	%	70-130
VI10238-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	4	%	20
VI10238-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	94	%	70-130

* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10238-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	0	%	20
VI10238-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	96	%	70-130
VI10238-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	3	%	20
VI10238-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	91	%	70-130
VI10238-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	5	%	20
VI10238-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	88	%	70-130
VI10238-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	2	%	20
VI10238-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	89	%	70-130
VI10238-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	5	%	20
VI10238-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	95	%	70-130
VI10238-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	2	%	20
VI10238-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	88	%	70-130
VI10238-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	4	%	20
VI10238-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	90	%	70-130
VI10238-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
VI10238-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	97	%	70-130
VI10238-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	2	%	20
VI10238-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	90	%	70-130
VI10238-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	4	%	20
VI10238-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	88	%	70-130
VI10238-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	3	%	20
VI10238-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	96	%	70-130
VI10238-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
VI10238-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	100	%	70-130
VI10238-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	2	%	20
VI10238-BSD	123-91-1	1,4-Dioxane	BSD	REC	102	%	70-130
VI10238-BSD	123-91-1	1,4-Dioxane	BSD	RPD	6	%	20
VI10238-BSD	60-29-7	Ethyl Ether	BSD	REC	98	%	70-130
VI10238-BSD	60-29-7	Ethyl Ether	BSD	RPD	1	%	20
VI10238-BSD	100-41-4	Ethylbenzene	BSD	REC	92	%	70-130
VI10238-BSD	100-41-4	Ethylbenzene	BSD	RPD	3	%	20
VI10238-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	92	%	70-130
VI10238-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	3	%	20
VI10238-BSD	591-78-6	2-Hexanone	BSD	REC	116	%	70-130
VI10238-BSD	591-78-6	2-Hexanone	BSD	RPD	5	%	20
VI10238-BSD	98-82-8	Isopropylbenzene	BSD	REC	90	%	70-130
VI10238-BSD	98-82-8	Isopropylbenzene	BSD	RPD	3	%	20
VI10238-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	91	%	70-130
VI10238-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	2	%	20
VI10238-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	93	%	70-130
VI10238-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	2	%	20
VI10238-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	102	%	70-130
VI10238-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	0	%	20
VI10238-BSD	74-95-3	Methylene bromide	BSD	REC	97	%	70-130
VI10238-BSD	74-95-3	Methylene bromide	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10238-BSD	75-09-2	Methylene chloride	BSD	REC	87	%	70-130
VI10238-BSD	75-09-2	Methylene chloride	BSD	RPD	3	%	20
VI10238-BSD	91-20-3	Naphthalene	BSD	REC	93	%	70-130
VI10238-BSD	91-20-3	Naphthalene	BSD	RPD	1	%	20
VI10238-BSD	103-65-1	n-Propylbenzene	BSD	REC	92	%	70-130
VI10238-BSD	103-65-1	n-Propylbenzene	BSD	RPD	2	%	20
VI10238-BSD	100-42-5	Styrene	BSD	REC	97	%	70-130
VI10238-BSD	100-42-5	Styrene	BSD	RPD	3	%	20
VI10238-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	97	%	70-130
VI10238-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	2	%	20
VI10238-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	94	%	70-130
VI10238-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	2	%	20
VI10238-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	99	%	70-130
VI10238-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	3	%	20
VI10238-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	90	%	70-130
VI10238-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	3	%	20
VI10238-BSD	127-18-4	Tetrachloroethene	BSD	REC	92	%	70-130
VI10238-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
VI10238-BSD	109-99-9	Tetrahydrofuran	BSD	REC	93	%	70-130
VI10238-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	2	%	20
VI10238-BSD	108-88-3	Toluene	BSD	REC	91	%	70-130
VI10238-BSD	108-88-3	Toluene	BSD	RPD	2	%	20
VI10238-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	94	%	70-130
VI10238-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	1	%	20
VI10238-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	95	%	70-130
VI10238-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	3	%	20
VI10238-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	89	%	70-130
VI10238-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	4	%	20
VI10238-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	98	%	70-130
VI10238-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	3	%	20
VI10238-BSD	79-01-6	Trichloroethene	BSD	REC	90	%	70-130
VI10238-BSD	79-01-6	Trichloroethene	BSD	RPD	1	%	20
VI10238-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	94	%	70-130
VI10238-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	4	%	20
VI10238-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	94	%	70-130
VI10238-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	1	%	20
VI10238-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	91	%	70-130
VI10238-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	3	%	20
VI10238-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	92	%	70-130
VI10238-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	1	%	20
VI10238-BSD	75-01-4	Vinyl chloride	BSD	REC	86	%	70-130
VI10238-BSD	75-01-4	Vinyl chloride	BSD	RPD	5	%	20
VI10238-BSD		m,p-Xylene	BSD	REC	95	%	70-130
VI10238-BSD		m,p-Xylene	BSD	RPD	3	%	20
VI10238-BSD	95-47-6	o-Xylene	BSD	REC	94	%	70-130

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* Sample used for QC is not from job JD73654

QC Evaluation: MA MCP Limits

Job Number: JD73654
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/26/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10238-BSD	95-47-6	o-Xylene	BSD	RPD	4	%	20
VI10238-BSD	1330-20-7	Xylene (total)	BSD	REC	95	%	70-130
VI10238-BSD	1330-20-7	Xylene (total)	BSD	RPD	3	%	20
VI10238-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	100	%	70-130
VI10238-BSD	2037-26-5	Toluene-D8	BSD	SURR	101	%	70-130
VI10238-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	97	%	70-130
VI10238-MB	1868-53-7	Dibromofluoromethane	MB	SURR	103	%	70-130
VI10238-MB	2037-26-5	Toluene-D8	MB	SURR	100	%	70-130
VI10238-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	98	%	70-130
JD73654-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	105	%	70-130
JD73654-1	2037-26-5	Toluene-D8	SAMP	SURR	99	%	70-130
JD73654-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	97	%	70-130
JD73654-3	1868-53-7	Dibromofluoromethane	SAMP	SURR	106	%	70-130
JD73654-3	2037-26-5	Toluene-D8	SAMP	SURR	100	%	70-130
JD73654-3	460-00-4	4-Bromofluorobenzene	SAMP	SURR	97	%	70-130

(a) High percent recovery and no associated positive reported in the QC batch.
(b) Outside in house control limits.

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* Sample used for QC is not from job JD73654

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10238-MB	I252388.D	1	09/28/23	JN	n/a	n/a	VI10238

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-1, JD73654-3

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	0.52	2.0	ug/kg	J
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10238-MB	I252388.D	1	09/28/23	JN	n/a	n/a	VI10238

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-1, JD73654-3

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10238-MB	I252388.D	1	09/28/23	JN	n/a	n/a	VI10238

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-1, JD73654-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	103%	80-124%
17060-07-0	1,2-Dichloroethane-D4	95%	75-133%
2037-26-5	Toluene-D8	100%	79-125%
460-00-4	4-Bromofluorobenzene	98%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-2

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	

Method Blank Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-2

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

Method Blank Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-2

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	95%	79-125%
460-00-4	4-Bromofluorobenzene	90%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.27	450	ug/kg	J
	system artifact	1.87	670	ug/kg	J
	Total TIC, Volatile		0	ug/kg	

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10238-BS	I252385.D	1	09/28/23	JN	n/a	n/a	VI10238
VI10238-BSD	I252386.D	1	09/28/23	JN	n/a	n/a	VI10238

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-1, JD73654-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	264	132	261	131	1	52-156/12
71-43-2	Benzene	50	46.0	92	45.4	91	1	82-119/10
108-86-1	Bromobenzene	50	47.7	95	47.9	96	0	82-115/10
74-97-5	Bromochloromethane	50	50.8	102	50.1	100	1	82-123/10
75-27-4	Bromodichloromethane	50	48.7	97	47.6	95	2	83-121/10
75-25-2	Bromoform	50	50.0	100	49.2	98	2	74-138/10
74-83-9	Bromomethane	50	49.4	99	48.3	97	2	56-150/12
78-93-3	2-Butanone (MEK)	200	270	135	262	131	3	72-138/10
104-51-8	n-Butylbenzene	50	47.2	94	45.9	92	3	81-124/11
135-98-8	sec-Butylbenzene	50	46.1	92	45.0	90	2	78-120/10
98-06-6	tert-Butylbenzene	50	45.1	90	44.8	90	1	78-121/10
75-15-0	Carbon disulfide	50	44.8	90	43.1	86	4	67-131/11
56-23-5	Carbon tetrachloride	50	45.9	92	44.7	89	3	72-130/11
108-90-7	Chlorobenzene	50	48.4	97	47.1	94	3	83-114/10
75-00-3	Chloroethane	50	48.5	97	46.6	93	4	67-141/12
67-66-3	Chloroform	50	45.1	90	44.0	88	2	76-115/10
74-87-3	Chloromethane	50	44.8	90	43.1	86	4	57-141/13
95-49-8	o-Chlorotoluene	50	47.4	95	46.0	92	3	81-118/10
106-43-4	p-Chlorotoluene	50	46.7	93	45.8	92	2	78-117/10
108-20-3	Di-Isopropyl ether	50	47.0	94	45.4	91	3	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	49.8	100	48.9	98	2	72-131/11
124-48-1	Dibromochloromethane	50	50.2	100	48.8	98	3	80-128/10
106-93-4	1,2-Dibromoethane	50	50.3	101	50.1	100	0	58-145/10
95-50-1	1,2-Dichlorobenzene	50	47.7	95	47.3	95	1	83-117/10
541-73-1	1,3-Dichlorobenzene	50	47.3	95	45.6	91	4	82-114/10
106-46-7	1,4-Dichlorobenzene	50	47.1	94	47.0	94	0	79-114/10
75-71-8	Dichlorodifluoromethane	50	49.4	99	48.1	96	3	49-146/13
75-34-3	1,1-Dichloroethane	50	47.9	96	45.7	91	5	76-126/10
107-06-2	1,2-Dichloroethane	50	44.6	89	43.8	88	2	76-118/10
75-35-4	1,1-Dichloroethene	50	46.5	93	44.3	89	5	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	48.9	98	47.7	95	2	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	45.8	92	44.0	88	4	76-122/10
78-87-5	1,2-Dichloropropane	50	46.1	92	45.1	90	2	82-123/10
142-28-9	1,3-Dichloropropane	50	49.3	99	48.4	97	2	84-120/10
594-20-7	2,2-Dichloropropane	50	46.6	93	44.9	90	4	66-130/11
563-58-6	1,1-Dichloropropene	50	45.5	91	44.2	88	3	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10238-BS	I252385.D	1	09/28/23	JN	n/a	n/a	VI10238
VI10238-BSD	I252386.D	1	09/28/23	JN	n/a	n/a	VI10238

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-1, JD73654-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	48.9	98	48.2	96	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	51.2	102	50.0	100	2	83-123/10
123-91-1	1,4-Dioxane	1250	1360	109	1280	102	6	64-163/20
60-29-7	Ethyl Ether	50	49.6	99	49.1	98	1	78-131/10
100-41-4	Ethylbenzene	50	47.3	95	46.0	92	3	83-115/10
87-68-3	Hexachlorobutadiene	50	47.2	94	46.0	92	3	65-130/11
591-78-6	2-Hexanone	200	244	122	231	116	5	73-138/10
98-82-8	Isopropylbenzene	50	46.5	93	45.1	90	3	81-122/11
99-87-6	p-Isopropyltoluene	50	46.5	93	45.6	91	2	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	47.2	94	46.3	93	2	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	205	103	204	102	0	71-138/10
74-95-3	Methylene bromide	50	47.9	96	48.4	97	1	81-122/10
75-09-2	Methylene chloride	50	44.8	90	43.4	87	3	73-122/10
91-20-3	Naphthalene	50	46.6	93	46.3	93	1	71-129/14
103-65-1	n-Propylbenzene	50	46.7	93	45.8	92	2	77-120/10
100-42-5	Styrene	50	50.0	100	48.4	97	3	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	47.2	94	48.3	97	2	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	47.7	95	46.8	94	2	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	50.8	102	49.4	99	3	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	46.2	92	44.8	90	3	75-127/10
127-18-4	Tetrachloroethene	50	47.5	95	46.2	92	3	73-125/11
109-99-9	Tetrahydrofuran	50	45.8	92	46.7	93	2	61-136/11
108-88-3	Toluene	50	46.5	93	45.4	91	2	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	47.4	95	46.9	94	1	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	49.2	98	47.6	95	3	72-133/12
71-55-6	1,1,1-Trichloroethane	50	46.4	93	44.5	89	4	77-124/11
79-00-5	1,1,2-Trichloroethane	50	50.6	101	49.2	98	3	83-122/10
79-01-6	Trichloroethene	50	44.6	89	45.0	90	1	80-122/10
75-69-4	Trichlorofluoromethane	50	48.8	98	47.1	94	4	69-132/11
96-18-4	1,2,3-Trichloropropane	50	47.4	95	46.9	94	1	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	46.8	94	45.6	91	3	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	46.5	93	46.2	92	1	79-120/10
75-01-4	Vinyl chloride	50	45.3	91	42.9	86	5	60-144/13
	m,p-Xylene	100	97.1	97	94.7	95	3	82-119/10
95-47-6	o-Xylene	50	49.2	98	47.1	94	4	84-120/10
1330-20-7	Xylene (total)	150	146	97	142	95	3	83-119/10

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10238-BS	I252385.D	1	09/28/23	JN	n/a	n/a	VI10238
VI10238-BSD	I252386.D	1	09/28/23	JN	n/a	n/a	VI10238

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-1, JD73654-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	101%	100%	80-124%
17060-07-0	1,2-Dichloroethane-D4	91%	94%	75-133%
2037-26-5	Toluene-D8	101%	101%	79-125%
460-00-4	4-Bromofluorobenzene	96%	97%	58-148%

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	10000	18000	180* [a]	19500	195* [a]	8	52-156/12
71-43-2	Benzene	2500	2660	106	2600	104	2	82-119/10
108-86-1	Bromobenzene	2500	2100	84	2110	84	0	82-115/10
74-97-5	Bromochloromethane	2500	2450	98	2480	99	1	82-123/10
75-27-4	Bromodichloromethane	2500	2480	99	2500	100	1	83-121/10
75-25-2	Bromoform	2500	2460	98	2640	106	7	74-138/10
74-83-9	Bromomethane	2500	4820	193* [a]	4510	180* [a]	7	56-150/12
78-93-3	2-Butanone (MEK)	10000	14500	145* [a]	15700	157* [a]	8	72-138/10
104-51-8	n-Butylbenzene	2500	2350	94	2330	93	1	81-124/11
135-98-8	sec-Butylbenzene	2500	2190	88	2180	87	0	78-120/10
98-06-6	tert-Butylbenzene	2500	2190	88	2170	87	1	78-121/10
75-15-0	Carbon disulfide	2500	2300	92	2250	90	2	67-131/11
56-23-5	Carbon tetrachloride	2500	2300	92	2330	93	1	72-130/11
108-90-7	Chlorobenzene	2500	2360	94	2370	95	0	83-114/10
75-00-3	Chloroethane	2500	5640	226* [a]	5460	218* [a]	3	67-141/12
67-66-3	Chloroform	2500	2170	87	2210	88	2	76-115/10
74-87-3	Chloromethane	2500	3690	148* [a]	4310	172* [a]	16* [b]	57-141/13
95-49-8	o-Chlorotoluene	2500	2200	88	2110	84	4	81-118/10
106-43-4	p-Chlorotoluene	2500	2150	86	2150	86	0	78-117/10
108-20-3	Di-Isopropyl ether	2500	2840	114	2860	114	1	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	2500	2150	86	2340	94	8	72-131/11
124-48-1	Dibromochloromethane	2500	2430	97	2500	100	3	80-128/10
106-93-4	1,2-Dibromoethane	2500	2380	95	2440	98	2	58-145/10
95-50-1	1,2-Dichlorobenzene	2500	2310	92	2340	94	1	83-117/10
541-73-1	1,3-Dichlorobenzene	2500	2230	89	2230	89	0	82-114/10
106-46-7	1,4-Dichlorobenzene	2500	2220	89	2220	89	0	79-114/10
75-71-8	Dichlorodifluoromethane	2500	2410	96	2280	91	6	49-146/13
75-34-3	1,1-Dichloroethane	2500	2470	99	2450	98	1	76-126/10
107-06-2	1,2-Dichloroethane	2500	2550	102	2600	104	2	76-118/10
75-35-4	1,1-Dichloroethene	2500	2380	95	2320	93	3	72-125/11
156-59-2	cis-1,2-Dichloroethene	2500	2470	99	2470	99	0	80-118/10
156-60-5	trans-1,2-Dichloroethene	2500	2290	92	2290	92	0	76-122/10
78-87-5	1,2-Dichloropropane	2500	2750	110	2760	110	0	82-123/10
142-28-9	1,3-Dichloropropane	2500	2420	97	2490	100	3	84-120/10
594-20-7	2,2-Dichloropropane	2500	2350	94	2390	96	2	66-130/11
563-58-6	1,1-Dichloropropene	2500	2430	97	2440	98	0	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	2500	2730	109	2750	110	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	2500	2510	100	2500	100	0	83-123/10
123-91-1	1,4-Dioxane	62500	59300	95	70400	113	17	64-163/20
60-29-7	Ethyl Ether	2500	2610	104	2690	108	3	78-131/10
100-41-4	Ethylbenzene	2500	2480	99	2470	99	0	83-115/10
87-68-3	Hexachlorobutadiene	2500	1860	74	1800	72	3	65-130/11
591-78-6	2-Hexanone	10000	13800	138	14800	148*[a]	7	73-138/10
98-82-8	Isopropylbenzene	2500	2500	100	2480	99	1	81-122/11
99-87-6	p-Isopropyltoluene	2500	2210	88	2220	89	0	80-120/10
1634-04-4	Methyl Tert Butyl Ether	2500	2630	105	2740	110	4	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	10000	12800	128	13700	137	7	71-138/10
74-95-3	Methylene bromide	2500	2560	102	2650	106	3	81-122/10
75-09-2	Methylene chloride	2500	2200	88	2160	86	2	73-122/10
91-20-3	Naphthalene	2500	2120	85	2350	94	10	71-129/14
103-65-1	n-Propylbenzene	2500	2160	86	2130	85	1	77-120/10
100-42-5	Styrene	2500	2670	107	2710	108	1	84-122/10
994-05-8	tert-Amyl Methyl Ether	2500	2760	110	2770	111	0	77-125/11
637-92-3	tert-Butyl Ethyl Ether	2500	2540	102	2600	104	2	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	2500	2490	100	2540	102	2	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	2500	2210	88	2290	92	4	75-127/10
127-18-4	Tetrachloroethene	2500	2250	90	2190	88	3	73-125/11
109-99-9	Tetrahydrofuran	2500	2960	118	3090	124	4	61-136/11
108-88-3	Toluene	2500	2410	96	2370	95	2	82-118/10
87-61-6	1,2,3-Trichlorobenzene	2500	2090	84	2210	88	6	68-132/13
120-82-1	1,2,4-Trichlorobenzene	2500	2110	84	2210	88	5	72-133/12
71-55-6	1,1,1-Trichloroethane	2500	2200	88	2250	90	2	77-124/11
79-00-5	1,1,2-Trichloroethane	2500	2390	96	2430	97	2	83-122/10
79-01-6	Trichloroethene	2500	2510	100	2480	99	1	80-122/10
75-69-4	Trichlorofluoromethane	2500	2520	101	2480	99	2	69-132/11
96-18-4	1,2,3-Trichloropropane	2500	2250	90	2360	94	5	80-120/10
95-63-6	1,2,4-Trimethylbenzene	2500	2200	88	2190	88	0	80-119/10
108-67-8	1,3,5-Trimethylbenzene	2500	2230	89	2190	88	2	79-120/10
75-01-4	Vinyl chloride	2500	4610	184*[a]	5260	210*[a]	13	60-144/13
	m,p-Xylene	5000	5020	100	5070	101	1	82-119/10
95-47-6	o-Xylene	2500	2510	100	2560	102	2	84-120/10
1330-20-7	Xylene (total)	7500	7530	100	7630	102	1	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73654-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	95%	97%	80-124%
17060-07-0	1,2-Dichloroethane-D4	101%	103%	75-133%
2037-26-5	Toluene-D8	96%	96%	79-125%
460-00-4	4-Bromofluorobenzene	86%	86%	58-148%

(a) High percent recovery and no associated positive reported in the QC batch.
(b) Outside in house control limits.

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* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: V3D8057-CC8035
Lab File ID: 3D192838.D
Instrument ID: GCMS3D
Injection Date: 10/02/23
Injection Time: 09:43
Method: SW846 8260D

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	186719	2.69	368940	3.86	692479	4.40	642028	6.76	301169	8.94
Upper Limit [a]	373438	3.19	737880	4.36	1384958	4.90	1284056	7.26	602338	9.44
Lower Limit [b]	93360	2.19	184470	3.36	346240	3.90	321014	6.26	150585	8.44

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
V3D8057-BS	205180	2.69	401579	3.86	719658	4.40	684057	6.76	341518	8.94
V3D8057-BSD	237685	2.69	409138	3.86	748328	4.40	712334	6.76	366667	8.94
V3D8057-MB	183939	2.70	389205	3.86	703100	4.40	657004	6.76	300498	8.94
ZZZZZZ	177159	2.70	355277	3.86	642622	4.40	604239	6.76	277731	8.94
ZZZZZZ	184792	2.70	358750	3.86	642147	4.40	599609	6.76	280740	8.94
JD73654-2	174421	2.70	353366	3.86	638682	4.40	583340	6.76	273745	8.94
ZZZZZZ	175728	2.70	350980	3.86	633892	4.40	596969	6.76	279736	8.94
ZZZZZZ	179514	2.71	353306	3.86	635256	4.40	592488	6.76	275693	8.94
JD73677-3	186352	2.70	349844	3.86	624273	4.40	584328	6.76	277335	8.94
ZZZZZZ	195484	2.70	358814	3.86	644661	4.40	605611	6.76	281768	8.94
ZZZZZZ	178460	2.70	348853	3.86	622701	4.40	593198	6.76	278256	8.94
ZZZZZZ	180820	2.69	363287	3.86	647344	4.40	625206	6.76	322290	8.94
ZZZZZZ	179049	2.69	356911	3.86	662512	4.40	667779	6.76	374412	8.94
ZZZZZZ	188313	2.69	358541	3.86	654378	4.40	674066	6.76	378582	8.94
ZZZZZZ	196113	2.69	364814	3.86	669805	4.40	669303	6.76	377795	8.94
ZZZZZZ	212569	2.69	364387	3.86	656514	4.40	622276	6.76	291238	8.94
ZZZZZZ	173678	2.70	363419	3.86	708581	4.40	941417	6.76	525334	8.94
ZZZZZZ	219245	2.70	433868	3.86	836355	4.40	957837	6.76	489250	8.94
ZZZZZZ	231736	2.70	463212	3.86	967855	4.40	1117728	6.76	556961	8.94
JD73677-3MS	269434	2.71	488370	3.86	879908	4.40	799292	6.76	422176	8.94
JD73677-3MSD	240639	2.71	443835	3.86	802436	4.40	767622	6.76	416010	8.94
ZZZZZZ	198222	2.69	393634	3.86	716315	4.40	668709	6.76	309422	8.94
ZZZZZZ	180484	2.70	357268	3.86	653798	4.40	617686	6.76	295141	8.94
ZZZZZZ	175166	2.70	357147	3.86	645467	4.40	611363	6.76	291409	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: VI10238-CC10232 **Injection Date:** 09/28/23
Lab File ID: I252384.D **Injection Time:** 09:30
Instrument ID: GCMSI **Method:** SW846 8260D

	IS 1 AREA	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
Check Std	156914	4.45	600358	5.54	916731	6.07	679200	7.99	323525	9.52
Upper Limit [a]	313828	4.95	1200716	6.04	1833462	6.57	1358400	8.49	647050	10.02
Lower Limit [b]	78457	3.95	300179	5.04	458366	5.57	339600	7.49	161763	9.02

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
VI10238-BS	158836	4.44	625014	5.54	954488	6.07	695194	7.99	330345	9.52
VI10238-BSD	173880	4.44	648329	5.54	977258	6.07	726508	7.99	338831	9.52
VI10238-MB	146604	4.44	615497	5.54	950375	6.07	697677	7.99	300907	9.52
ZZZZZZ	109307	4.44	561215	5.54	881790	6.07	607016	7.99	220748	9.52
ZZZZZZ	143818	4.45	585160	5.54	918686	6.07	690801	7.99	295976	9.52
JD73596-2	145729	4.45	588637	5.54	924809	6.07	690366	7.99	303665	9.52
JD73596-3	141408	4.45	578590	5.54	922887	6.07	689013	7.99	298894	9.52
ZZZZZZ	139054	4.45	564346	5.54	900686	6.07	676659	7.99	293583	9.52
ZZZZZZ	141658	4.45	558781	5.54	900072	6.07	666879	7.99	292098	9.52
JD73596-3MS	127603	4.45	593223	5.54	924935	6.07	702704	7.99	329186	9.52
JD73596-2DUP	151881	4.45	577710	5.54	914787	6.07	694777	7.99	300268	9.52
JD73654-3	148149	4.45	578141	5.54	917662	6.07	687118	7.99	295551	9.52
ZZZZZZ	145855	4.45	565724	5.54	908832	6.07	685553	7.99	300599	9.52
ZZZZZZ	151610	4.45	563020	5.54	894414	6.07	675624	7.99	295474	9.52
ZZZZZZ	155668	4.45	568562	5.54	902156	6.07	681222	7.99	296895	9.52
ZZZZZZ	156655	4.45	575354	5.54	923899	6.07	689950	7.99	295292	9.52
ZZZZZZ	145519	4.45	554844	5.54	891546	6.07	664336	7.99	286825	9.52
ZZZZZZ	152152	4.45	570657	5.54	909761	6.07	686437	7.99	299781	9.52
ZZZZZZ	187245	4.45	581608	5.54	916547	6.07	698623	7.99	302478	9.52
ZZZZZZ	147068	4.44	561746	5.54	902681	6.07	681341	7.99	293859	9.52
ZZZZZZ	153720	4.45	565430	5.54	887046	6.07	673873	7.99	295004	9.52
ZZZZZZ	153950	4.45	579904	5.54	923783	6.07	697043	7.99	296898	9.52
ZZZZZZ	148833	4.45	557021	5.54	886829	6.07	665537	7.99	287306	9.52
JD73654-1	232158	4.45	637683	5.54	1003462	6.07	744542	7.99	322389	9.52

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Surrogate Recovery Summary

Job Number: JD73654
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Method: SW846 8260D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JD73654-1	I252411.D	105	105	99	97
JD73654-2	3D192848.D	88	96	97	88
JD73654-3	I252399.D	106	96	100	97
V3D8057-BS	3D192839.D	95	101	96	86
V3D8057-BSD	3D192840.D	97	103	96	86
V3D8057-MB	3D192842.D	91	100	95	90
VI10238-BS	I252385.D	101	91	101	96
VI10238-BSD	I252386.D	100	94	101	97
VI10238-MB	I252388.D	103	95	100	98

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-124%
S2 = 1,2-Dichloroethane-D4	75-133%
S3 = Toluene-D8	79-125%
S4 = 4-Bromofluorobenzene	58-148%

SGS

Dayton, NJ

10/06/23

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Jacobs Engineering

Varian, Beverly, MA

VARMS111.A.CS.EV.02FL PO#148048917

SGS Job Number: JD73769

Sampling Dates: 09/27/23 - 09/28/23

Report to:

Jacobs Engineering
120 St. James Avenue
Boston, MA 02116
Raymond.cadorette@jacobs.com; Bernice.Kidd@jacobs.com;
EDMData@jacobs.com
ATTN: Raymond J. Cadorette

Total number of pages in report: **55**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Victoria Pushkova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Test results relate only to samples analyzed.

Table of Contents

Sample Summary

Jacobs Engineering

Job No: JD73769

Varian, Beverly, MA
Project No: VARMS111.A.CS.EV.02FL PO#148048917

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JD73769-1	09/27/23	14:25 SF	09/28/23	SO	Soil	VAR_PSL10_SO_OB65-15-16_20230927
JD73769-2	09/27/23	14:55 SF	09/28/23	SO	Soil	VAR_PSL10_SO_OB65-25-26_20230927
JD73769-3	09/28/23	09:45	09/28/23	SO	Trip Blank Methanol	TB_20230927_SO_03M
JD73769-4	09/28/23	09:45	09/28/23	SO	Trip Blank Soil	TB_20230927_SO_03L
JD73769-5	09/28/23	09:45 SF	09/28/23	SO	Soil	VAR_PSL10_SO_OB65-30-32_20230928

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the RL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Jacobs Engineering	**Job No:**	JD73769
Site:	Varian, Beverly, MA	**Report Date**	10/6/2023 2:33:14 PM

On 09/28/2023, 3 sample(s), 2 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0.1 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD73769 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** V3D8057

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- The blank spike (BS) recovery(s) of 2-Butanone (MEK), Acetone, Bromomethane, Chloroethane, Chloromethane, Vinyl chloride are outside control limits.
- V3D8057-BS for Chloroethane: High percent recovery and no associated positive reported in the QC batch.
- JD73769-3 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73769-3 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73769-3 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73769-3 for Tetrahydrofuran: Associated CCV outside of control limits high, sample was ND.
- JD73769-3 for 4-Methyl-2-pentanone(MIBK): Associated CCV outside of control limits high, sample was ND.
- V3D8057-BSD for Chloromethane: Outside in house control limits.
- JD73769-3 for Chloroethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- V3D8057-BS for Chloromethane: High percent recovery and no associated positive reported in the QC batch.
- JD73769-3 for Chloromethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- V3D8057-BS for Bromomethane: High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for Acetone: High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for 2-Butanone (MEK): High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for Vinyl chloride: High percent recovery and no associated positive reported in the QC batch.
- JD73769-3 for Bromomethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73769-3 for Vinyl chloride: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.

Matrix: SO **Batch ID:** VI10241

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73769-1 for Vinyl chloride: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- JD73769-5 for Acetone: Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** VI10241

- JD73769-5 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73769-5 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73769-2 for Vinyl chloride: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- JD73769-2 for Acetone: Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73769-2 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73769-1 for Acetone: Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73769-1 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73769-1 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73769-4 for Vinyl chloride: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- JD73769-4 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73769-4 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73769-4 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73769-5 for Vinyl chloride: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- JD73769-2 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- Not all RL meet the requirment.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO **Batch ID:** GN46566

- The data for SM2540 G 18TH ED MOD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Friday, October 6, 2023 **Page 2 of 2**

Summary of Hits

Page 1 of 1

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73769-1	**VAR_PSL10_SO_OB65-15-16_20230927**					
Acetone [a]		48.0	11		ug/kg	SW846 8260D
JD73769-2	**VAR_PSL10_SO_OB65-25-26_20230927**					
Acetone [a]		21.8	11		ug/kg	SW846 8260D
Tetrachloroethene		3.0	2.3		ug/kg	SW846 8260D
Trichloroethene		13.3	1.1		ug/kg	SW846 8260D
JD73769-3	**TB_20230927_SO_03M**					
No hits reported in this sample.						
JD73769-4	**TB_20230927_SO_03L**					
No hits reported in this sample.						
JD73769-5	**VAR_PSL10_SO_OB65-30-32_20230928**					
Acetone [a]		13.5	9.3		ug/kg	SW846 8260D
cis-1,2-Dichloroethene		3.1	0.93		ug/kg	SW846 8260D
Tetrachloroethene		84.7	1.9		ug/kg	SW846 8260D
Trichloroethene		466	58		ug/kg	SW846 8260D

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB65-15-16_20230927		
Lab Sample ID:	JD73769-1	**Date Sampled:**	09/27/23
Matrix:	SO - Soil	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	92.5
Project:	Varian, Beverly, MA		

	File ID	**DF**	**Analyzed**	**By**	**Prep Date**	**Prep Batch**	**Analytical Batch**
Run #1	I252493.D	1	10/02/23 15:26	JN	n/a	n/a	VI10241
Run #2							

	Initial Weight
Run #1	4.8 g
Run #2	

VOA MCP List

CAS No.	**Compound**	**Result**	**RL**	**Units**	**Q**
67-64-1	Acetone [a]	48.0	11	ug/kg	
71-43-2	Benzene	ND	0.56	ug/kg	
108-86-1	Bromobenzene	ND	5.6	ug/kg	
74-97-5	Bromochloromethane	ND	5.6	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	ug/kg	
75-25-2	Bromoform	ND	5.6	ug/kg	
74-83-9	Bromomethane	ND	5.6	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	11	ug/kg	
104-51-8	n-Butylbenzene	ND	2.3	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.3	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.3	ug/kg	
75-15-0	Carbon disulfide	ND	2.3	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.3	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	ug/kg	
75-00-3	Chloroethane	ND	5.6	ug/kg	
67-66-3	Chloroform	ND	2.3	ug/kg	
74-87-3	Chloromethane	ND	5.6	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.3	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.3	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.3	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.6	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VAR_PSL10_SO_OB65-15-16_20230927
Lab Sample ID: JD73769-1 **Date Sampled:** 09/27/23
Matrix: SO - Soil **Date Received:** 09/28/23
Method: SW846 8260D **Percent Solids:** 92.5
Project: Varian, Beverly, MA

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.3	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.3	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.3	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.3	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	ug/kg	
123-91-1	1,4-Dioxane	ND	140	ug/kg	
60-29-7	Ethyl Ether	ND	2.3	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.6	ug/kg	
591-78-6	2-Hexanone [c]	ND	5.6	ug/kg	
98-82-8	Isopropylbenzene	ND	2.3	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.6	ug/kg	
74-95-3	Methylene bromide	ND	5.6	ug/kg	
75-09-2	Methylene chloride	ND	5.6	ug/kg	
91-20-3	Naphthalene	ND	5.6	ug/kg	
103-65-1	n-Propylbenzene	ND	2.3	ug/kg	
100-42-5	Styrene	ND	2.3	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.3	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.3	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.3	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	ug/kg	
127-18-4	Tetrachloroethene	ND	2.3	ug/kg	
109-99-9	Tetrahydrofuran	ND	11	ug/kg	
108-88-3	Toluene	ND	1.1	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	ug/kg	
79-01-6	Trichloroethene	ND	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.6	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.6	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.3	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.3	ug/kg	
75-01-4	Vinyl chloride [d]	ND	2.3	ug/kg	
	m,p-Xylene	ND	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB65-15-16_20230927		
Lab Sample ID:	JD73769-1	**Date Sampled:**	09/27/23
Matrix:	SO - Soil	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	92.5
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		80-124%
17060-07-0	1,2-Dichloroethane-D4	98%		75-133%
2037-26-5	Toluene-D8	98%		79-125%
460-00-4	4-Bromofluorobenzene	96%		58-148%

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

(b) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

(c) Associated CCV outside of control limits high, sample was ND.

(d) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB65-25-26_20230927		
Lab Sample ID:	JD73769-2	**Date Sampled:**	09/27/23
Matrix:	SO - Soil	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	90.2
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252494.D	1	10/02/23 15:48	JN	n/a	n/a	VI10241
Run #2							

	Initial Weight
Run #1	4.9 g
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	21.8	11	ug/kg	
71-43-2	Benzene	ND	0.57	ug/kg	
108-86-1	Bromobenzene	ND	5.7	ug/kg	
74-97-5	Bromochloromethane	ND	5.7	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	ug/kg	
75-25-2	Bromoform	ND	5.7	ug/kg	
74-83-9	Bromomethane	ND	5.7	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	11	ug/kg	
104-51-8	n-Butylbenzene	ND	2.3	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.3	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.3	ug/kg	
75-15-0	Carbon disulfide	ND	2.3	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.3	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	ug/kg	
75-00-3	Chloroethane	ND	5.7	ug/kg	
67-66-3	Chloroform	ND	2.3	ug/kg	
74-87-3	Chloromethane	ND	5.7	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.3	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.3	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.3	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.7	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB65-25-26_20230927		
Lab Sample ID:	JD73769-2	**Date Sampled:**	09/27/23
Matrix:	SO - Soil	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	90.2
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.3	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.3	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.3	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.3	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	ug/kg	
123-91-1	1,4-Dioxane	ND	140	ug/kg	
60-29-7	Ethyl Ether	ND	2.3	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.7	ug/kg	
591-78-6	2-Hexanone [c]	ND	5.7	ug/kg	
98-82-8	Isopropylbenzene	ND	2.3	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.7	ug/kg	
74-95-3	Methylene bromide	ND	5.7	ug/kg	
75-09-2	Methylene chloride	ND	5.7	ug/kg	
91-20-3	Naphthalene	ND	5.7	ug/kg	
103-65-1	n-Propylbenzene	ND	2.3	ug/kg	
100-42-5	Styrene	ND	2.3	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.3	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.3	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.3	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	ug/kg	
127-18-4	Tetrachloroethene	3.0	2.3	ug/kg	
109-99-9	Tetrahydrofuran	ND	11	ug/kg	
108-88-3	Toluene	ND	1.1	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	ug/kg	
79-01-6	Trichloroethene	13.3	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.7	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.7	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.3	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.3	ug/kg	
75-01-4	Vinyl chloride [d]	ND	2.3	ug/kg	
	m,p-Xylene	ND	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB65-25-26_20230927		
Lab Sample ID:	JD73769-2	**Date Sampled:**	09/27/23
Matrix:	SO - Soil	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	90.2
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		80-124%
17060-07-0	1,2-Dichloroethane-D4	97%		75-133%
2037-26-5	Toluene-D8	97%		79-125%
460-00-4	4-Bromofluorobenzene	96%		58-148%

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(c) Associated CCV outside of control limits high, sample was ND.
(d) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230927_SO_03M			
Lab Sample ID:	JD73769-3		**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Methanol		**Date Received:**	09/28/23
Method:	SW846 8260D		**Percent Solids:**	n/a
Project:	Varian, Beverly, MA			

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D192847.D	1	10/02/23 13:52	JN	n/a	n/a	V3D8057
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane [a]	ND	250	ug/kg	
78-93-3	2-Butanone (MEK) [a]	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane [a]	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane [a]	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230927_SO_03M		
Lab Sample ID:	JD73769-3	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone [a]	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK [b]	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran [b]	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride [a]	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230927_SO_03M		
Lab Sample ID:	JD73769-3	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		80-124%
17060-07-0	1,2-Dichloroethane-D4	99%		75-133%
2037-26-5	Toluene-D8	96%		79-125%
460-00-4	4-Bromofluorobenzene	88%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230927_SO_03L		
Lab Sample ID:	JD73769-4	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

	File ID	**DF**	**Analyzed**	**By**	**Prep Date**	**Prep Batch**	**Analytical Batch**
Run #1	I252490.D	1	10/02/23 14:19	JN	n/a	n/a	VI10241
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA MCP List

CAS No.	**Compound**	**Result**	**RL**	**Units**	**Q**
67-64-1	Acetone [a]	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK) [a]	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	TB_20230927_SO_03L		
Lab Sample ID:	JD73769-4	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/28/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone [b]	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride [c]	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230927_SO_03L
Lab Sample ID: JD73769-4
Matrix: SO - Trip Blank Soil
Method: SW846 8260D
Project: Varian, Beverly, MA
Date Sampled: 09/28/23
Date Received: 09/28/23
Percent Solids: n/a

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		80-124%
17060-07-0	1,2-Dichloroethane-D4	95%		75-133%
2037-26-5	Toluene-D8	98%		79-125%
460-00-4	4-Bromofluorobenzene	96%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND.
(c) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

ND = Not detected	J = Indicates an estimated value
RL = Reporting Limit	B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range	N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VAR_PSL10_SO_OB65-30-32_20230928
Lab Sample ID: JD73769-5
Matrix: SO - Soil
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/28/23
Date Received: 09/28/23
Percent Solids: 91.0

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252495.D	1	10/02/23 16:11	JN	n/a	n/a	VI10241
Run #2	3D192867.D	1	10/02/23 21:21	JN	n/a	n/a	V3D8057

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.9 g		
Run #2	10.4 g	10.0 ml	100 ul

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	13.5	9.3	ug/kg	
71-43-2	Benzene	ND	0.47	ug/kg	
108-86-1	Bromobenzene	ND	4.7	ug/kg	
74-97-5	Bromochloromethane	ND	4.7	ug/kg	
75-27-4	Bromodichloromethane	ND	1.9	ug/kg	
75-25-2	Bromoform	ND	4.7	ug/kg	
74-83-9	Bromomethane	ND	4.7	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	9.3	ug/kg	
104-51-8	n-Butylbenzene	ND	1.9	ug/kg	
135-98-8	sec-Butylbenzene	ND	1.9	ug/kg	
98-06-6	tert-Butylbenzene	ND	1.9	ug/kg	
75-15-0	Carbon disulfide	ND	1.9	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.9	ug/kg	
108-90-7	Chlorobenzene	ND	1.9	ug/kg	
75-00-3	Chloroethane	ND	4.7	ug/kg	
67-66-3	Chloroform	ND	1.9	ug/kg	
74-87-3	Chloromethane	ND	4.7	ug/kg	
95-49-8	o-Chlorotoluene	ND	1.9	ug/kg	
106-43-4	p-Chlorotoluene	ND	1.9	ug/kg	
108-20-3	Di-Isopropyl ether	ND	1.9	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.9	ug/kg	
124-48-1	Dibromochloromethane	ND	1.9	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.93	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.93	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.93	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.93	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.7	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.93	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.93	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.93	ug/kg	
156-59-2	cis-1,2-Dichloroethene	3.1	0.93	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.93	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VAR_PSL10_SO_OB65-30-32_20230928
Lab Sample ID: JD73769-5
Matrix: SO - Soil
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/28/23
Date Received: 09/28/23
Percent Solids: 91.0

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	1.9	ug/kg	
142-28-9	1,3-Dichloropropane	ND	1.9	ug/kg	
594-20-7	2,2-Dichloropropane	ND	1.9	ug/kg	
563-58-6	1,1-Dichloropropene	ND	1.9	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.9	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.9	ug/kg	
123-91-1	1,4-Dioxane	ND	120	ug/kg	
60-29-7	Ethyl Ether	ND	1.9	ug/kg	
100-41-4	Ethylbenzene	ND	0.93	ug/kg	
87-68-3	Hexachlorobutadiene	ND	4.7	ug/kg	
591-78-6	2-Hexanone [c]	ND	4.7	ug/kg	
98-82-8	Isopropylbenzene	ND	1.9	ug/kg	
99-87-6	p-Isopropyltoluene	ND	1.9	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.93	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.7	ug/kg	
74-95-3	Methylene bromide	ND	4.7	ug/kg	
75-09-2	Methylene chloride	ND	4.7	ug/kg	
91-20-3	Naphthalene	ND	4.7	ug/kg	
103-65-1	n-Propylbenzene	ND	1.9	ug/kg	
100-42-5	Styrene	ND	1.9	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	1.9	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	1.9	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.9	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.9	ug/kg	
127-18-4	Tetrachloroethene	84.7	1.9	ug/kg	
109-99-9	Tetrahydrofuran	ND	9.3	ug/kg	
108-88-3	Toluene	ND	0.93	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.9	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.9	ug/kg	
79-01-6	Trichloroethene	466 [d]	58	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.7	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	4.7	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	1.9	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	1.9	ug/kg	
75-01-4	Vinyl chloride [e]	ND	1.9	ug/kg	
	m,p-Xylene	ND	0.93	ug/kg	
95-47-6	o-Xylene	ND	0.93	ug/kg	
1330-20-7	Xylene (total)	ND	0.93	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VAR_PSL10_SO_OB65-30-32_20230928
Lab Sample ID: JD73769-5
Matrix: SO - Soil
Method: SW846 8260D
Project: Varian, Beverly, MA
Date Sampled: 09/28/23
Date Received: 09/28/23
Percent Solids: 91.0

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%	89%	80-124%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	75-133%
2037-26-5	Toluene-D8	97%	95%	79-125%
460-00-4	4-Bromofluorobenzene	96%	87%	58-148%

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(c) Associated CCV outside of control limits high, sample was ND.
(d) Result is from Run# 2
(e) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- MCP Form
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits

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SGS

MMTB
SMTB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200
www.sgs.com/ehsusa

Page 1 **of** 1

FED-EX Tracking #:
Bottle Order Control #: V08 3023-128
SGS Quote #:
SGS Job #: JD73769

Client / Reporting Information
Company Name: Jacobs Engineering
Street Address: 120 St. James Ave
City: Boston State: MA Zip: 02116
Project Contact: Bernice E-mail: kidd@jacobs.com
Phone #: 508-209-3480
Sampler(s) Name(s): Steve Fox Phone #: 508-250-3399

Project Information
Project Name: Varian Medical Systems
Street: 150 Sohier
City: Beverly State: MA
Project #: VARMS111.A.C3.
Client Purchase Order #: 14804891 7
Project Manager: Raymond Cadorette

Billing Information (if different from Report to)
Company Name:
Street Address: EV.02FL
City: State: Zip:
Attention:

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO$_3$	H$_2$SO$_4$	NONE	DI Water	MEOH	ENCORE	SW8260C	pH Check (Lab Use Only)	LAB USE ONLY
1	VAR_PSL10_SO_OB65-15-16_20230927		9/27/23	1425	SF	G		SO	4					1	2	1		X	7.9 ppm	P11 14L6 4951
2	VAR_PSL10_SO_OB65-~~25-26_20230927~~ 25-26_20230927		9/27/23	1455	SF	G		SO	4					1	2	1		X	0.0 ppm	
3	TB_20230927_SO_03M															1		X		
4	TB_20230927_SO_03L														2			X		
5	VAR_PSL10_SO_OB65-30-32_20230928		9/28/23	0945	SF	G		SO	4					1	2	1		X	17.4 ppm	

Initial Assessment LB 24
Label Verification

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

Turn Around Time (Business Days)
Approved By (SGS PM) / Date:
☐ 10 Business Days
☐ 5 Business Days
☐ 3 Business Days*
☐ 2 Business Days*
☐ 1 Business Day*
☐ Other
All data available via SGS Engage
* Approval needed for 1-3 BD TAT

Deliverable
☐ Commercial "A" (Level 1)
☐ Commercial "B" (Level 2)
☐ NJ Reduced (Level 3)
☐ Full Tier I (Level 4)
☐ Commercial "C"
☐ NJ DKQP
☐ NYASP Category A
☐ NYASP Category B
☐ MA MCP Criteria ______
☐ CT RCP Criteria ______
☐ State Forms
☐ EDD Format ______
Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions
SGS Courier
SGS Service Center
Northborough, MA
9/28
http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by:	Date / Time:	Received By:	Relinquished By:	Date / Time:	Received By:
1 Fox	9/28/23 11:11	1	2	9/28/23 16:40	2
3	9/28/23 19:50	3 Brandon Malloy	4 Brandon Malloy	9-28-23 23:11	4
5		5	Custody Seal # ☐ Intact ☐ Not intact ☐ Absent	Therm ID: See Sample Receipt Summary	On Ice ☑ Cooler Temp. °C 0.4

EHSA-QAC-0023-05 Rev.Date:8/5/22

SGS Sample Receipt Summary

Job Number: JD73769 **Client:** JACOBS ENGINEERING **Project:** VARIAN, BEVERLY, MA

Date / Time Received: 9/28/2023 11:11:00 PM **Delivery Method:** SGS **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (0.4);

Cooler Temps (Corrected) °C: Cooler 1: (0.1);

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y or N	
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun 40	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

Job Change Order: JD73769

Requested Date:	10/4/2023	**Received Date:**	9/28/2023
Account Name:	Jacobs Engineering	**Due Date:**	10/4/2023
Project Description:	Varian, Beverly, MA	**Deliverable:**	MAMCP
C/O Initiated By:	VIKTORIYA_ **PM:** VP	**TAT (Days):**	7

==

Sample #:	JD73769-All	**Dept:**	
Client ID:		**TAT:**	7
Change:	Revise TAT to 7-d, due date 10/5		

Above Changes Per: Raymond J. Cadorette   **Date/Time:** 10/4/2023

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	SGS North America Inc. - Dayton	Project #:	JD73769
Project Location:	Varian, Beverly, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
JD73769-1,JD73769-2,JD73769-3,JD73769-4,JD73769-5

Matrices: Groundwater/Surface Water ( ) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other (X)

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr ( ) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC ( ) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals ( ) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total ( ) Cyanide/PAC CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ Yes	☐ No ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No
	Responses to questions G, H, and I below is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☐ Yes	☑ No [1]
	<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.		
H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes	☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No [1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature:		**Position:**	**General Manager**
Printed Name:	David Chastain	**Date:**	**06-Oct-23**

SGS North America Inc.

Internal Sample Tracking Chronicle

Jacobs Engineering

Job No: JD73769

Varian, Beverly, MA
Project No: VARMS111.A.CS.EV.02FL PO#148048917

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD73769-1	Collected: 27-SEP-23 14:25 By: SF		Received: 28-SEP-23 By: KG			
VAR_PSL10_SO_OB65-15-16_20230927						
JD73769-1	SM2540 G 18TH ED MOD	30-SEP-23 11:00	MK			SOL104
JD73769-1	SW846 8260D	02-OCT-23 15:26	JN			V8260MCP
JD73769-2	Collected: 27-SEP-23 14:55 By: SF		Received: 28-SEP-23 By: KG			
VAR_PSL10_SO_OB65-25-26_20230927						
JD73769-2	SM2540 G 18TH ED MOD	30-SEP-23 11:00	MK			SOL104
JD73769-2	SW846 8260D	02-OCT-23 15:48	JN			V8260MCP
JD73769-3	Collected: 28-SEP-23 09:45 By:		Received: 28-SEP-23 By: KG			
TB_20230927_SO_03M						
JD73769-3	SW846 8260D	02-OCT-23 13:52	JN			V8260MCP
JD73769-4	Collected: 28-SEP-23 09:45 By:		Received: 28-SEP-23 By: KG			
TB_20230927_SO_03L						
JD73769-4	SW846 8260D	02-OCT-23 14:19	JN			V8260MCP
JD73769-5	Collected: 28-SEP-23 09:45 By: SF		Received: 28-SEP-23 By: KG			
VAR_PSL10_SO_OB65-30-32_20230928						
JD73769-5	SM2540 G 18TH ED MOD	30-SEP-23 11:00	MK			SOL104
JD73769-5	SW846 8260D	02-OCT-23 16:11	JN			V8260MCP
JD73769-5	SW846 8260D	02-OCT-23 21:21	JN			V8260MCP

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057	SW846 8260D						
V3D8057-BS	67-64-1	Acetone	BSP	REC	180 [a]	%	70-130
V3D8057-BS	71-43-2	Benzene	BSP	REC	106	%	70-130
V3D8057-BS	108-86-1	Bromobenzene	BSP	REC	84	%	70-130
V3D8057-BS	74-97-5	Bromochloromethane	BSP	REC	98	%	70-130
V3D8057-BS	75-27-4	Bromodichloromethane	BSP	REC	99	%	70-130
V3D8057-BS	75-25-2	Bromoform	BSP	REC	98	%	70-130
V3D8057-BS	74-83-9	Bromomethane	BSP	REC	193 [a]	%	70-130
V3D8057-BS	78-93-3	2-Butanone (MEK)	BSP	REC	145 [a]	%	70-130
V3D8057-BS	104-51-8	n-Butylbenzene	BSP	REC	94	%	70-130
V3D8057-BS	135-98-8	sec-Butylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	98-06-6	tert-Butylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	75-15-0	Carbon disulfide	BSP	REC	92	%	70-130
V3D8057-BS	56-23-5	Carbon tetrachloride	BSP	REC	92	%	70-130
V3D8057-BS	108-90-7	Chlorobenzene	BSP	REC	94	%	70-130
V3D8057-BS	75-00-3	Chloroethane	BSP	REC	226 [a]	%	70-130
V3D8057-BS	67-66-3	Chloroform	BSP	REC	87	%	70-130
V3D8057-BS	74-87-3	Chloromethane	BSP	REC	148 [a]	%	70-130
V3D8057-BS	95-49-8	o-Chlorotoluene	BSP	REC	88	%	70-130
V3D8057-BS	106-43-4	p-Chlorotoluene	BSP	REC	86	%	70-130
V3D8057-BS	108-20-3	Di-Isopropyl ether	BSP	REC	114	%	70-130
V3D8057-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	86	%	70-130
V3D8057-BS	124-48-1	Dibromochloromethane	BSP	REC	97	%	70-130
V3D8057-BS	106-93-4	1,2-Dibromoethane	BSP	REC	95	%	70-130
V3D8057-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	92	%	70-130
V3D8057-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	89	%	70-130
V3D8057-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	89	%	70-130
V3D8057-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	96	%	70-130
V3D8057-BS	75-34-3	1,1-Dichloroethane	BSP	REC	99	%	70-130
V3D8057-BS	107-06-2	1,2-Dichloroethane	BSP	REC	102	%	70-130
V3D8057-BS	75-35-4	1,1-Dichloroethene	BSP	REC	95	%	70-130
V3D8057-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	99	%	70-130
V3D8057-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	92	%	70-130
V3D8057-BS	78-87-5	1,2-Dichloropropane	BSP	REC	110	%	70-130
V3D8057-BS	142-28-9	1,3-Dichloropropane	BSP	REC	97	%	70-130
V3D8057-BS	594-20-7	2,2-Dichloropropane	BSP	REC	94	%	70-130
V3D8057-BS	563-58-6	1,1-Dichloropropene	BSP	REC	97	%	70-130
V3D8057-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	109	%	70-130
V3D8057-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	100	%	70-130
V3D8057-BS	123-91-1	1,4-Dioxane	BSP	REC	95	%	70-130
V3D8057-BS	60-29-7	Ethyl Ether	BSP	REC	104	%	70-130
V3D8057-BS	100-41-4	Ethylbenzene	BSP	REC	99	%	70-130
V3D8057-BS	87-68-3	Hexachlorobutadiene	BSP	REC	74	%	70-130

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BS	591-78-6	2-Hexanone	BSP	REC	138	%	70-130
V3D8057-BS	98-82-8	Isopropylbenzene	BSP	REC	100	%	70-130
V3D8057-BS	99-87-6	p-Isopropyltoluene	BSP	REC	88	%	70-130
V3D8057-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	105	%	70-130
V3D8057-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	128	%	70-130
V3D8057-BS	74-95-3	Methylene bromide	BSP	REC	102	%	70-130
V3D8057-BS	75-09-2	Methylene chloride	BSP	REC	88	%	70-130
V3D8057-BS	91-20-3	Naphthalene	BSP	REC	85	%	70-130
V3D8057-BS	103-65-1	n-Propylbenzene	BSP	REC	86	%	70-130
V3D8057-BS	100-42-5	Styrene	BSP	REC	107	%	70-130
V3D8057-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	110	%	70-130
V3D8057-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	102	%	70-130
V3D8057-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	100	%	70-130
V3D8057-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	88	%	70-130
V3D8057-BS	127-18-4	Tetrachloroethene	BSP	REC	90	%	70-130
V3D8057-BS	109-99-9	Tetrahydrofuran	BSP	REC	118	%	70-130
V3D8057-BS	108-88-3	Toluene	BSP	REC	96	%	70-130
V3D8057-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8057-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8057-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	88	%	70-130
V3D8057-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	96	%	70-130
V3D8057-BS	79-01-6	Trichloroethene	BSP	REC	100	%	70-130
V3D8057-BS	75-69-4	Trichlorofluoromethane	BSP	REC	101	%	70-130
V3D8057-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	90	%	70-130
V3D8057-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	89	%	70-130
V3D8057-BS	75-01-4	Vinyl chloride	BSP	REC	184 [a]	%	70-130
V3D8057-BS		m,p-Xylene	BSP	REC	100	%	70-130
V3D8057-BS	95-47-6	o-Xylene	BSP	REC	100	%	70-130
V3D8057-BS	1330-20-7	Xylene (total)	BSP	REC	100	%	70-130
V3D8057-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	95	%	70-130
V3D8057-BS	2037-26-5	Toluene-D8	BSP	SURR	96	%	70-130
V3D8057-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	86	%	70-130
V3D8057-BSD	67-64-1	Acetone	BSD	REC	195 [a]	%	70-130
V3D8057-BSD	67-64-1	Acetone	BSD	RPD	8	%	20
V3D8057-BSD	71-43-2	Benzene	BSD	REC	104	%	70-130
V3D8057-BSD	71-43-2	Benzene	BSD	RPD	2	%	20
V3D8057-BSD	108-86-1	Bromobenzene	BSD	REC	84	%	70-130
V3D8057-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
V3D8057-BSD	74-97-5	Bromochloromethane	BSD	REC	99	%	70-130
V3D8057-BSD	74-97-5	Bromochloromethane	BSD	RPD	1	%	20
V3D8057-BSD	75-27-4	Bromodichloromethane	BSD	REC	100	%	70-130
V3D8057-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
V3D8057-BSD	75-25-2	Bromoform	BSD	REC	106	%	70-130
V3D8057-BSD	75-25-2	Bromoform	BSD	RPD	7	%	20

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	74-83-9	Bromomethane	BSD	REC	180 [a]	%	70-130
V3D8057-BSD	74-83-9	Bromomethane	BSD	RPD	7	%	20
V3D8057-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	157 [a]	%	70-130
V3D8057-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	8	%	20
V3D8057-BSD	104-51-8	n-Butylbenzene	BSD	REC	93	%	70-130
V3D8057-BSD	104-51-8	n-Butylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	135-98-8	sec-Butylbenzene	BSD	REC	87	%	70-130
V3D8057-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	98-06-6	tert-Butylbenzene	BSD	REC	87	%	70-130
V3D8057-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	75-15-0	Carbon disulfide	BSD	REC	90	%	70-130
V3D8057-BSD	75-15-0	Carbon disulfide	BSD	RPD	2	%	20
V3D8057-BSD	56-23-5	Carbon tetrachloride	BSD	REC	93	%	70-130
V3D8057-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	1	%	20
V3D8057-BSD	108-90-7	Chlorobenzene	BSD	REC	95	%	70-130
V3D8057-BSD	108-90-7	Chlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	75-00-3	Chloroethane	BSD	REC	218 [a]	%	70-130
V3D8057-BSD	75-00-3	Chloroethane	BSD	RPD	3	%	20
V3D8057-BSD	67-66-3	Chloroform	BSD	REC	88	%	70-130
V3D8057-BSD	67-66-3	Chloroform	BSD	RPD	2	%	20
V3D8057-BSD	74-87-3	Chloromethane	BSD	REC	172 [a]	%	70-130
V3D8057-BSD	74-87-3	Chloromethane	BSD	RPD	16 [b]	%	20
V3D8057-BSD	95-49-8	o-Chlorotoluene	BSD	REC	84	%	70-130
V3D8057-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	4	%	20
V3D8057-BSD	106-43-4	p-Chlorotoluene	BSD	REC	86	%	70-130
V3D8057-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
V3D8057-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	114	%	70-130
V3D8057-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	1	%	20
V3D8057-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	94	%	70-130
V3D8057-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	8	%	20
V3D8057-BSD	124-48-1	Dibromochloromethane	BSD	REC	100	%	70-130
V3D8057-BSD	124-48-1	Dibromochloromethane	BSD	RPD	3	%	20
V3D8057-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	98	%	70-130
V3D8057-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	2	%	20
V3D8057-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	94	%	70-130
V3D8057-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
V3D8057-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	89	%	70-130
V3D8057-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	89	%	70-130
V3D8057-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	91	%	70-130
V3D8057-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	6	%	20
V3D8057-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	98	%	70-130
V3D8057-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	1	%	20
V3D8057-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	104	%	70-130

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	93	%	70-130
V3D8057-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	3	%	20
V3D8057-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	99	%	70-130
V3D8057-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	0	%	20
V3D8057-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	92	%	70-130
V3D8057-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	0	%	20
V3D8057-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	110	%	70-130
V3D8057-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	0	%	20
V3D8057-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	100	%	70-130
V3D8057-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	3	%	20
V3D8057-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	96	%	70-130
V3D8057-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	2	%	20
V3D8057-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	98	%	70-130
V3D8057-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	0	%	20
V3D8057-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	110	%	70-130
V3D8057-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
V3D8057-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	100	%	70-130
V3D8057-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	0	%	20
V3D8057-BSD	123-91-1	1,4-Dioxane	BSD	REC	113	%	70-130
V3D8057-BSD	123-91-1	1,4-Dioxane	BSD	RPD	17	%	20
V3D8057-BSD	60-29-7	Ethyl Ether	BSD	REC	108	%	70-130
V3D8057-BSD	60-29-7	Ethyl Ether	BSD	RPD	3	%	20
V3D8057-BSD	100-41-4	Ethylbenzene	BSD	REC	99	%	70-130
V3D8057-BSD	100-41-4	Ethylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	72	%	70-130
V3D8057-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	3	%	20
V3D8057-BSD	591-78-6	2-Hexanone	BSD	REC	148 [a]	%	70-130
V3D8057-BSD	591-78-6	2-Hexanone	BSD	RPD	7	%	20
V3D8057-BSD	98-82-8	Isopropylbenzene	BSD	REC	99	%	70-130
V3D8057-BSD	98-82-8	Isopropylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	89	%	70-130
V3D8057-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	0	%	20
V3D8057-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	110	%	70-130
V3D8057-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	4	%	20
V3D8057-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	137	%	70-130
V3D8057-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	7	%	20
V3D8057-BSD	74-95-3	Methylene bromide	BSD	REC	106	%	70-130
V3D8057-BSD	74-95-3	Methylene bromide	BSD	RPD	3	%	20
V3D8057-BSD	75-09-2	Methylene chloride	BSD	REC	86	%	70-130
V3D8057-BSD	75-09-2	Methylene chloride	BSD	RPD	2	%	20
V3D8057-BSD	91-20-3	Naphthalene	BSD	REC	94	%	70-130
V3D8057-BSD	91-20-3	Naphthalene	BSD	RPD	10	%	20
V3D8057-BSD	103-65-1	n-Propylbenzene	BSD	REC	85	%	70-130
V3D8057-BSD	103-65-1	n-Propylbenzene	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	100-42-5	Styrene	BSD	REC	108	%	70-130
V3D8057-BSD	100-42-5	Styrene	BSD	RPD	1	%	20
V3D8057-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	111	%	70-130
V3D8057-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	0	%	20
V3D8057-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	104	%	70-130
V3D8057-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	2	%	20
V3D8057-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	102	%	70-130
V3D8057-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	92	%	70-130
V3D8057-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	4	%	20
V3D8057-BSD	127-18-4	Tetrachloroethene	BSD	REC	88	%	70-130
V3D8057-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
V3D8057-BSD	109-99-9	Tetrahydrofuran	BSD	REC	124	%	70-130
V3D8057-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	4	%	20
V3D8057-BSD	108-88-3	Toluene	BSD	REC	95	%	70-130
V3D8057-BSD	108-88-3	Toluene	BSD	RPD	2	%	20
V3D8057-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8057-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	6	%	20
V3D8057-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8057-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	5	%	20
V3D8057-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	90	%	70-130
V3D8057-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	97	%	70-130
V3D8057-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-01-6	Trichloroethene	BSD	REC	99	%	70-130
V3D8057-BSD	79-01-6	Trichloroethene	BSD	RPD	1	%	20
V3D8057-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	99	%	70-130
V3D8057-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	2	%	20
V3D8057-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	94	%	70-130
V3D8057-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	5	%	20
V3D8057-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	88	%	70-130
V3D8057-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	88	%	70-130
V3D8057-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	2	%	20
V3D8057-BSD	75-01-4	Vinyl chloride	BSD	REC	210 [a]	%	70-130
V3D8057-BSD	75-01-4	Vinyl chloride	BSD	RPD	13	%	20
V3D8057-BSD		m,p-Xylene	BSD	REC	101	%	70-130
V3D8057-BSD		m,p-Xylene	BSD	RPD	1	%	20
V3D8057-BSD	95-47-6	o-Xylene	BSD	REC	102	%	70-130
V3D8057-BSD	95-47-6	o-Xylene	BSD	RPD	2	%	20
V3D8057-BSD	1330-20-7	Xylene (total)	BSD	REC	102	%	70-130
V3D8057-BSD	1330-20-7	Xylene (total)	BSD	RPD	1	%	20
V3D8057-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	97	%	70-130
V3D8057-BSD	2037-26-5	Toluene-D8	BSD	SURR	96	%	70-130
V3D8057-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	86	%	70-130

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-MB	1868-53-7	Dibromofluoromethane	MB	SURR	91	%	70-130
V3D8057-MB	2037-26-5	Toluene-D8	MB	SURR	95	%	70-130
V3D8057-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	90	%	70-130
JD73769-3	1868-53-7	Dibromofluoromethane	SAMP	SURR	89	%	70-130
JD73769-3	2037-26-5	Toluene-D8	SAMP	SURR	96	%	70-130
JD73769-3	460-00-4	4-Bromofluorobenzene	SAMP	SURR	88	%	70-130
JD73769-5	1868-53-7	Dibromofluoromethane	SAMP	SURR	89	%	70-130
JD73769-5	2037-26-5	Toluene-D8	SAMP	SURR	95	%	70-130
JD73769-5	460-00-4	4-Bromofluorobenzene	SAMP	SURR	87	%	70-130
VI10241	SW846 8260D						
VI10241-BS	67-64-1	Acetone	BSP	REC	139	%	70-130
VI10241-BS	71-43-2	Benzene	BSP	REC	88	%	70-130
VI10241-BS	108-86-1	Bromobenzene	BSP	REC	94	%	70-130
VI10241-BS	74-97-5	Bromochloromethane	BSP	REC	96	%	70-130
VI10241-BS	75-27-4	Bromodichloromethane	BSP	REC	94	%	70-130
VI10241-BS	75-25-2	Bromoform	BSP	REC	104	%	70-130
VI10241-BS	74-83-9	Bromomethane	BSP	REC	87	%	70-130
VI10241-BS	78-93-3	2-Butanone (MEK)	BSP	REC	134	%	70-130
VI10241-BS	104-51-8	n-Butylbenzene	BSP	REC	88	%	70-130
VI10241-BS	135-98-8	sec-Butylbenzene	BSP	REC	86	%	70-130
VI10241-BS	98-06-6	tert-Butylbenzene	BSP	REC	85	%	70-130
VI10241-BS	75-15-0	Carbon disulfide	BSP	REC	86	%	70-130
VI10241-BS	56-23-5	Carbon tetrachloride	BSP	REC	82	%	70-130
VI10241-BS	108-90-7	Chlorobenzene	BSP	REC	93	%	70-130
VI10241-BS	75-00-3	Chloroethane	BSP	REC	82	%	70-130
VI10241-BS	67-66-3	Chloroform	BSP	REC	85	%	70-130
VI10241-BS	74-87-3	Chloromethane	BSP	REC	82	%	70-130
VI10241-BS	95-49-8	o-Chlorotoluene	BSP	REC	91	%	70-130
VI10241-BS	106-43-4	p-Chlorotoluene	BSP	REC	90	%	70-130
VI10241-BS	108-20-3	Di-Isopropyl ether	BSP	REC	92	%	70-130
VI10241-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	106	%	70-130
VI10241-BS	124-48-1	Dibromochloromethane	BSP	REC	97	%	70-130
VI10241-BS	106-93-4	1,2-Dibromoethane	BSP	REC	99	%	70-130
VI10241-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	91	%	70-130
VI10241-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	89	%	70-130
VI10241-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	91	%	70-130
VI10241-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	83	%	70-130
VI10241-BS	75-34-3	1,1-Dichloroethane	BSP	REC	90	%	70-130
VI10241-BS	107-06-2	1,2-Dichloroethane	BSP	REC	86	%	70-130
VI10241-BS	75-35-4	1,1-Dichloroethene	BSP	REC	82	%	70-130
VI10241-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	91	%	70-130
VI10241-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	86	%	70-130
VI10241-BS	78-87-5	1,2-Dichloropropane	BSP	REC	91	%	70-130

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BS	142-28-9	1,3-Dichloropropane	BSP	REC	96	%	70-130
VI10241-BS	594-20-7	2,2-Dichloropropane	BSP	REC	81	%	70-130
VI10241-BS	563-58-6	1,1-Dichloropropene	BSP	REC	83	%	70-130
VI10241-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	97	%	70-130
VI10241-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	95	%	70-130
VI10241-BS	123-91-1	1,4-Dioxane	BSP	REC	105	%	70-130
VI10241-BS	60-29-7	Ethyl Ether	BSP	REC	96	%	70-130
VI10241-BS	100-41-4	Ethylbenzene	BSP	REC	89	%	70-130
VI10241-BS	87-68-3	Hexachlorobutadiene	BSP	REC	86	%	70-130
VI10241-BS	591-78-6	2-Hexanone	BSP	REC	126	%	70-130
VI10241-BS	98-82-8	Isopropylbenzene	BSP	REC	87	%	70-130
VI10241-BS	99-87-6	p-Isopropyltoluene	BSP	REC	88	%	70-130
VI10241-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	91	%	70-130
VI10241-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	115	%	70-130
VI10241-BS	74-95-3	Methylene bromide	BSP	REC	97	%	70-130
VI10241-BS	75-09-2	Methylene chloride	BSP	REC	90	%	70-130
VI10241-BS	91-20-3	Naphthalene	BSP	REC	93	%	70-130
VI10241-BS	103-65-1	n-Propylbenzene	BSP	REC	88	%	70-130
VI10241-BS	100-42-5	Styrene	BSP	REC	98	%	70-130
VI10241-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	96	%	70-130
VI10241-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	93	%	70-130
VI10241-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	96	%	70-130
VI10241-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	92	%	70-130
VI10241-BS	127-18-4	Tetrachloroethene	BSP	REC	85	%	70-130
VI10241-BS	109-99-9	Tetrahydrofuran	BSP	REC	101	%	70-130
VI10241-BS	108-88-3	Toluene	BSP	REC	88	%	70-130
VI10241-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	94	%	70-130
VI10241-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	92	%	70-130
VI10241-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	83	%	70-130
VI10241-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	98	%	70-130
VI10241-BS	79-01-6	Trichloroethene	BSP	REC	87	%	70-130
VI10241-BS	75-69-4	Trichlorofluoromethane	BSP	REC	86	%	70-130
VI10241-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	98	%	70-130
VI10241-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	89	%	70-130
VI10241-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	89	%	70-130
VI10241-BS	75-01-4	Vinyl chloride	BSP	REC	80	%	70-130
VI10241-BS		m,p-Xylene	BSP	REC	92	%	70-130
VI10241-BS	95-47-6	o-Xylene	BSP	REC	95	%	70-130
VI10241-BS	1330-20-7	Xylene (total)	BSP	REC	93	%	70-130
VI10241-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	102	%	70-130
VI10241-BS	2037-26-5	Toluene-D8	BSP	SURR	99	%	70-130
VI10241-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	97	%	70-130
VI10241-BSD	67-64-1	Acetone	BSD	REC	141	%	70-130
VI10241-BSD	67-64-1	Acetone	BSD	RPD	1	%	20
VI10241-BSD	71-43-2	Benzene	BSD	REC	88	%	70-130

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD	71-43-2	Benzene	BSD	RPD	0	%	20
VI10241-BSD	108-86-1	Bromobenzene	BSD	REC	94	%	70-130
VI10241-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
VI10241-BSD	74-97-5	Bromochloromethane	BSD	REC	98	%	70-130
VI10241-BSD	74-97-5	Bromochloromethane	BSD	RPD	1	%	20
VI10241-BSD	75-27-4	Bromodichloromethane	BSD	REC	93	%	70-130
VI10241-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
VI10241-BSD	75-25-2	Bromoform	BSD	REC	104	%	70-130
VI10241-BSD	75-25-2	Bromoform	BSD	RPD	0	%	20
VI10241-BSD	74-83-9	Bromomethane	BSD	REC	89	%	70-130
VI10241-BSD	74-83-9	Bromomethane	BSD	RPD	2	%	20
VI10241-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	139 [b]	%	70-130
VI10241-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	4	%	20
VI10241-BSD	104-51-8	n-Butylbenzene	BSD	REC	89	%	70-130
VI10241-BSD	104-51-8	n-Butylbenzene	BSD	RPD	1	%	20
VI10241-BSD	135-98-8	sec-Butylbenzene	BSD	REC	87	%	70-130
VI10241-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	1	%	20
VI10241-BSD	98-06-6	tert-Butylbenzene	BSD	REC	86	%	70-130
VI10241-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
VI10241-BSD	75-15-0	Carbon disulfide	BSD	REC	85	%	70-130
VI10241-BSD	75-15-0	Carbon disulfide	BSD	RPD	1	%	20
VI10241-BSD	56-23-5	Carbon tetrachloride	BSD	REC	82	%	70-130
VI10241-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	1	%	20
VI10241-BSD	108-90-7	Chlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	108-90-7	Chlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	75-00-3	Chloroethane	BSD	REC	82	%	70-130
VI10241-BSD	75-00-3	Chloroethane	BSD	RPD	0	%	20
VI10241-BSD	67-66-3	Chloroform	BSD	REC	86	%	70-130
VI10241-BSD	67-66-3	Chloroform	BSD	RPD	1	%	20
VI10241-BSD	74-87-3	Chloromethane	BSD	REC	82	%	70-130
VI10241-BSD	74-87-3	Chloromethane	BSD	RPD	0	%	20
VI10241-BSD	95-49-8	o-Chlorotoluene	BSD	REC	91	%	70-130
VI10241-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	0	%	20
VI10241-BSD	106-43-4	p-Chlorotoluene	BSD	REC	89	%	70-130
VI10241-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
VI10241-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	93	%	70-130
VI10241-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	0	%	20
VI10241-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	101	%	70-130
VI10241-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	4	%	20
VI10241-BSD	124-48-1	Dibromochloromethane	BSD	REC	96	%	70-130
VI10241-BSD	124-48-1	Dibromochloromethane	BSD	RPD	0	%	20
VI10241-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	99	%	70-130
VI10241-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	1	%	20
VI10241-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	89	%	70-130
VI10241-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	92	%	70-130
VI10241-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	0	%	20
VI10241-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	87	%	70-130
VI10241-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	4	%	20
VI10241-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	90	%	70-130
VI10241-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	0	%	20
VI10241-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	84	%	70-130
VI10241-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	3	%	20
VI10241-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	83	%	70-130
VI10241-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	2	%	20
VI10241-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	94	%	70-130
VI10241-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	2	%	20
VI10241-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	85	%	70-130
VI10241-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	2	%	20
VI10241-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	89	%	70-130
VI10241-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
VI10241-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	97	%	70-130
VI10241-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	1	%	20
VI10241-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	82	%	70-130
VI10241-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	1	%	20
VI10241-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	84	%	70-130
VI10241-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	2	%	20
VI10241-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	95	%	70-130
VI10241-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
VI10241-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	97	%	70-130
VI10241-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	2	%	20
VI10241-BSD	123-91-1	1,4-Dioxane	BSD	REC	109	%	70-130
VI10241-BSD	123-91-1	1,4-Dioxane	BSD	RPD	4	%	20
VI10241-BSD	60-29-7	Ethyl Ether	BSD	REC	95	%	70-130
VI10241-BSD	60-29-7	Ethyl Ether	BSD	RPD	1	%	20
VI10241-BSD	100-41-4	Ethylbenzene	BSD	REC	90	%	70-130
VI10241-BSD	100-41-4	Ethylbenzene	BSD	RPD	1	%	20
VI10241-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	86	%	70-130
VI10241-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	0	%	20
VI10241-BSD	591-78-6	2-Hexanone	BSD	REC	123	%	70-130
VI10241-BSD	591-78-6	2-Hexanone	BSD	RPD	2	%	20
VI10241-BSD	98-82-8	Isopropylbenzene	BSD	REC	89	%	70-130
VI10241-BSD	98-82-8	Isopropylbenzene	BSD	RPD	2	%	20
VI10241-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	88	%	70-130
VI10241-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	0	%	20
VI10241-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	93	%	70-130
VI10241-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	2	%	20
VI10241-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	113	%	70-130

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	1	%	20
VI10241-BSD	74-95-3	Methylene bromide	BSD	REC	96	%	70-130
VI10241-BSD	74-95-3	Methylene bromide	BSD	RPD	0	%	20
VI10241-BSD	75-09-2	Methylene chloride	BSD	REC	90	%	70-130
VI10241-BSD	75-09-2	Methylene chloride	BSD	RPD	0	%	20
VI10241-BSD	91-20-3	Naphthalene	BSD	REC	93	%	70-130
VI10241-BSD	91-20-3	Naphthalene	BSD	RPD	0	%	20
VI10241-BSD	103-65-1	n-Propylbenzene	BSD	REC	90	%	70-130
VI10241-BSD	103-65-1	n-Propylbenzene	BSD	RPD	2	%	20
VI10241-BSD	100-42-5	Styrene	BSD	REC	98	%	70-130
VI10241-BSD	100-42-5	Styrene	BSD	RPD	0	%	20
VI10241-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	97	%	70-130
VI10241-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	1	%	20
VI10241-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	94	%	70-130
VI10241-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	1	%	20
VI10241-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	98	%	70-130
VI10241-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	2	%	20
VI10241-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	93	%	70-130
VI10241-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	0	%	20
VI10241-BSD	127-18-4	Tetrachloroethene	BSD	REC	85	%	70-130
VI10241-BSD	127-18-4	Tetrachloroethene	BSD	RPD	0	%	20
VI10241-BSD	109-99-9	Tetrahydrofuran	BSD	REC	98	%	70-130
VI10241-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	2	%	20
VI10241-BSD	108-88-3	Toluene	BSD	REC	87	%	70-130
VI10241-BSD	108-88-3	Toluene	BSD	RPD	0	%	20
VI10241-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	85	%	70-130
VI10241-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
VI10241-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	99	%	70-130
VI10241-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	1	%	20
VI10241-BSD	79-01-6	Trichloroethene	BSD	REC	87	%	70-130
VI10241-BSD	79-01-6	Trichloroethene	BSD	RPD	0	%	20
VI10241-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	89	%	70-130
VI10241-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	3	%	20
VI10241-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	103	%	70-130
VI10241-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	5	%	20
VI10241-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	90	%	70-130
VI10241-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	1	%	20
VI10241-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	91	%	70-130
VI10241-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	2	%	20
VI10241-BSD	75-01-4	Vinyl chloride	BSD	REC	79	%	70-130
VI10241-BSD	75-01-4	Vinyl chloride	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73769

QC Evaluation: MA MCP Limits

Job Number: JD73769
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/27/23 thru 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD		m,p-Xylene	BSD	REC	94	%	70-130
VI10241-BSD		m,p-Xylene	BSD	RPD	3	%	20
VI10241-BSD	95-47-6	o-Xylene	BSD	REC	95	%	70-130
VI10241-BSD	95-47-6	o-Xylene	BSD	RPD	1	%	20
VI10241-BSD	1330-20-7	Xylene (total)	BSD	REC	95	%	70-130
VI10241-BSD	1330-20-7	Xylene (total)	BSD	RPD	2	%	20
VI10241-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	102	%	70-130
VI10241-BSD	2037-26-5	Toluene-D8	BSD	SURR	99	%	70-130
VI10241-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	99	%	70-130
VI10241-MB	1868-53-7	Dibromofluoromethane	MB	SURR	106	%	70-130
VI10241-MB	2037-26-5	Toluene-D8	MB	SURR	98	%	70-130
VI10241-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	97	%	70-130
JD73769-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	108	%	70-130
JD73769-1	2037-26-5	Toluene-D8	SAMP	SURR	98	%	70-130
JD73769-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130
JD73769-2	1868-53-7	Dibromofluoromethane	SAMP	SURR	111	%	70-130
JD73769-2	2037-26-5	Toluene-D8	SAMP	SURR	97	%	70-130
JD73769-2	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130
JD73769-4	1868-53-7	Dibromofluoromethane	SAMP	SURR	106	%	70-130
JD73769-4	2037-26-5	Toluene-D8	SAMP	SURR	98	%	70-130
JD73769-4	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130
JD73769-5	1868-53-7	Dibromofluoromethane	SAMP	SURR	110	%	70-130
JD73769-5	2037-26-5	Toluene-D8	SAMP	SURR	97	%	70-130
JD73769-5	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130

(a) High percent recovery and no associated positive reported in the QC batch.
(b) Outside in house control limits.

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* Sample used for QC is not from job JD73769

Section 6

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-3, JD73769-5

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	

Method Blank Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-3, JD73769-5

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

Method Blank Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-3, JD73769-5

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	95%	79-125%
460-00-4	4-Bromofluorobenzene	90%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.27	450	ug/kg	J
	system artifact	1.87	670	ug/kg	J
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-MB	I252489.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-1, JD73769-2, JD73769-4, JD73769-5

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	0.59	2.0	ug/kg	J
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-MB	I252489.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-1, JD73769-2, JD73769-4, JD73769-5

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-MB	I252489.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-1, JD73769-2, JD73769-4, JD73769-5

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	106%	80-124%
17060-07-0	1,2-Dichloroethane-D4	95%	75-133%
2037-26-5	Toluene-D8	98%	79-125%
460-00-4	4-Bromofluorobenzene	97%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-3, JD73769-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	10000	18000	180* [a]	19500	195* [a]	8	52-156/12
71-43-2	Benzene	2500	2660	106	2600	104	2	82-119/10
108-86-1	Bromobenzene	2500	2100	84	2110	84	0	82-115/10
74-97-5	Bromochloromethane	2500	2450	98	2480	99	1	82-123/10
75-27-4	Bromodichloromethane	2500	2480	99	2500	100	1	83-121/10
75-25-2	Bromoform	2500	2460	98	2640	106	7	74-138/10
74-83-9	Bromomethane	2500	4820	193* [a]	4510	180* [a]	7	56-150/12
78-93-3	2-Butanone (MEK)	10000	14500	145* [a]	15700	157* [a]	8	72-138/10
104-51-8	n-Butylbenzene	2500	2350	94	2330	93	1	81-124/11
135-98-8	sec-Butylbenzene	2500	2190	88	2180	87	0	78-120/10
98-06-6	tert-Butylbenzene	2500	2190	88	2170	87	1	78-121/10
75-15-0	Carbon disulfide	2500	2300	92	2250	90	2	67-131/11
56-23-5	Carbon tetrachloride	2500	2300	92	2330	93	1	72-130/11
108-90-7	Chlorobenzene	2500	2360	94	2370	95	0	83-114/10
75-00-3	Chloroethane	2500	5640	226* [a]	5460	218* [a]	3	67-141/12
67-66-3	Chloroform	2500	2170	87	2210	88	2	76-115/10
74-87-3	Chloromethane	2500	3690	148* [a]	4310	172* [a]	16* [b]	57-141/13
95-49-8	o-Chlorotoluene	2500	2200	88	2110	84	4	81-118/10
106-43-4	p-Chlorotoluene	2500	2150	86	2150	86	0	78-117/10
108-20-3	Di-Isopropyl ether	2500	2840	114	2860	114	1	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	2500	2150	86	2340	94	8	72-131/11
124-48-1	Dibromochloromethane	2500	2430	97	2500	100	3	80-128/10
106-93-4	1,2-Dibromoethane	2500	2380	95	2440	98	2	58-145/10
95-50-1	1,2-Dichlorobenzene	2500	2310	92	2340	94	1	83-117/10
541-73-1	1,3-Dichlorobenzene	2500	2230	89	2230	89	0	82-114/10
106-46-7	1,4-Dichlorobenzene	2500	2220	89	2220	89	0	79-114/10
75-71-8	Dichlorodifluoromethane	2500	2410	96	2280	91	6	49-146/13
75-34-3	1,1-Dichloroethane	2500	2470	99	2450	98	1	76-126/10
107-06-2	1,2-Dichloroethane	2500	2550	102	2600	104	2	76-118/10
75-35-4	1,1-Dichloroethene	2500	2380	95	2320	93	3	72-125/11
156-59-2	cis-1,2-Dichloroethene	2500	2470	99	2470	99	0	80-118/10
156-60-5	trans-1,2-Dichloroethene	2500	2290	92	2290	92	0	76-122/10
78-87-5	1,2-Dichloropropane	2500	2750	110	2760	110	0	82-123/10
142-28-9	1,3-Dichloropropane	2500	2420	97	2490	100	3	84-120/10
594-20-7	2,2-Dichloropropane	2500	2350	94	2390	96	2	66-130/11
563-58-6	1,1-Dichloropropene	2500	2430	97	2440	98	0	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Page 2 of 3

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-3, JD73769-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	2500	2730	109	2750	110	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	2500	2510	100	2500	100	0	83-123/10
123-91-1	1,4-Dioxane	62500	59300	95	70400	113	17	64-163/20
60-29-7	Ethyl Ether	2500	2610	104	2690	108	3	78-131/10
100-41-4	Ethylbenzene	2500	2480	99	2470	99	0	83-115/10
87-68-3	Hexachlorobutadiene	2500	1860	74	1800	72	3	65-130/11
591-78-6	2-Hexanone	10000	13800	138	14800	148* [a]	7	73-138/10
98-82-8	Isopropylbenzene	2500	2500	100	2480	99	1	81-122/11
99-87-6	p-Isopropyltoluene	2500	2210	88	2220	89	0	80-120/10
1634-04-4	Methyl Tert Butyl Ether	2500	2630	105	2740	110	4	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	10000	12800	128	13700	137	7	71-138/10
74-95-3	Methylene bromide	2500	2560	102	2650	106	3	81-122/10
75-09-2	Methylene chloride	2500	2200	88	2160	86	2	73-122/10
91-20-3	Naphthalene	2500	2120	85	2350	94	10	71-129/14
103-65-1	n-Propylbenzene	2500	2160	86	2130	85	1	77-120/10
100-42-5	Styrene	2500	2670	107	2710	108	1	84-122/10
994-05-8	tert-Amyl Methyl Ether	2500	2760	110	2770	111	0	77-125/11
637-92-3	tert-Butyl Ethyl Ether	2500	2540	102	2600	104	2	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	2500	2490	100	2540	102	2	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	2500	2210	88	2290	92	4	75-127/10
127-18-4	Tetrachloroethene	2500	2250	90	2190	88	3	73-125/11
109-99-9	Tetrahydrofuran	2500	2960	118	3090	124	4	61-136/11
108-88-3	Toluene	2500	2410	96	2370	95	2	82-118/10
87-61-6	1,2,3-Trichlorobenzene	2500	2090	84	2210	88	6	68-132/13
120-82-1	1,2,4-Trichlorobenzene	2500	2110	84	2210	88	5	72-133/12
71-55-6	1,1,1-Trichloroethane	2500	2200	88	2250	90	2	77-124/11
79-00-5	1,1,2-Trichloroethane	2500	2390	96	2430	97	2	83-122/10
79-01-6	Trichloroethene	2500	2510	100	2480	99	1	80-122/10
75-69-4	Trichlorofluoromethane	2500	2520	101	2480	99	2	69-132/11
96-18-4	1,2,3-Trichloropropane	2500	2250	90	2360	94	5	80-120/10
95-63-6	1,2,4-Trimethylbenzene	2500	2200	88	2190	88	0	80-119/10
108-67-8	1,3,5-Trimethylbenzene	2500	2230	89	2190	88	2	79-120/10
75-01-4	Vinyl chloride	2500	4610	184* [a]	5260	210* [a]	13	60-144/13
	m,p-Xylene	5000	5020	100	5070	101	1	82-119/10
95-47-6	o-Xylene	2500	2510	100	2560	102	2	84-120/10
1330-20-7	Xylene (total)	7500	7530	100	7630	102	1	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-3, JD73769-5

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	95%	97%	80-124%
17060-07-0	1,2-Dichloroethane-D4	101%	103%	75-133%
2037-26-5	Toluene-D8	96%	96%	79-125%
460-00-4	4-Bromofluorobenzene	86%	86%	58-148%

(a) High percent recovery and no associated positive reported in the QC batch.
(b) Outside in house control limits.

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-BS	I252486.D	1	10/02/23	JN	n/a	n/a	VI10241
VI10241-BSD	I252487.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-1, JD73769-2, JD73769-4, JD73769-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	278	139	282	141	1	52-156/12
71-43-2	Benzene	50	44.1	88	44.0	88	0	82-119/10
108-86-1	Bromobenzene	50	47.0	94	47.0	94	0	82-115/10
74-97-5	Bromochloromethane	50	48.1	96	48.8	98	1	82-123/10
75-27-4	Bromodichloromethane	50	46.8	94	46.4	93	1	83-121/10
75-25-2	Bromoform	50	52.0	104	52.0	104	0	74-138/10
74-83-9	Bromomethane	50	43.7	87	44.4	89	2	56-150/12
78-93-3	2-Butanone (MEK)	200	267	134	278	139* [a]	4	72-138/10
104-51-8	n-Butylbenzene	50	43.8	88	44.3	89	1	81-124/11
135-98-8	sec-Butylbenzene	50	42.9	86	43.4	87	1	78-120/10
98-06-6	tert-Butylbenzene	50	42.6	85	43.0	86	1	78-121/10
75-15-0	Carbon disulfide	50	43.2	86	42.6	85	1	67-131/11
56-23-5	Carbon tetrachloride	50	40.9	82	41.2	82	1	72-130/11
108-90-7	Chlorobenzene	50	46.4	93	46.7	93	1	83-114/10
75-00-3	Chloroethane	50	41.1	82	41.1	82	0	67-141/12
67-66-3	Chloroform	50	42.7	85	43.1	86	1	76-115/10
74-87-3	Chloromethane	50	41.0	82	40.8	82	0	57-141/13
95-49-8	o-Chlorotoluene	50	45.5	91	45.6	91	0	81-118/10
106-43-4	p-Chlorotoluene	50	44.8	90	44.7	89	0	78-117/10
108-20-3	Di-Isopropyl ether	50	46.1	92	46.3	93	0	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	52.8	106	50.7	101	4	72-131/11
124-48-1	Dibromochloromethane	50	48.4	97	48.2	96	0	80-128/10
106-93-4	1,2-Dibromoethane	50	49.3	99	49.7	99	1	58-145/10
95-50-1	1,2-Dichlorobenzene	50	45.7	91	46.3	93	1	83-117/10
541-73-1	1,3-Dichlorobenzene	50	44.4	89	44.7	89	1	82-114/10
106-46-7	1,4-Dichlorobenzene	50	45.6	91	45.8	92	0	79-114/10
75-71-8	Dichlorodifluoromethane	50	41.7	83	43.4	87	4	49-146/13
75-34-3	1,1-Dichloroethane	50	44.8	90	45.0	90	0	76-126/10
107-06-2	1,2-Dichloroethane	50	43.0	86	41.9	84	3	76-118/10
75-35-4	1,1-Dichloroethene	50	40.9	82	41.6	83	2	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	45.7	91	46.8	94	2	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	43.2	86	42.5	85	2	76-122/10
78-87-5	1,2-Dichloropropane	50	45.3	91	44.6	89	2	82-123/10
142-28-9	1,3-Dichloropropane	50	47.9	96	48.3	97	1	84-120/10
594-20-7	2,2-Dichloropropane	50	40.6	81	40.9	82	1	66-130/11
563-58-6	1,1-Dichloropropene	50	41.4	83	42.2	84	2	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-BS	I252486.D	1	10/02/23	JN	n/a	n/a	VI10241
VI10241-BSD	I252487.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-1, JD73769-2, JD73769-4, JD73769-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	48.4	97	47.7	95	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	47.6	95	48.4	97	2	83-123/10
123-91-1	1,4-Dioxane	1250	1310	105	1360	109	4	64-163/20
60-29-7	Ethyl Ether	50	48.0	96	47.3	95	1	78-131/10
100-41-4	Ethylbenzene	50	44.5	89	44.8	90	1	83-115/10
87-68-3	Hexachlorobutadiene	50	43.1	86	43.2	86	0	65-130/11
591-78-6	2-Hexanone	200	251	126	245	123	2	73-138/10
98-82-8	Isopropylbenzene	50	43.7	87	44.6	89	2	81-122/11
99-87-6	p-Isopropyltoluene	50	43.8	88	43.9	88	0	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	45.6	91	46.4	93	2	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	229	115	226	113	1	71-138/10
74-95-3	Methylene bromide	50	48.3	97	48.1	96	0	81-122/10
75-09-2	Methylene chloride	50	44.9	90	44.8	90	0	73-122/10
91-20-3	Naphthalene	50	46.5	93	46.6	93	0	71-129/14
103-65-1	n-Propylbenzene	50	44.1	88	44.9	90	2	77-120/10
100-42-5	Styrene	50	48.9	98	48.9	98	0	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	47.8	96	48.5	97	1	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	46.5	93	47.2	94	1	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	48.2	96	49.0	98	2	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	46.2	92	46.3	93	0	75-127/10
127-18-4	Tetrachloroethene	50	42.3	85	42.5	85	0	73-125/11
109-99-9	Tetrahydrofuran	50	50.4	101	49.2	98	2	61-136/11
108-88-3	Toluene	50	43.8	88	43.7	87	0	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	47.0	94	46.4	93	1	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	46.1	92	46.4	93	1	72-133/12
71-55-6	1,1,1-Trichloroethane	50	41.7	83	42.5	85	2	77-124/11
79-00-5	1,1,2-Trichloroethane	50	49.1	98	49.7	99	1	83-122/10
79-01-6	Trichloroethene	50	43.4	87	43.4	87	0	80-122/10
75-69-4	Trichlorofluoromethane	50	43.1	86	44.4	89	3	69-132/11
96-18-4	1,2,3-Trichloropropane	50	49.1	98	51.5	103	5	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	44.5	89	44.8	90	1	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	44.6	89	45.7	91	2	79-120/10
75-01-4	Vinyl chloride	50	40.0	80	39.5	79	1	60-144/13
	m,p-Xylene	100	91.9	92	94.4	94	3	82-119/10
95-47-6	o-Xylene	50	47.3	95	47.7	95	1	84-120/10
1330-20-7	Xylene (total)	150	139	93	142	95	2	83-119/10

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-BS	I252486.D	1	10/02/23	JN	n/a	n/a	VI10241
VI10241-BSD	I252487.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73769-1, JD73769-2, JD73769-4, JD73769-5

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	102%	102%	80-124%
17060-07-0	1,2-Dichloroethane-D4	90%	89%	75-133%
2037-26-5	Toluene-D8	99%	99%	79-125%
460-00-4	4-Bromofluorobenzene	97%	99%	58-148%

(a) Outside in house control limits.

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* = Outside of Control Limits.

Internal Standard Area Summary

Page 1 of 1

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: V3D8057-CC8035
Lab File ID: 3D192838.D
Instrument ID: GCMS3D
Injection Date: 10/02/23
Injection Time: 09:43
Method: SW846 8260D

	IS 1		**IS 2**		**IS 3**		**IS 4**		**IS 5**	
	AREA	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**
Check Std	186719	2.69	368940	3.86	692479	4.40	642028	6.76	301169	8.94
Upper Limit [a]	373438	3.19	737880	4.36	1384958	4.90	1284056	7.26	602338	9.44
Lower Limit [b]	93360	2.19	184470	3.36	346240	3.90	321014	6.26	150585	8.44

Lab	**IS 1**		**IS 2**		**IS 3**		**IS 4**		**IS 5**	
Sample ID	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**
V3D8057-BS	205180	2.69	401579	3.86	719658	4.40	684057	6.76	341518	8.94
V3D8057-BSD	237685	2.69	409138	3.86	748328	4.40	712334	6.76	366667	8.94
V3D8057-MB	183939	2.70	389205	3.86	703100	4.40	657004	6.76	300498	8.94
ZZZZZZ	177159	2.70	355277	3.86	642622	4.40	604239	6.76	277731	8.94
JD73769-3	184792	2.70	358750	3.86	642147	4.40	599609	6.76	280740	8.94
ZZZZZZ	174421	2.70	353366	3.86	638682	4.40	583340	6.76	273745	8.94
ZZZZZZ	175728	2.70	350980	3.86	633892	4.40	596969	6.76	279736	8.94
JD73677-3	186352	2.70	349844	3.86	624273	4.40	584328	6.76	277335	8.94
ZZZZZZ	178460	2.70	348853	3.86	622701	4.40	593198	6.76	278256	8.94
ZZZZZZ	180820	2.69	363287	3.86	647344	4.40	625206	6.76	322290	8.94
ZZZZZZ	179049	2.69	356911	3.86	662512	4.40	667779	6.76	374412	8.94
ZZZZZZ	188313	2.69	358541	3.86	654378	4.40	674066	6.76	378582	8.94
ZZZZZZ	196113	2.69	364814	3.86	669805	4.40	669303	6.76	377795	8.94
ZZZZZZ	173678	2.70	363419	3.86	708581	4.40	941417	6.76	525334	8.94
ZZZZZZ	219245	2.70	433868	3.86	836355	4.40	957837	6.76	489250	8.94
ZZZZZZ	231736	2.70	463212	3.86	967855	4.40	1117728	6.76	556961	8.94
JD73677-3MS	269434	2.71	488370	3.86	879908	4.40	799292	6.76	422176	8.94
JD73677-3MSD	240639	2.71	443835	3.86	802436	4.40	767622	6.76	416010	8.94
ZZZZZZ	198222	2.69	393634	3.86	716315	4.40	668709	6.76	309422	8.94
ZZZZZZ	180484	2.70	357268	3.86	653798	4.40	617686	6.76	295141	8.94
JD73769-5	175166	2.70	357147	3.86	645467	4.40	611363	6.76	291409	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Page 1 of 1

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std:	VI10241-CC10232	**Injection Date:**	10/02/23
Lab File ID:	I252484.D	**Injection Time:**	09:42
Instrument ID:	GCMSI	**Method:**	SW846 8260D

	IS 1 AREA	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
Check Std	164566	4.45	597835	5.54	931418	6.07	696940	7.99	329412	9.52
Upper Limit[a]	329132	4.95	1195670	6.04	1862836	6.57	1393880	8.49	658824	10.02
Lower Limit[b]	82283	3.95	298918	5.04	465709	5.57	348470	7.49	164706	9.02

Lab Sample ID	**IS 1 AREA**	**RT**	**IS 2 AREA**	**RT**	**IS 3 AREA**	**RT**	**IS 4 AREA**	**RT**	**IS 5 AREA**	**RT**
VI10241-BS	181632	4.45	597662	5.54	916692	6.07	715395	7.99	342639	9.52
VI10241-BSD	179267	4.45	594237	5.54	924958	6.07	714507	7.99	339297	9.52
VI10241-MB	173933	4.45	579549	5.55	919937	6.07	709823	7.99	314991	9.52
JD73769-4	162121	4.45	550836	5.55	892610	6.07	686333	7.99	303577	9.52
ZZZZZZ	159858	4.45	549580	5.55	885698	6.07	690550	7.99	300608	9.52
ZZZZZZ	173369	4.45	561609	5.55	883544	6.08	721914	7.99	318363	9.52
JD73769-1	168837	4.45	560352	5.55	899489	6.07	709408	7.99	315994	9.52
JD73769-2	164503	4.45	550091	5.55	898837	6.07	698194	7.99	307772	9.52
JD73769-5	174943	4.45	559715	5.55	915222	6.07	723902	7.99	321068	9.52
ZZZZZZ	170718	4.45	526442	5.55	868972	6.07	663109	7.99	278383	9.52
ZZZZZZ	170288	4.45	539359	5.55	893888	6.07	695473	7.99	306681	9.52
ZZZZZZ	131473	4.45	501061	5.55	819300	6.07	609057	7.99	233059	9.52
JD73769-2MS	157449	4.45	604783	5.55	954299	6.07	751475	7.99	355637	9.52
JD73769-1DUP	179386	4.45	591737	5.54	943798	6.07	732737	7.99	327125	9.52
ZZZZZZ	177740	4.45	571592	5.54	911253	6.07	714647	7.99	315866	9.52
ZZZZZZ	178589	4.45	580802	5.54	929000	6.07	722246	7.99	316405	9.52
ZZZZZZ	175428	4.45	580459	5.54	933198	6.07	726996	7.99	325540	9.52
ZZZZZZ	170521	4.45	583884	5.54	936784	6.07	712557	7.99	310588	9.52
ZZZZZZ	164023	4.45	586490	5.54	938810	6.07	722155	7.99	312836	9.52
ZZZZZZ	156298	4.45	580105	5.54	927021	6.07	706823	7.99	308242	9.52
ZZZZZZ	177557	4.45	582639	5.54	924946	6.07	712871	7.99	312894	9.52

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Surrogate Recovery Summary

Job Number: JD73769
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Method: SW846 8260D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JD73769-1	I252493.D	108	98	98	96
JD73769-2	I252494.D	111	97	97	96
JD73769-3	3D192847.D	89	99	96	88
JD73769-4	I252490.D	106	95	98	96
JD73769-5	3D192867.D	89	98	95	87
JD73769-5	I252495.D	110	98	97	96
V3D8057-BS	3D192839.D	95	101	96	86
V3D8057-BSD	3D192840.D	97	103	96	86
V3D8057-MB	3D192842.D	91	100	95	90
VI10241-BS	I252486.D	102	90	99	97
VI10241-BSD	I252487.D	102	89	99	99
VI10241-MB	I252489.D	106	95	98	97

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-124%
S2 = 1,2-Dichloroethane-D4	75-133%
S3 = Toluene-D8	79-125%
S4 = 4-Bromofluorobenzene	58-148%

Dayton, NJ

10/04/23

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Jacobs Engineering

Varian, Beverly, MA

VARMS111.A.CS.3.EV.02FL PO#148048917

SGS Job Number: JD73885

Sampling Date: 09/28/23

Report to:

Jacobs Engineering
120 St. James Avenue
Boston, MA 02116
Raymond.cadorette@jacobs.com; Bernice.Kidd@jacobs.com;
EDMData@jacobs.com
ATTN: Raymond J. Cadorette

Total number of pages in report: **49**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

David Chastain
General Manager

Client Service contact: Victoria Pushkova 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA(68-00408), RI, SC, TX, UT, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Jacobs Engineering

Job No: JD73885

Varian, Beverly, MA
Project No: VARMS111.A.CS.3.EV.02FL PO#148048917

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD73885-1	09/28/23	16:15	SE	09/29/23	SO	Soil	VAR_PSL10_SO_OB63-25-27_20230928
JD73885-2	09/28/23	16:15	SE	09/29/23	SO	Trip Blank Methanol	TB_20230928.SO.03M
JD73885-3	09/28/23	16:15	SE	09/29/23	SO	Trip Blank Soil	TB_20230928.SO,03L

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the RL

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Jacobs Engineering **Job No:** JD73885

Site: Varian, Beverly, MA **Report Date** 10/4/2023 11:05:31 A

On 09/29/2023, 1 sample(s), 2 Trip Blank(s), and 0 Field Blank(s) were received at SGS North America Inc. (SGS) at a temperature of 0.3 °C. The samples were intact and properly preserved, unless noted below. An SGS Job Number of JD73885 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** V3D8057

- All method blanks for this batch meet method specific criteria.
- The blank spike (BS) recovery(s) of 2-Butanone (MEK), Acetone, Bromomethane, Chloroethane, Chloromethane, Vinyl chloride are outside control limits.
- JD73885-2 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- V3D8057-BS for 2-Butanone (MEK): High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for Acetone: High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for Bromomethane: High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for Chloroethane: High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for Chloromethane: High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BS for Vinyl chloride: High percent recovery and no associated positive reported in the QC batch.
- V3D8057-BSD for Chloromethane: Outside in house control limits.
- JD73885-2 for 4-Methyl-2-pentanone(MIBK): Associated CCV outside of control limits high, sample was ND.
- JD73885-2 for Tetrahydrofuran: Associated CCV outside of control limits high, sample was ND.
- JD73885-2 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73885-2 for Chloroethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73885-2 for Chloromethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73885-2 for Vinyl chloride: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73885-2 for Bromomethane: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- JD73885-2 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
- Not all RL meet the requirement.

Matrix: SO **Batch ID:** VI10241

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- JD73885-3 for Acetone: Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73885-1 for Vinyl chloride: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

MS Volatiles By Method SW846 8260D

Matrix: SO **Batch ID:** VI10241

- JD73885-1 for Acetone: Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73885-1 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73885-3 for Vinyl chloride: Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- JD73885-3 for 2-Butanone (MEK): Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
- JD73885-3 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- JD73885-1 for 2-Hexanone: Associated CCV outside of control limits high, sample was ND.
- Not all RL meet the requirement.

General Chemistry By Method SM2540 G 18TH ED MOD

Matrix: SO **Batch ID:** GN46585

- The data for SM2540 G 18TH ED MOD meets quality control requirements.

SGS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting SGS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by SGS indicated via signature on the report cover.

Summary of Hits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD73885-1	**VAR_PSL10_SO_OB63-25-27_20230928**					
Acetone [a]		73.8	8.6		ug/kg	SW846 8260D
1,2-Dichlorobenzene		2.7	0.86		ug/kg	SW846 8260D
1,1-Dichloroethene		1.1	0.86		ug/kg	SW846 8260D
cis-1,2-Dichloroethene		370	49		ug/kg	SW846 8260D
Ethylbenzene		6.5	0.86		ug/kg	SW846 8260D
Tetrachloroethene		1290	98		ug/kg	SW846 8260D
Trichloroethene		2220	49		ug/kg	SW846 8260D
m,p-Xylene		7.5	0.86		ug/kg	SW846 8260D
Xylene (total)		7.5	0.86		ug/kg	SW846 8260D

JD73885-2 **TB_20230928.SO.03M**

No hits reported in this sample.

JD73885-3 **TB_20230928.SO,03L**

No hits reported in this sample.

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: VAR_PSL10_SO_OB63-25-27_20230928
Lab Sample ID: JD73885-1
Matrix: SO - Soil
Method: SW846 8260D
Project: Varian, Beverly, MA

Date Sampled: 09/28/23
Date Received: 09/29/23
Percent Solids: 91.1

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252492.D	1	10/02/23 15:03	JN	n/a	n/a	VI10241
Run #2	3D192866.D	1	10/02/23 21:00	JN	n/a	n/a	V3D8057

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.4 g		
Run #2	12.4 g	10.0 ml	100 ul

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	73.8	8.6	ug/kg	
71-43-2	Benzene	ND	0.43	ug/kg	
108-86-1	Bromobenzene	ND	4.3	ug/kg	
74-97-5	Bromochloromethane	ND	4.3	ug/kg	
75-27-4	Bromodichloromethane	ND	1.7	ug/kg	
75-25-2	Bromoform	ND	4.3	ug/kg	
74-83-9	Bromomethane	ND	4.3	ug/kg	
78-93-3	2-Butanone (MEK) [b]	ND	8.6	ug/kg	
104-51-8	n-Butylbenzene	ND	1.7	ug/kg	
135-98-8	sec-Butylbenzene	ND	1.7	ug/kg	
98-06-6	tert-Butylbenzene	ND	1.7	ug/kg	
75-15-0	Carbon disulfide	ND	1.7	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.7	ug/kg	
108-90-7	Chlorobenzene	ND	1.7	ug/kg	
75-00-3	Chloroethane	ND	4.3	ug/kg	
67-66-3	Chloroform	ND	1.7	ug/kg	
74-87-3	Chloromethane	ND	4.3	ug/kg	
95-49-8	o-Chlorotoluene	ND	1.7	ug/kg	
106-43-4	p-Chlorotoluene	ND	1.7	ug/kg	
108-20-3	Di-Isopropyl ether	ND	1.7	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.7	ug/kg	
124-48-1	Dibromochloromethane	ND	1.7	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.86	ug/kg	
95-50-1	1,2-Dichlorobenzene	2.7	0.86	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.86	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.86	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.3	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.86	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.86	ug/kg	
75-35-4	1,1-Dichloroethene	1.1	0.86	ug/kg	
156-59-2	cis-1,2-Dichloroethene	370 [c]	49	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.86	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VAR_PSL10_SO_OB63-25-27_20230928		
Lab Sample ID:	JD73885-1	**Date Sampled:**	09/28/23
Matrix:	SO - Soil	**Date Received:**	09/29/23
Method:	SW846 8260D	**Percent Solids:**	91.1
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	1.7	ug/kg	
142-28-9	1,3-Dichloropropane	ND	1.7	ug/kg	
594-20-7	2,2-Dichloropropane	ND	1.7	ug/kg	
563-58-6	1,1-Dichloropropene	ND	1.7	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.7	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.7	ug/kg	
123-91-1	1,4-Dioxane	ND	110	ug/kg	
60-29-7	Ethyl Ether	ND	1.7	ug/kg	
100-41-4	Ethylbenzene	6.5	0.86	ug/kg	
87-68-3	Hexachlorobutadiene	ND	4.3	ug/kg	
591-78-6	2-Hexanone [d]	ND	4.3	ug/kg	
98-82-8	Isopropylbenzene	ND	1.7	ug/kg	
99-87-6	p-Isopropyltoluene	ND	1.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.86	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.3	ug/kg	
74-95-3	Methylene bromide	ND	4.3	ug/kg	
75-09-2	Methylene chloride	ND	4.3	ug/kg	
91-20-3	Naphthalene	ND	4.3	ug/kg	
103-65-1	n-Propylbenzene	ND	1.7	ug/kg	
100-42-5	Styrene	ND	1.7	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	1.7	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	1.7	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.7	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.7	ug/kg	
127-18-4	Tetrachloroethene	1290 [c]	98	ug/kg	
109-99-9	Tetrahydrofuran	ND	8.6	ug/kg	
108-88-3	Toluene	ND	0.86	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.7	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.7	ug/kg	
79-01-6	Trichloroethene	2220 [c]	49	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.3	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	4.3	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	1.7	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	1.7	ug/kg	
75-01-4	Vinyl chloride [e]	ND	1.7	ug/kg	
	m,p-Xylene	7.5	0.86	ug/kg	
95-47-6	o-Xylene	ND	0.86	ug/kg	
1330-20-7	Xylene (total)	7.5	0.86	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VAR_PSL10_SO_OB63-25-27_20230928
Lab Sample ID: JD73885-1 **Date Sampled:** 09/28/23
Matrix: SO - Soil **Date Received:** 09/29/23
Method: SW846 8260D **Percent Solids:** 91.1
Project: Varian, Beverly, MA

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%	90%	80-124%
17060-07-0	1,2-Dichloroethane-D4	99%	99%	75-133%
2037-26-5	Toluene-D8	97%	95%	79-125%
460-00-4	4-Bromofluorobenzene	96%	86%	58-148%

(a) Associated CCV outside of control limits high. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(c) Result is from Run# 2
(d) Associated CCV outside of control limits high, sample was ND.
(e) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230928.SO.03M		
Lab Sample ID:	JD73885-2	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/29/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3D192846.D	1	10/02/23 13:30	JN	n/a	n/a	V3D8057
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane [a]	ND	250	ug/kg	
78-93-3	2-Butanone (MEK) [a]	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane [a]	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane [a]	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230928.SO.03M		
Lab Sample ID:	JD73885-2	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Methanol	**Date Received:**	09/29/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone [a]	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK [b]	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran [b]	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride [a]	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230928.SO.03M			
Lab Sample ID:	JD73885-2		**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Methanol		**Date Received:**	09/29/23
Method:	SW846 8260D		**Percent Solids:**	n/a
Project:	Varian, Beverly, MA			

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		80-124%
17060-07-0	1,2-Dichloroethane-D4	100%		75-133%
2037-26-5	Toluene-D8	95%		79-125%
460-00-4	4-Bromofluorobenzene	88%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TB_20230928.SO,03L
Lab Sample ID: JD73885-3 **Date Sampled:** 09/28/23
Matrix: SO - Trip Blank Soil **Date Received:** 09/29/23
Method: SW846 8260D **Percent Solids:** n/a
Project: Varian, Beverly, MA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I252491.D	1	10/02/23 14:41	JN	n/a	n/a	VI10241
Run #2							

	Initial Weight
Run #1	5.0 g
Run #2	

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone [a]	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK) [a]	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	ND	2.0	ug/kg	
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230928.SO,03L		
Lab Sample ID:	JD73885-3	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/29/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Compound	Result	RL	Units	Q
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone [b]	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride [c]	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB_20230928.SO,03L		
Lab Sample ID:	JD73885-3	**Date Sampled:**	09/28/23
Matrix:	SO - Trip Blank Soil	**Date Received:**	09/29/23
Method:	SW846 8260D	**Percent Solids:**	n/a
Project:	Varian, Beverly, MA		

VOA MCP List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		80-124%
17060-07-0	1,2-Dichloroethane-D4	95%		75-133%
2037-26-5	Toluene-D8	97%		79-125%
460-00-4	4-Bromofluorobenzene	97%		58-148%

(a) Associated CCV outside of control limits high, sample was ND. This compound is outside the MCP limits in the associated BS/BSD biased high. Response factor for this compound is below 0.05 in the initial and continuing calibrations.
(b) Associated CCV outside of control limits high, sample was ND.
(c) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

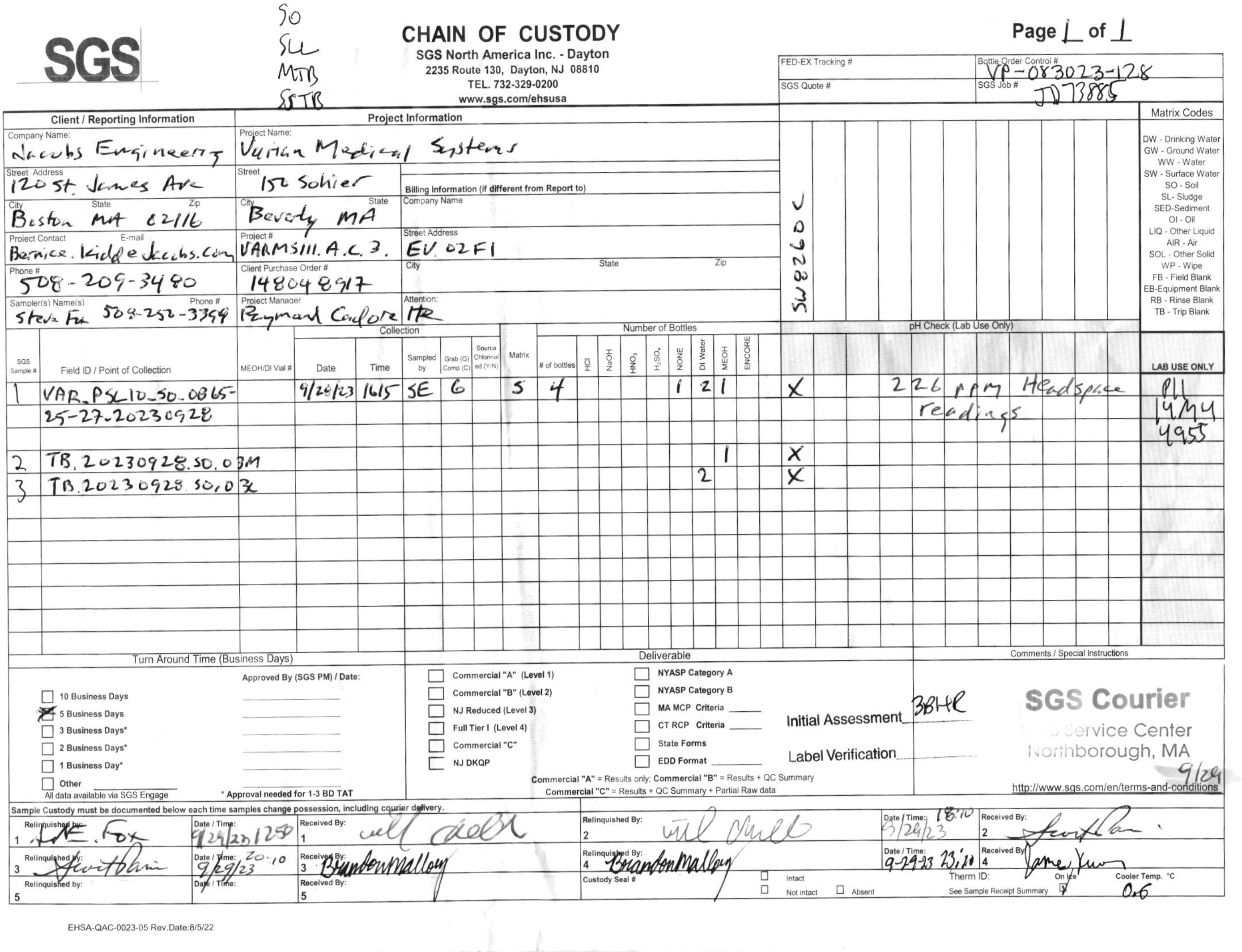
ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- MCP Form
- Sample Tracking Chronicle
- QC Evaluation: MA MCP Limits



SO
SLL
MTB
SSTB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200
www.sgs.com/ehsusa

Page 1 of 1

FED-EX Tracking #:
Bottle Order Control #: VP-083023-128
SGS Quote #:
SGS Job #: JD73885

Client / Reporting Information

Company Name: Jacobs Engineering
Street Address: 120 St. James Ave
City: Boston State: MA Zip: 02116
Project Contact: Bernice.Kidd E-mail: @Jacobs.com
Phone #: 508-209-3480
Sampler(s) Name(s): Steve Fox Phone #: 508-252-3399

Project Information

Project Name: Varian Medical Systems
Street: 150 Sohier
City: Beverly State: MA
Project #: VARMSIII.A.C.3.
Client Purchase Order #: 148048917
Project Manager: Raymond Cadorette

Billing Information (if different from Report to)
Company Name:
Street Address: EV.02F1
City: State: Zip:
Attention: HR

SGS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Time	Sampled by	Grab (G) Comp (C)	Source Chlorinated (Y/N)	Matrix	# of bottles	HCl	NaOH	HNO_3	H_2SO_4	NONE	DI Water	MEOH	ENCORE	SW8260 ✓	pH Check (Lab Use Only)	LAB USE ONLY
1	VAR_PSL10_SO_0865-25-27-20230928		9/28/23	1615	SE	G		S	4					1	2	1		X	226 ppm Headspace readings	P11 1944 4955
2	TB.20230928.SO.03M															1		X		
3	TB.20230928.SO.03x														2			X		

Matrix Codes
DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB - Field Blank
EB-Equipment Blank
RB - Rinse Blank
TB - Trip Blank

Turn Around Time (Business Days)

Approved By (SGS PM) / Date:

☐ 10 Business Days
☒ 5 Business Days
☐ 3 Business Days*
☐ 2 Business Days*
☐ 1 Business Day*
☐ Other
All data available via SGS Engage
* Approval needed for 1-3 BD TAT

Deliverable

☐ Commercial "A" (Level 1)
☐ Commercial "B" (Level 2)
☐ NJ Reduced (Level 3)
☐ Full Tier I (Level 4)
☐ Commercial "C"
☐ NJ DKQP
☐ NYASP Category A
☐ NYASP Category B
☐ MA MCP Criteria ______
☐ CT RCP Criteria ______
☐ State Forms
☐ EDD Format ________

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data

Comments / Special Instructions

Initial Assessment 3BHR
Label Verification

SGS Courier
Service Center
Northborough, MA
9/29

http://www.sgs.com/en/terms-and-conditions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by:	Date / Time:	Received By:	Relinquished By:	Date / Time:	Received By:
1 Fox	9/29/23 1250	1	2	9/29/23 18:10	2
3	9/29/23 20:10	3 BrandonMalloy	4 BrandonMalloy	9-29-23 23:20	4
5		5	Custody Seal # ☐ Intact ☐ Not intact ☐ Absent	Therm ID: See Sample Receipt Summary	On Ice ☑ Cooler Temp. °C 0.6

EHSA-QAC-0023-05 Rev.Date:8/5/22

JD73885: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: JD73885 **Client:** JACOBS ENGINEERING **Project:** VARIAN, BEVERLY, MA

Date / Time Received: 9/29/2023 11:20:00 PM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (0.6);

Cooler Temps (Corrected) °C: Cooler 1: (0.3);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y or N	
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun 40	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 231619 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

Job Change Order: JD73885

Requested Date: 10/4/2023 **Received Date:** 9/29/2023

Account Name: Jacobs Engineering **Due Date:** 10/4/2023

Project Description: Varian, Beverly, MA **Deliverable:** MAMCP

C/O Initiated By: TASHA_SAN **PM:** VP **TAT (Days):** 7

===

Sample #: JD73885-1 **Dept:**

Client ID: VAR_PSL10_SO_OB65-25-27_20230928 **TAT:** 7

Change: Revise ID to VAR_PSL10_SO_OB63-25-27_20230928

Above Changes Per: Bernice, Kidd **Date/Time:** 10/4/2023

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Massachusetts Department of Environmental Protection Bureau of Waste Site Cleanup	WSC-CAM	Exhibit VII A
	July 1, 2010	Revision No. 1
	Final	

Exhibit VII A-2: MassDEP Analytical Protocol Certification Form

MassDEP Analytical Protocol Certification Form

Laboratory Name:	SGS North America Inc. - Dayton	Project #:	JD73885
Project Location:	Varian, Beverly, MA	MADEP RTN	None

This form provides certifications for the following data set: list Laboratory Sample ID Numbers(s)
JD73885-1,JD73885-2,JD73885-3

Matrices: Groundwater/Surface Water ( ) Soil/Sediment ( ) Drinking Water ( ) Air ( ) Other (X)

CAM Protocol (check all that apply below):

8260 VOC (X) CAM IIA	7470/7471 Hg ( ) CAM III B	MassDEP VPH ( ) CAM IV A	8081 Pesticides ( ) CAM V B	7196 Hex Cr ( ) CAM VI B	Mass DEP APH ( ) CAM IX A
8270 SVOC ( ) CAM II B	7010 Metals ( ) CAM III C	MassDEP EPH ( ) CAM IV B	8151 Herbicides ( ) CAM V C	8330 Explosives ( ) CAM VIII A	TO-15 VOC ( ) CAM IX B
6010 Metals ( ) CAM III A	6020 Metals ( ) CAM III D	8082 PCB ( ) CAM V A	9014 Total ( ) Cyanide/PAC CAM VI A	6860 Perchlorate ( ) CAM VIII B	

Affirmative Responses to Questions A Through F are required for "Presumptive Certainty status

A	Were all samples received in a condition consistent with those described on the Chain-of Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☑ Yes	☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes	☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes	☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes	☐ No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes	☐ No
	b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes	☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes	☐ No

Responses to questions G, H, and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols	☐ Yes	☑ No [1]

<u>Data User Note:</u> Data that achieve "Presumptive Certainty" status may not necessarily meet the data useability and representativeness requirements described in 310 CMR 40.1056(2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☑ Yes	☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☑ Yes	☐ No [1]

[1] ***All Negative responses must be addressed in an attached Environmental Laboratory case narrative.***

I the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: **Position:** **General Manager**

Printed Name: David Chastain **Date:** **04-Oct-23**

Internal Sample Tracking Chronicle

Jacobs Engineering

Job No: JD73885

Varian, Beverly, MA
Project No: VARMS111.A.CS.3.EV.02FL PO#148048917

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD73885-1	Collected: 28-SEP-23 16:15 By: SE		Received: 29-SEP-23 By: JK			
VAR_PSL10_SO_OB63-25-27_20230928						
JD73885-1	SM2540 G 18TH ED MOD	02-OCT-23 14:00	MK			SOL104
JD73885-1	SW846 8260D	02-OCT-23 15:03	JN			V8260MCP
JD73885-1	SW846 8260D	02-OCT-23 21:00	JN			V8260MCP
JD73885-2	Collected: 28-SEP-23 16:15 By: SE		Received: 29-SEP-23 By: JK			
TB_20230928.SO.03M						
JD73885-2	SW846 8260D	02-OCT-23 13:30	JN			V8260MCP
JD73885-3	Collected: 28-SEP-23 16:15 By: SE		Received: 29-SEP-23 By: JK			
TB_20230928.SO,03L						
JD73885-3	SW846 8260D	02-OCT-23 14:41	JN			V8260MCP

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057	SW846 8260D						
V3D8057-BS	67-64-1	Acetone	BSP	REC	180 [a]	%	70-130
V3D8057-BS	71-43-2	Benzene	BSP	REC	106	%	70-130
V3D8057-BS	108-86-1	Bromobenzene	BSP	REC	84	%	70-130
V3D8057-BS	74-97-5	Bromochloromethane	BSP	REC	98	%	70-130
V3D8057-BS	75-27-4	Bromodichloromethane	BSP	REC	99	%	70-130
V3D8057-BS	75-25-2	Bromoform	BSP	REC	98	%	70-130
V3D8057-BS	74-83-9	Bromomethane	BSP	REC	193 [a]	%	70-130
V3D8057-BS	78-93-3	2-Butanone (MEK)	BSP	REC	145 [a]	%	70-130
V3D8057-BS	104-51-8	n-Butylbenzene	BSP	REC	94	%	70-130
V3D8057-BS	135-98-8	sec-Butylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	98-06-6	tert-Butylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	75-15-0	Carbon disulfide	BSP	REC	92	%	70-130
V3D8057-BS	56-23-5	Carbon tetrachloride	BSP	REC	92	%	70-130
V3D8057-BS	108-90-7	Chlorobenzene	BSP	REC	94	%	70-130
V3D8057-BS	75-00-3	Chloroethane	BSP	REC	226 [a]	%	70-130
V3D8057-BS	67-66-3	Chloroform	BSP	REC	87	%	70-130
V3D8057-BS	74-87-3	Chloromethane	BSP	REC	148 [a]	%	70-130
V3D8057-BS	95-49-8	o-Chlorotoluene	BSP	REC	88	%	70-130
V3D8057-BS	106-43-4	p-Chlorotoluene	BSP	REC	86	%	70-130
V3D8057-BS	108-20-3	Di-Isopropyl ether	BSP	REC	114	%	70-130
V3D8057-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	86	%	70-130
V3D8057-BS	124-48-1	Dibromochloromethane	BSP	REC	97	%	70-130
V3D8057-BS	106-93-4	1,2-Dibromoethane	BSP	REC	95	%	70-130
V3D8057-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	92	%	70-130
V3D8057-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	89	%	70-130
V3D8057-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	89	%	70-130
V3D8057-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	96	%	70-130
V3D8057-BS	75-34-3	1,1-Dichloroethane	BSP	REC	99	%	70-130
V3D8057-BS	107-06-2	1,2-Dichloroethane	BSP	REC	102	%	70-130
V3D8057-BS	75-35-4	1,1-Dichloroethene	BSP	REC	95	%	70-130
V3D8057-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	99	%	70-130
V3D8057-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	92	%	70-130
V3D8057-BS	78-87-5	1,2-Dichloropropane	BSP	REC	110	%	70-130
V3D8057-BS	142-28-9	1,3-Dichloropropane	BSP	REC	97	%	70-130
V3D8057-BS	594-20-7	2,2-Dichloropropane	BSP	REC	94	%	70-130
V3D8057-BS	563-58-6	1,1-Dichloropropene	BSP	REC	97	%	70-130
V3D8057-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	109	%	70-130
V3D8057-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	100	%	70-130
V3D8057-BS	123-91-1	1,4-Dioxane	BSP	REC	95	%	70-130
V3D8057-BS	60-29-7	Ethyl Ether	BSP	REC	104	%	70-130
V3D8057-BS	100-41-4	Ethylbenzene	BSP	REC	99	%	70-130
V3D8057-BS	87-68-3	Hexachlorobutadiene	BSP	REC	74	%	70-130

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BS	591-78-6	2-Hexanone	BSP	REC	138	%	70-130
V3D8057-BS	98-82-8	Isopropylbenzene	BSP	REC	100	%	70-130
V3D8057-BS	99-87-6	p-Isopropyltoluene	BSP	REC	88	%	70-130
V3D8057-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	105	%	70-130
V3D8057-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	128	%	70-130
V3D8057-BS	74-95-3	Methylene bromide	BSP	REC	102	%	70-130
V3D8057-BS	75-09-2	Methylene chloride	BSP	REC	88	%	70-130
V3D8057-BS	91-20-3	Naphthalene	BSP	REC	85	%	70-130
V3D8057-BS	103-65-1	n-Propylbenzene	BSP	REC	86	%	70-130
V3D8057-BS	100-42-5	Styrene	BSP	REC	107	%	70-130
V3D8057-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	110	%	70-130
V3D8057-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	102	%	70-130
V3D8057-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	100	%	70-130
V3D8057-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	88	%	70-130
V3D8057-BS	127-18-4	Tetrachloroethene	BSP	REC	90	%	70-130
V3D8057-BS	109-99-9	Tetrahydrofuran	BSP	REC	118	%	70-130
V3D8057-BS	108-88-3	Toluene	BSP	REC	96	%	70-130
V3D8057-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8057-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	84	%	70-130
V3D8057-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	88	%	70-130
V3D8057-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	96	%	70-130
V3D8057-BS	79-01-6	Trichloroethene	BSP	REC	100	%	70-130
V3D8057-BS	75-69-4	Trichlorofluoromethane	BSP	REC	101	%	70-130
V3D8057-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	90	%	70-130
V3D8057-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	88	%	70-130
V3D8057-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	89	%	70-130
V3D8057-BS	75-01-4	Vinyl chloride	BSP	REC	184 [a]	%	70-130
V3D8057-BS		m,p-Xylene	BSP	REC	100	%	70-130
V3D8057-BS	95-47-6	o-Xylene	BSP	REC	100	%	70-130
V3D8057-BS	1330-20-7	Xylene (total)	BSP	REC	100	%	70-130
V3D8057-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	95	%	70-130
V3D8057-BS	2037-26-5	Toluene-D8	BSP	SURR	96	%	70-130
V3D8057-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	86	%	70-130
V3D8057-BSD	67-64-1	Acetone	BSD	REC	195 [a]	%	70-130
V3D8057-BSD	67-64-1	Acetone	BSD	RPD	8	%	20
V3D8057-BSD	71-43-2	Benzene	BSD	REC	104	%	70-130
V3D8057-BSD	71-43-2	Benzene	BSD	RPD	2	%	20
V3D8057-BSD	108-86-1	Bromobenzene	BSD	REC	84	%	70-130
V3D8057-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
V3D8057-BSD	74-97-5	Bromochloromethane	BSD	REC	99	%	70-130
V3D8057-BSD	74-97-5	Bromochloromethane	BSD	RPD	1	%	20
V3D8057-BSD	75-27-4	Bromodichloromethane	BSD	REC	100	%	70-130
V3D8057-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
V3D8057-BSD	75-25-2	Bromoform	BSD	REC	106	%	70-130
V3D8057-BSD	75-25-2	Bromoform	BSD	RPD	7	%	20

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	74-83-9	Bromomethane	BSD	REC	180 [a]	%	70-130
V3D8057-BSD	74-83-9	Bromomethane	BSD	RPD	7	%	20
V3D8057-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	157 [a]	%	70-130
V3D8057-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	8	%	20
V3D8057-BSD	104-51-8	n-Butylbenzene	BSD	REC	93	%	70-130
V3D8057-BSD	104-51-8	n-Butylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	135-98-8	sec-Butylbenzene	BSD	REC	87	%	70-130
V3D8057-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	98-06-6	tert-Butylbenzene	BSD	REC	87	%	70-130
V3D8057-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	75-15-0	Carbon disulfide	BSD	REC	90	%	70-130
V3D8057-BSD	75-15-0	Carbon disulfide	BSD	RPD	2	%	20
V3D8057-BSD	56-23-5	Carbon tetrachloride	BSD	REC	93	%	70-130
V3D8057-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	1	%	20
V3D8057-BSD	108-90-7	Chlorobenzene	BSD	REC	95	%	70-130
V3D8057-BSD	108-90-7	Chlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	75-00-3	Chloroethane	BSD	REC	218 [a]	%	70-130
V3D8057-BSD	75-00-3	Chloroethane	BSD	RPD	3	%	20
V3D8057-BSD	67-66-3	Chloroform	BSD	REC	88	%	70-130
V3D8057-BSD	67-66-3	Chloroform	BSD	RPD	2	%	20
V3D8057-BSD	74-87-3	Chloromethane	BSD	REC	172 [a]	%	70-130
V3D8057-BSD	74-87-3	Chloromethane	BSD	RPD	16 [b]	%	20
V3D8057-BSD	95-49-8	o-Chlorotoluene	BSD	REC	84	%	70-130
V3D8057-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	4	%	20
V3D8057-BSD	106-43-4	p-Chlorotoluene	BSD	REC	86	%	70-130
V3D8057-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
V3D8057-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	114	%	70-130
V3D8057-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	1	%	20
V3D8057-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	94	%	70-130
V3D8057-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	8	%	20
V3D8057-BSD	124-48-1	Dibromochloromethane	BSD	REC	100	%	70-130
V3D8057-BSD	124-48-1	Dibromochloromethane	BSD	RPD	3	%	20
V3D8057-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	98	%	70-130
V3D8057-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	2	%	20
V3D8057-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	94	%	70-130
V3D8057-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20
V3D8057-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	89	%	70-130
V3D8057-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	89	%	70-130
V3D8057-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	0	%	20
V3D8057-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	91	%	70-130
V3D8057-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	6	%	20
V3D8057-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	98	%	70-130
V3D8057-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	1	%	20
V3D8057-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	104	%	70-130

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	93	%	70-130
V3D8057-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	3	%	20
V3D8057-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	99	%	70-130
V3D8057-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	0	%	20
V3D8057-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	92	%	70-130
V3D8057-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	0	%	20
V3D8057-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	110	%	70-130
V3D8057-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	0	%	20
V3D8057-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	100	%	70-130
V3D8057-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	3	%	20
V3D8057-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	96	%	70-130
V3D8057-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	2	%	20
V3D8057-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	98	%	70-130
V3D8057-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	0	%	20
V3D8057-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	110	%	70-130
V3D8057-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
V3D8057-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	100	%	70-130
V3D8057-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	0	%	20
V3D8057-BSD	123-91-1	1,4-Dioxane	BSD	REC	113	%	70-130
V3D8057-BSD	123-91-1	1,4-Dioxane	BSD	RPD	17	%	20
V3D8057-BSD	60-29-7	Ethyl Ether	BSD	REC	108	%	70-130
V3D8057-BSD	60-29-7	Ethyl Ether	BSD	RPD	3	%	20
V3D8057-BSD	100-41-4	Ethylbenzene	BSD	REC	99	%	70-130
V3D8057-BSD	100-41-4	Ethylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	72	%	70-130
V3D8057-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	3	%	20
V3D8057-BSD	591-78-6	2-Hexanone	BSD	REC	148 [a]	%	70-130
V3D8057-BSD	591-78-6	2-Hexanone	BSD	RPD	7	%	20
V3D8057-BSD	98-82-8	Isopropylbenzene	BSD	REC	99	%	70-130
V3D8057-BSD	98-82-8	Isopropylbenzene	BSD	RPD	1	%	20
V3D8057-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	89	%	70-130
V3D8057-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	0	%	20
V3D8057-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	110	%	70-130
V3D8057-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	4	%	20
V3D8057-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	137	%	70-130
V3D8057-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	7	%	20
V3D8057-BSD	74-95-3	Methylene bromide	BSD	REC	106	%	70-130
V3D8057-BSD	74-95-3	Methylene bromide	BSD	RPD	3	%	20
V3D8057-BSD	75-09-2	Methylene chloride	BSD	REC	86	%	70-130
V3D8057-BSD	75-09-2	Methylene chloride	BSD	RPD	2	%	20
V3D8057-BSD	91-20-3	Naphthalene	BSD	REC	94	%	70-130
V3D8057-BSD	91-20-3	Naphthalene	BSD	RPD	10	%	20
V3D8057-BSD	103-65-1	n-Propylbenzene	BSD	REC	85	%	70-130
V3D8057-BSD	103-65-1	n-Propylbenzene	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-BSD	100-42-5	Styrene	BSD	REC	108	%	70-130
V3D8057-BSD	100-42-5	Styrene	BSD	RPD	1	%	20
V3D8057-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	111	%	70-130
V3D8057-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	0	%	20
V3D8057-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	104	%	70-130
V3D8057-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	2	%	20
V3D8057-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	102	%	70-130
V3D8057-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	92	%	70-130
V3D8057-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	4	%	20
V3D8057-BSD	127-18-4	Tetrachloroethene	BSD	REC	88	%	70-130
V3D8057-BSD	127-18-4	Tetrachloroethene	BSD	RPD	3	%	20
V3D8057-BSD	109-99-9	Tetrahydrofuran	BSD	REC	124	%	70-130
V3D8057-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	4	%	20
V3D8057-BSD	108-88-3	Toluene	BSD	REC	95	%	70-130
V3D8057-BSD	108-88-3	Toluene	BSD	RPD	2	%	20
V3D8057-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8057-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	6	%	20
V3D8057-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	88	%	70-130
V3D8057-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	5	%	20
V3D8057-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	90	%	70-130
V3D8057-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	97	%	70-130
V3D8057-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	2	%	20
V3D8057-BSD	79-01-6	Trichloroethene	BSD	REC	99	%	70-130
V3D8057-BSD	79-01-6	Trichloroethene	BSD	RPD	1	%	20
V3D8057-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	99	%	70-130
V3D8057-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	2	%	20
V3D8057-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	94	%	70-130
V3D8057-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	5	%	20
V3D8057-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	88	%	70-130
V3D8057-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	0	%	20
V3D8057-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	88	%	70-130
V3D8057-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	2	%	20
V3D8057-BSD	75-01-4	Vinyl chloride	BSD	REC	210 [a]	%	70-130
V3D8057-BSD	75-01-4	Vinyl chloride	BSD	RPD	13	%	20
V3D8057-BSD		m,p-Xylene	BSD	REC	101	%	70-130
V3D8057-BSD		m,p-Xylene	BSD	RPD	1	%	20
V3D8057-BSD	95-47-6	o-Xylene	BSD	REC	102	%	70-130
V3D8057-BSD	95-47-6	o-Xylene	BSD	RPD	2	%	20
V3D8057-BSD	1330-20-7	Xylene (total)	BSD	REC	102	%	70-130
V3D8057-BSD	1330-20-7	Xylene (total)	BSD	RPD	1	%	20
V3D8057-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	97	%	70-130
V3D8057-BSD	2037-26-5	Toluene-D8	BSD	SURR	96	%	70-130
V3D8057-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	86	%	70-130

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
V3D8057-MB	1868-53-7	Dibromofluoromethane	MB	SURR	91	%	70-130
V3D8057-MB	2037-26-5	Toluene-D8	MB	SURR	95	%	70-130
V3D8057-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	90	%	70-130
JD73885-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	90	%	70-130
JD73885-1	2037-26-5	Toluene-D8	SAMP	SURR	95	%	70-130
JD73885-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	86	%	70-130
JD73885-2	1868-53-7	Dibromofluoromethane	SAMP	SURR	89	%	70-130
JD73885-2	2037-26-5	Toluene-D8	SAMP	SURR	95	%	70-130
JD73885-2	460-00-4	4-Bromofluorobenzene	SAMP	SURR	88	%	70-130
VI10241	SW846 8260D						
VI10241-BS	67-64-1	Acetone	BSP	REC	139	%	70-130
VI10241-BS	71-43-2	Benzene	BSP	REC	88	%	70-130
VI10241-BS	108-86-1	Bromobenzene	BSP	REC	94	%	70-130
VI10241-BS	74-97-5	Bromochloromethane	BSP	REC	96	%	70-130
VI10241-BS	75-27-4	Bromodichloromethane	BSP	REC	94	%	70-130
VI10241-BS	75-25-2	Bromoform	BSP	REC	104	%	70-130
VI10241-BS	74-83-9	Bromomethane	BSP	REC	87	%	70-130
VI10241-BS	78-93-3	2-Butanone (MEK)	BSP	REC	134	%	70-130
VI10241-BS	104-51-8	n-Butylbenzene	BSP	REC	88	%	70-130
VI10241-BS	135-98-8	sec-Butylbenzene	BSP	REC	86	%	70-130
VI10241-BS	98-06-6	tert-Butylbenzene	BSP	REC	85	%	70-130
VI10241-BS	75-15-0	Carbon disulfide	BSP	REC	86	%	70-130
VI10241-BS	56-23-5	Carbon tetrachloride	BSP	REC	82	%	70-130
VI10241-BS	108-90-7	Chlorobenzene	BSP	REC	93	%	70-130
VI10241-BS	75-00-3	Chloroethane	BSP	REC	82	%	70-130
VI10241-BS	67-66-3	Chloroform	BSP	REC	85	%	70-130
VI10241-BS	74-87-3	Chloromethane	BSP	REC	82	%	70-130
VI10241-BS	95-49-8	o-Chlorotoluene	BSP	REC	91	%	70-130
VI10241-BS	106-43-4	p-Chlorotoluene	BSP	REC	90	%	70-130
VI10241-BS	108-20-3	Di-Isopropyl ether	BSP	REC	92	%	70-130
VI10241-BS	96-12-8	1,2-Dibromo-3-chloropropane	BSP	REC	106	%	70-130
VI10241-BS	124-48-1	Dibromochloromethane	BSP	REC	97	%	70-130
VI10241-BS	106-93-4	1,2-Dibromoethane	BSP	REC	99	%	70-130
VI10241-BS	95-50-1	1,2-Dichlorobenzene	BSP	REC	91	%	70-130
VI10241-BS	541-73-1	1,3-Dichlorobenzene	BSP	REC	89	%	70-130
VI10241-BS	106-46-7	1,4-Dichlorobenzene	BSP	REC	91	%	70-130
VI10241-BS	75-71-8	Dichlorodifluoromethane	BSP	REC	83	%	70-130
VI10241-BS	75-34-3	1,1-Dichloroethane	BSP	REC	90	%	70-130
VI10241-BS	107-06-2	1,2-Dichloroethane	BSP	REC	86	%	70-130
VI10241-BS	75-35-4	1,1-Dichloroethene	BSP	REC	82	%	70-130
VI10241-BS	156-59-2	cis-1,2-Dichloroethene	BSP	REC	91	%	70-130
VI10241-BS	156-60-5	trans-1,2-Dichloroethene	BSP	REC	86	%	70-130
VI10241-BS	78-87-5	1,2-Dichloropropane	BSP	REC	91	%	70-130

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BS	142-28-9	1,3-Dichloropropane	BSP	REC	96	%	70-130
VI10241-BS	594-20-7	2,2-Dichloropropane	BSP	REC	81	%	70-130
VI10241-BS	563-58-6	1,1-Dichloropropene	BSP	REC	83	%	70-130
VI10241-BS	10061-01-5	cis-1,3-Dichloropropene	BSP	REC	97	%	70-130
VI10241-BS	10061-02-6	trans-1,3-Dichloropropene	BSP	REC	95	%	70-130
VI10241-BS	123-91-1	1,4-Dioxane	BSP	REC	105	%	70-130
VI10241-BS	60-29-7	Ethyl Ether	BSP	REC	96	%	70-130
VI10241-BS	100-41-4	Ethylbenzene	BSP	REC	89	%	70-130
VI10241-BS	87-68-3	Hexachlorobutadiene	BSP	REC	86	%	70-130
VI10241-BS	591-78-6	2-Hexanone	BSP	REC	126	%	70-130
VI10241-BS	98-82-8	Isopropylbenzene	BSP	REC	87	%	70-130
VI10241-BS	99-87-6	p-Isopropyltoluene	BSP	REC	88	%	70-130
VI10241-BS	1634-04-4	Methyl Tert Butyl Ether	BSP	REC	91	%	70-130
VI10241-BS	108-10-1	4-Methyl-2-pentanone(MIBK)	BSP	REC	115	%	70-130
VI10241-BS	74-95-3	Methylene bromide	BSP	REC	97	%	70-130
VI10241-BS	75-09-2	Methylene chloride	BSP	REC	90	%	70-130
VI10241-BS	91-20-3	Naphthalene	BSP	REC	93	%	70-130
VI10241-BS	103-65-1	n-Propylbenzene	BSP	REC	88	%	70-130
VI10241-BS	100-42-5	Styrene	BSP	REC	98	%	70-130
VI10241-BS	994-05-8	tert-Amyl Methyl Ether	BSP	REC	96	%	70-130
VI10241-BS	637-92-3	tert-Butyl Ethyl Ether	BSP	REC	93	%	70-130
VI10241-BS	630-20-6	1,1,1,2-Tetrachloroethane	BSP	REC	96	%	70-130
VI10241-BS	79-34-5	1,1,2,2-Tetrachloroethane	BSP	REC	92	%	70-130
VI10241-BS	127-18-4	Tetrachloroethene	BSP	REC	85	%	70-130
VI10241-BS	109-99-9	Tetrahydrofuran	BSP	REC	101	%	70-130
VI10241-BS	108-88-3	Toluene	BSP	REC	88	%	70-130
VI10241-BS	87-61-6	1,2,3-Trichlorobenzene	BSP	REC	94	%	70-130
VI10241-BS	120-82-1	1,2,4-Trichlorobenzene	BSP	REC	92	%	70-130
VI10241-BS	71-55-6	1,1,1-Trichloroethane	BSP	REC	83	%	70-130
VI10241-BS	79-00-5	1,1,2-Trichloroethane	BSP	REC	98	%	70-130
VI10241-BS	79-01-6	Trichloroethene	BSP	REC	87	%	70-130
VI10241-BS	75-69-4	Trichlorofluoromethane	BSP	REC	86	%	70-130
VI10241-BS	96-18-4	1,2,3-Trichloropropane	BSP	REC	98	%	70-130
VI10241-BS	95-63-6	1,2,4-Trimethylbenzene	BSP	REC	89	%	70-130
VI10241-BS	108-67-8	1,3,5-Trimethylbenzene	BSP	REC	89	%	70-130
VI10241-BS	75-01-4	Vinyl chloride	BSP	REC	80	%	70-130
VI10241-BS		m,p-Xylene	BSP	REC	92	%	70-130
VI10241-BS	95-47-6	o-Xylene	BSP	REC	95	%	70-130
VI10241-BS	1330-20-7	Xylene (total)	BSP	REC	93	%	70-130
VI10241-BS	1868-53-7	Dibromofluoromethane	BSP	SURR	102	%	70-130
VI10241-BS	2037-26-5	Toluene-D8	BSP	SURR	99	%	70-130
VI10241-BS	460-00-4	4-Bromofluorobenzene	BSP	SURR	97	%	70-130
VI10241-BSD	67-64-1	Acetone	BSD	REC	141	%	70-130
VI10241-BSD	67-64-1	Acetone	BSD	RPD	1	%	20
VI10241-BSD	71-43-2	Benzene	BSD	REC	88	%	70-130

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD	71-43-2	Benzene	BSD	RPD	0	%	20
VI10241-BSD	108-86-1	Bromobenzene	BSD	REC	94	%	70-130
VI10241-BSD	108-86-1	Bromobenzene	BSD	RPD	0	%	20
VI10241-BSD	74-97-5	Bromochloromethane	BSD	REC	98	%	70-130
VI10241-BSD	74-97-5	Bromochloromethane	BSD	RPD	1	%	20
VI10241-BSD	75-27-4	Bromodichloromethane	BSD	REC	93	%	70-130
VI10241-BSD	75-27-4	Bromodichloromethane	BSD	RPD	1	%	20
VI10241-BSD	75-25-2	Bromoform	BSD	REC	104	%	70-130
VI10241-BSD	75-25-2	Bromoform	BSD	RPD	0	%	20
VI10241-BSD	74-83-9	Bromomethane	BSD	REC	89	%	70-130
VI10241-BSD	74-83-9	Bromomethane	BSD	RPD	2	%	20
VI10241-BSD	78-93-3	2-Butanone (MEK)	BSD	REC	139 [b]	%	70-130
VI10241-BSD	78-93-3	2-Butanone (MEK)	BSD	RPD	4	%	20
VI10241-BSD	104-51-8	n-Butylbenzene	BSD	REC	89	%	70-130
VI10241-BSD	104-51-8	n-Butylbenzene	BSD	RPD	1	%	20
VI10241-BSD	135-98-8	sec-Butylbenzene	BSD	REC	87	%	70-130
VI10241-BSD	135-98-8	sec-Butylbenzene	BSD	RPD	1	%	20
VI10241-BSD	98-06-6	tert-Butylbenzene	BSD	REC	86	%	70-130
VI10241-BSD	98-06-6	tert-Butylbenzene	BSD	RPD	1	%	20
VI10241-BSD	75-15-0	Carbon disulfide	BSD	REC	85	%	70-130
VI10241-BSD	75-15-0	Carbon disulfide	BSD	RPD	1	%	20
VI10241-BSD	56-23-5	Carbon tetrachloride	BSD	REC	82	%	70-130
VI10241-BSD	56-23-5	Carbon tetrachloride	BSD	RPD	1	%	20
VI10241-BSD	108-90-7	Chlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	108-90-7	Chlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	75-00-3	Chloroethane	BSD	REC	82	%	70-130
VI10241-BSD	75-00-3	Chloroethane	BSD	RPD	0	%	20
VI10241-BSD	67-66-3	Chloroform	BSD	REC	86	%	70-130
VI10241-BSD	67-66-3	Chloroform	BSD	RPD	1	%	20
VI10241-BSD	74-87-3	Chloromethane	BSD	REC	82	%	70-130
VI10241-BSD	74-87-3	Chloromethane	BSD	RPD	0	%	20
VI10241-BSD	95-49-8	o-Chlorotoluene	BSD	REC	91	%	70-130
VI10241-BSD	95-49-8	o-Chlorotoluene	BSD	RPD	0	%	20
VI10241-BSD	106-43-4	p-Chlorotoluene	BSD	REC	89	%	70-130
VI10241-BSD	106-43-4	p-Chlorotoluene	BSD	RPD	0	%	20
VI10241-BSD	108-20-3	Di-Isopropyl ether	BSD	REC	93	%	70-130
VI10241-BSD	108-20-3	Di-Isopropyl ether	BSD	RPD	0	%	20
VI10241-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	REC	101	%	70-130
VI10241-BSD	96-12-8	1,2-Dibromo-3-chloropropane	BSD	RPD	4	%	20
VI10241-BSD	124-48-1	Dibromochloromethane	BSD	REC	96	%	70-130
VI10241-BSD	124-48-1	Dibromochloromethane	BSD	RPD	0	%	20
VI10241-BSD	106-93-4	1,2-Dibromoethane	BSD	REC	99	%	70-130
VI10241-BSD	106-93-4	1,2-Dibromoethane	BSD	RPD	1	%	20
VI10241-BSD	95-50-1	1,2-Dichlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	95-50-1	1,2-Dichlorobenzene	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD	541-73-1	1,3-Dichlorobenzene	BSD	REC	89	%	70-130
VI10241-BSD	541-73-1	1,3-Dichlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	106-46-7	1,4-Dichlorobenzene	BSD	REC	92	%	70-130
VI10241-BSD	106-46-7	1,4-Dichlorobenzene	BSD	RPD	0	%	20
VI10241-BSD	75-71-8	Dichlorodifluoromethane	BSD	REC	87	%	70-130
VI10241-BSD	75-71-8	Dichlorodifluoromethane	BSD	RPD	4	%	20
VI10241-BSD	75-34-3	1,1-Dichloroethane	BSD	REC	90	%	70-130
VI10241-BSD	75-34-3	1,1-Dichloroethane	BSD	RPD	0	%	20
VI10241-BSD	107-06-2	1,2-Dichloroethane	BSD	REC	84	%	70-130
VI10241-BSD	107-06-2	1,2-Dichloroethane	BSD	RPD	3	%	20
VI10241-BSD	75-35-4	1,1-Dichloroethene	BSD	REC	83	%	70-130
VI10241-BSD	75-35-4	1,1-Dichloroethene	BSD	RPD	2	%	20
VI10241-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	REC	94	%	70-130
VI10241-BSD	156-59-2	cis-1,2-Dichloroethene	BSD	RPD	2	%	20
VI10241-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	REC	85	%	70-130
VI10241-BSD	156-60-5	trans-1,2-Dichloroethene	BSD	RPD	2	%	20
VI10241-BSD	78-87-5	1,2-Dichloropropane	BSD	REC	89	%	70-130
VI10241-BSD	78-87-5	1,2-Dichloropropane	BSD	RPD	2	%	20
VI10241-BSD	142-28-9	1,3-Dichloropropane	BSD	REC	97	%	70-130
VI10241-BSD	142-28-9	1,3-Dichloropropane	BSD	RPD	1	%	20
VI10241-BSD	594-20-7	2,2-Dichloropropane	BSD	REC	82	%	70-130
VI10241-BSD	594-20-7	2,2-Dichloropropane	BSD	RPD	1	%	20
VI10241-BSD	563-58-6	1,1-Dichloropropene	BSD	REC	84	%	70-130
VI10241-BSD	563-58-6	1,1-Dichloropropene	BSD	RPD	2	%	20
VI10241-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	REC	95	%	70-130
VI10241-BSD	10061-01-5	cis-1,3-Dichloropropene	BSD	RPD	1	%	20
VI10241-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	REC	97	%	70-130
VI10241-BSD	10061-02-6	trans-1,3-Dichloropropene	BSD	RPD	2	%	20
VI10241-BSD	123-91-1	1,4-Dioxane	BSD	REC	109	%	70-130
VI10241-BSD	123-91-1	1,4-Dioxane	BSD	RPD	4	%	20
VI10241-BSD	60-29-7	Ethyl Ether	BSD	REC	95	%	70-130
VI10241-BSD	60-29-7	Ethyl Ether	BSD	RPD	1	%	20
VI10241-BSD	100-41-4	Ethylbenzene	BSD	REC	90	%	70-130
VI10241-BSD	100-41-4	Ethylbenzene	BSD	RPD	1	%	20
VI10241-BSD	87-68-3	Hexachlorobutadiene	BSD	REC	86	%	70-130
VI10241-BSD	87-68-3	Hexachlorobutadiene	BSD	RPD	0	%	20
VI10241-BSD	591-78-6	2-Hexanone	BSD	REC	123	%	70-130
VI10241-BSD	591-78-6	2-Hexanone	BSD	RPD	2	%	20
VI10241-BSD	98-82-8	Isopropylbenzene	BSD	REC	89	%	70-130
VI10241-BSD	98-82-8	Isopropylbenzene	BSD	RPD	2	%	20
VI10241-BSD	99-87-6	p-Isopropyltoluene	BSD	REC	88	%	70-130
VI10241-BSD	99-87-6	p-Isopropyltoluene	BSD	RPD	0	%	20
VI10241-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	REC	93	%	70-130
VI10241-BSD	1634-04-4	Methyl Tert Butyl Ether	BSD	RPD	2	%	20
VI10241-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	REC	113	%	70-130

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD	108-10-1	4-Methyl-2-pentanone(MIBK)	BSD	RPD	1	%	20
VI10241-BSD	74-95-3	Methylene bromide	BSD	REC	96	%	70-130
VI10241-BSD	74-95-3	Methylene bromide	BSD	RPD	0	%	20
VI10241-BSD	75-09-2	Methylene chloride	BSD	REC	90	%	70-130
VI10241-BSD	75-09-2	Methylene chloride	BSD	RPD	0	%	20
VI10241-BSD	91-20-3	Naphthalene	BSD	REC	93	%	70-130
VI10241-BSD	91-20-3	Naphthalene	BSD	RPD	0	%	20
VI10241-BSD	103-65-1	n-Propylbenzene	BSD	REC	90	%	70-130
VI10241-BSD	103-65-1	n-Propylbenzene	BSD	RPD	2	%	20
VI10241-BSD	100-42-5	Styrene	BSD	REC	98	%	70-130
VI10241-BSD	100-42-5	Styrene	BSD	RPD	0	%	20
VI10241-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	REC	97	%	70-130
VI10241-BSD	994-05-8	tert-Amyl Methyl Ether	BSD	RPD	1	%	20
VI10241-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	REC	94	%	70-130
VI10241-BSD	637-92-3	tert-Butyl Ethyl Ether	BSD	RPD	1	%	20
VI10241-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	REC	98	%	70-130
VI10241-BSD	630-20-6	1,1,1,2-Tetrachloroethane	BSD	RPD	2	%	20
VI10241-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	REC	93	%	70-130
VI10241-BSD	79-34-5	1,1,2,2-Tetrachloroethane	BSD	RPD	0	%	20
VI10241-BSD	127-18-4	Tetrachloroethene	BSD	REC	85	%	70-130
VI10241-BSD	127-18-4	Tetrachloroethene	BSD	RPD	0	%	20
VI10241-BSD	109-99-9	Tetrahydrofuran	BSD	REC	98	%	70-130
VI10241-BSD	109-99-9	Tetrahydrofuran	BSD	RPD	2	%	20
VI10241-BSD	108-88-3	Toluene	BSD	REC	87	%	70-130
VI10241-BSD	108-88-3	Toluene	BSD	RPD	0	%	20
VI10241-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	87-61-6	1,2,3-Trichlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	REC	93	%	70-130
VI10241-BSD	120-82-1	1,2,4-Trichlorobenzene	BSD	RPD	1	%	20
VI10241-BSD	71-55-6	1,1,1-Trichloroethane	BSD	REC	85	%	70-130
VI10241-BSD	71-55-6	1,1,1-Trichloroethane	BSD	RPD	2	%	20
VI10241-BSD	79-00-5	1,1,2-Trichloroethane	BSD	REC	99	%	70-130
VI10241-BSD	79-00-5	1,1,2-Trichloroethane	BSD	RPD	1	%	20
VI10241-BSD	79-01-6	Trichloroethene	BSD	REC	87	%	70-130
VI10241-BSD	79-01-6	Trichloroethene	BSD	RPD	0	%	20
VI10241-BSD	75-69-4	Trichlorofluoromethane	BSD	REC	89	%	70-130
VI10241-BSD	75-69-4	Trichlorofluoromethane	BSD	RPD	3	%	20
VI10241-BSD	96-18-4	1,2,3-Trichloropropane	BSD	REC	103	%	70-130
VI10241-BSD	96-18-4	1,2,3-Trichloropropane	BSD	RPD	5	%	20
VI10241-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	REC	90	%	70-130
VI10241-BSD	95-63-6	1,2,4-Trimethylbenzene	BSD	RPD	1	%	20
VI10241-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	REC	91	%	70-130
VI10241-BSD	108-67-8	1,3,5-Trimethylbenzene	BSD	RPD	2	%	20
VI10241-BSD	75-01-4	Vinyl chloride	BSD	REC	79	%	70-130
VI10241-BSD	75-01-4	Vinyl chloride	BSD	RPD	1	%	20

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* Sample used for QC is not from job JD73885

QC Evaluation: MA MCP Limits

Job Number: JD73885
Account: Jacobs Engineering
Project: Varian, Beverly, MA
Collected: 09/28/23

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
VI10241-BSD		m,p-Xylene	BSD	REC	94	%	70-130
VI10241-BSD		m,p-Xylene	BSD	RPD	3	%	20
VI10241-BSD	95-47-6	o-Xylene	BSD	REC	95	%	70-130
VI10241-BSD	95-47-6	o-Xylene	BSD	RPD	1	%	20
VI10241-BSD	1330-20-7	Xylene (total)	BSD	REC	95	%	70-130
VI10241-BSD	1330-20-7	Xylene (total)	BSD	RPD	2	%	20
VI10241-BSD	1868-53-7	Dibromofluoromethane	BSD	SURR	102	%	70-130
VI10241-BSD	2037-26-5	Toluene-D8	BSD	SURR	99	%	70-130
VI10241-BSD	460-00-4	4-Bromofluorobenzene	BSD	SURR	99	%	70-130
VI10241-MB	1868-53-7	Dibromofluoromethane	MB	SURR	106	%	70-130
VI10241-MB	2037-26-5	Toluene-D8	MB	SURR	98	%	70-130
VI10241-MB	460-00-4	4-Bromofluorobenzene	MB	SURR	97	%	70-130
JD73885-1	1868-53-7	Dibromofluoromethane	SAMP	SURR	107	%	70-130
JD73885-1	2037-26-5	Toluene-D8	SAMP	SURR	97	%	70-130
JD73885-1	460-00-4	4-Bromofluorobenzene	SAMP	SURR	96	%	70-130
JD73885-3	1868-53-7	Dibromofluoromethane	SAMP	SURR	106	%	70-130
JD73885-3	2037-26-5	Toluene-D8	SAMP	SURR	97	%	70-130
JD73885-3	460-00-4	4-Bromofluorobenzene	SAMP	SURR	97	%	70-130

(a) High percent recovery and no associated positive reported in the QC batch.
(b) Outside in house control limits.

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* Sample used for QC is not from job JD73885

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-2

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	500	ug/kg	
71-43-2	Benzene	ND	25	ug/kg	
108-86-1	Bromobenzene	ND	250	ug/kg	
74-97-5	Bromochloromethane	ND	250	ug/kg	
75-27-4	Bromodichloromethane	ND	100	ug/kg	
75-25-2	Bromoform	ND	250	ug/kg	
74-83-9	Bromomethane	ND	250	ug/kg	
78-93-3	2-Butanone (MEK)	ND	500	ug/kg	
104-51-8	n-Butylbenzene	ND	100	ug/kg	
135-98-8	sec-Butylbenzene	ND	100	ug/kg	
98-06-6	tert-Butylbenzene	ND	100	ug/kg	
75-15-0	Carbon disulfide	ND	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	100	ug/kg	
108-90-7	Chlorobenzene	ND	100	ug/kg	
75-00-3	Chloroethane	ND	250	ug/kg	
67-66-3	Chloroform	ND	100	ug/kg	
74-87-3	Chloromethane	ND	250	ug/kg	
95-49-8	o-Chlorotoluene	ND	100	ug/kg	
106-43-4	p-Chlorotoluene	ND	100	ug/kg	
108-20-3	Di-Isopropyl ether	ND	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	100	ug/kg	
124-48-1	Dibromochloromethane	ND	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	50	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	50	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	100	ug/kg	
142-28-9	1,3-Dichloropropane	ND	100	ug/kg	
594-20-7	2,2-Dichloropropane	ND	100	ug/kg	
563-58-6	1,1-Dichloropropene	ND	100	ug/kg	

Method Blank Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-2

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	100	ug/kg	
123-91-1	1,4-Dioxane	ND	6300	ug/kg	
60-29-7	Ethyl Ether	ND	100	ug/kg	
100-41-4	Ethylbenzene	ND	50	ug/kg	
87-68-3	Hexachlorobutadiene	ND	250	ug/kg	
591-78-6	2-Hexanone	ND	250	ug/kg	
98-82-8	Isopropylbenzene	ND	100	ug/kg	
99-87-6	p-Isopropyltoluene	ND	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	250	ug/kg	
74-95-3	Methylene bromide	ND	250	ug/kg	
75-09-2	Methylene chloride	ND	250	ug/kg	
91-20-3	Naphthalene	ND	250	ug/kg	
103-65-1	n-Propylbenzene	ND	100	ug/kg	
100-42-5	Styrene	ND	100	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	100	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	100	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	100	ug/kg	
127-18-4	Tetrachloroethene	ND	100	ug/kg	
109-99-9	Tetrahydrofuran	ND	500	ug/kg	
108-88-3	Toluene	ND	50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	100	ug/kg	
79-01-6	Trichloroethene	ND	50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	250	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	250	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	ug/kg	
75-01-4	Vinyl chloride	ND	100	ug/kg	
	m,p-Xylene	ND	50	ug/kg	
95-47-6	o-Xylene	ND	50	ug/kg	
1330-20-7	Xylene (total)	ND	50	ug/kg	

Method Blank Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-MB	3D192842.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-2

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	91%	80-124%
17060-07-0	1,2-Dichloroethane-D4	100%	75-133%
2037-26-5	Toluene-D8	95%	79-125%
460-00-4	4-Bromofluorobenzene	90%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.27	450	ug/kg	J
	system artifact	1.87	670	ug/kg	J
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-MB	I252489.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-3

CAS No.	Compound	Result	RL	Units	Q
67-64-1	Acetone	ND	10	ug/kg	
71-43-2	Benzene	ND	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	ug/kg	
75-25-2	Bromoform	ND	5.0	ug/kg	
74-83-9	Bromomethane	ND	5.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	ug/kg	
75-00-3	Chloroethane	ND	5.0	ug/kg	
67-66-3	Chloroform	0.59	2.0	ug/kg	J
74-87-3	Chloromethane	ND	5.0	ug/kg	
95-49-8	o-Chlorotoluene	ND	2.0	ug/kg	
106-43-4	p-Chlorotoluene	ND	2.0	ug/kg	
108-20-3	Di-Isopropyl ether	ND	2.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	ug/kg	
142-28-9	1,3-Dichloropropane	ND	2.0	ug/kg	
594-20-7	2,2-Dichloropropane	ND	2.0	ug/kg	
563-58-6	1,1-Dichloropropene	ND	2.0	ug/kg	

Method Blank Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-MB	I252489.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-3

CAS No.	Compound	Result	RL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	ug/kg	
123-91-1	1,4-Dioxane	ND	130	ug/kg	
60-29-7	Ethyl Ether	ND	2.0	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	ug/kg	
75-09-2	Methylene chloride	ND	5.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	ug/kg	
103-65-1	n-Propylbenzene	ND	2.0	ug/kg	
100-42-5	Styrene	ND	2.0	ug/kg	
994-05-8	tert-Amyl Methyl Ether	ND	2.0	ug/kg	
637-92-3	tert-Butyl Ethyl Ether	ND	2.0	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	2.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	ug/kg	
109-99-9	Tetrahydrofuran	ND	10	ug/kg	
108-88-3	Toluene	ND	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	ug/kg	
79-01-6	Trichloroethene	ND	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	ug/kg	
	m,p-Xylene	ND	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	ug/kg	

Method Blank Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-MB	I252489.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	106%	80-124%
17060-07-0	1,2-Dichloroethane-D4	95%	75-133%
2037-26-5	Toluene-D8	98%	79-125%
460-00-4	4-Bromofluorobenzene	97%	58-148%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	10000	18000	180* [a]	19500	195* [a]	8	52-156/12
71-43-2	Benzene	2500	2660	106	2600	104	2	82-119/10
108-86-1	Bromobenzene	2500	2100	84	2110	84	0	82-115/10
74-97-5	Bromochloromethane	2500	2450	98	2480	99	1	82-123/10
75-27-4	Bromodichloromethane	2500	2480	99	2500	100	1	83-121/10
75-25-2	Bromoform	2500	2460	98	2640	106	7	74-138/10
74-83-9	Bromomethane	2500	4820	193* [a]	4510	180* [a]	7	56-150/12
78-93-3	2-Butanone (MEK)	10000	14500	145* [a]	15700	157* [a]	8	72-138/10
104-51-8	n-Butylbenzene	2500	2350	94	2330	93	1	81-124/11
135-98-8	sec-Butylbenzene	2500	2190	88	2180	87	0	78-120/10
98-06-6	tert-Butylbenzene	2500	2190	88	2170	87	1	78-121/10
75-15-0	Carbon disulfide	2500	2300	92	2250	90	2	67-131/11
56-23-5	Carbon tetrachloride	2500	2300	92	2330	93	1	72-130/11
108-90-7	Chlorobenzene	2500	2360	94	2370	95	0	83-114/10
75-00-3	Chloroethane	2500	5640	226* [a]	5460	218* [a]	3	67-141/12
67-66-3	Chloroform	2500	2170	87	2210	88	2	76-115/10
74-87-3	Chloromethane	2500	3690	148* [a]	4310	172* [a]	16* [b]	57-141/13
95-49-8	o-Chlorotoluene	2500	2200	88	2110	84	4	81-118/10
106-43-4	p-Chlorotoluene	2500	2150	86	2150	86	0	78-117/10
108-20-3	Di-Isopropyl ether	2500	2840	114	2860	114	1	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	2500	2150	86	2340	94	8	72-131/11
124-48-1	Dibromochloromethane	2500	2430	97	2500	100	3	80-128/10
106-93-4	1,2-Dibromoethane	2500	2380	95	2440	98	2	58-145/10
95-50-1	1,2-Dichlorobenzene	2500	2310	92	2340	94	1	83-117/10
541-73-1	1,3-Dichlorobenzene	2500	2230	89	2230	89	0	82-114/10
106-46-7	1,4-Dichlorobenzene	2500	2220	89	2220	89	0	79-114/10
75-71-8	Dichlorodifluoromethane	2500	2410	96	2280	91	6	49-146/13
75-34-3	1,1-Dichloroethane	2500	2470	99	2450	98	1	76-126/10
107-06-2	1,2-Dichloroethane	2500	2550	102	2600	104	2	76-118/10
75-35-4	1,1-Dichloroethene	2500	2380	95	2320	93	3	72-125/11
156-59-2	cis-1,2-Dichloroethene	2500	2470	99	2470	99	0	80-118/10
156-60-5	trans-1,2-Dichloroethene	2500	2290	92	2290	92	0	76-122/10
78-87-5	1,2-Dichloropropane	2500	2750	110	2760	110	0	82-123/10
142-28-9	1,3-Dichloropropane	2500	2420	97	2490	100	3	84-120/10
594-20-7	2,2-Dichloropropane	2500	2350	94	2390	96	2	66-130/11
563-58-6	1,1-Dichloropropene	2500	2430	97	2440	98	0	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	2500	2730	109	2750	110	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	2500	2510	100	2500	100	0	83-123/10
123-91-1	1,4-Dioxane	62500	59300	95	70400	113	17	64-163/20
60-29-7	Ethyl Ether	2500	2610	104	2690	108	3	78-131/10
100-41-4	Ethylbenzene	2500	2480	99	2470	99	0	83-115/10
87-68-3	Hexachlorobutadiene	2500	1860	74	1800	72	3	65-130/11
591-78-6	2-Hexanone	10000	13800	138	14800	148* [a]	7	73-138/10
98-82-8	Isopropylbenzene	2500	2500	100	2480	99	1	81-122/11
99-87-6	p-Isopropyltoluene	2500	2210	88	2220	89	0	80-120/10
1634-04-4	Methyl Tert Butyl Ether	2500	2630	105	2740	110	4	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	10000	12800	128	13700	137	7	71-138/10
74-95-3	Methylene bromide	2500	2560	102	2650	106	3	81-122/10
75-09-2	Methylene chloride	2500	2200	88	2160	86	2	73-122/10
91-20-3	Naphthalene	2500	2120	85	2350	94	10	71-129/14
103-65-1	n-Propylbenzene	2500	2160	86	2130	85	1	77-120/10
100-42-5	Styrene	2500	2670	107	2710	108	1	84-122/10
994-05-8	tert-Amyl Methyl Ether	2500	2760	110	2770	111	0	77-125/11
637-92-3	tert-Butyl Ethyl Ether	2500	2540	102	2600	104	2	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	2500	2490	100	2540	102	2	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	2500	2210	88	2290	92	4	75-127/10
127-18-4	Tetrachloroethene	2500	2250	90	2190	88	3	73-125/11
109-99-9	Tetrahydrofuran	2500	2960	118	3090	124	4	61-136/11
108-88-3	Toluene	2500	2410	96	2370	95	2	82-118/10
87-61-6	1,2,3-Trichlorobenzene	2500	2090	84	2210	88	6	68-132/13
120-82-1	1,2,4-Trichlorobenzene	2500	2110	84	2210	88	5	72-133/12
71-55-6	1,1,1-Trichloroethane	2500	2200	88	2250	90	2	77-124/11
79-00-5	1,1,2-Trichloroethane	2500	2390	96	2430	97	2	83-122/10
79-01-6	Trichloroethene	2500	2510	100	2480	99	1	80-122/10
75-69-4	Trichlorofluoromethane	2500	2520	101	2480	99	2	69-132/11
96-18-4	1,2,3-Trichloropropane	2500	2250	90	2360	94	5	80-120/10
95-63-6	1,2,4-Trimethylbenzene	2500	2200	88	2190	88	0	80-119/10
108-67-8	1,3,5-Trimethylbenzene	2500	2230	89	2190	88	2	79-120/10
75-01-4	Vinyl chloride	2500	4610	184* [a]	5260	210* [a]	13	60-144/13
	m,p-Xylene	5000	5020	100	5070	101	1	82-119/10
95-47-6	o-Xylene	2500	2510	100	2560	102	2	84-120/10
1330-20-7	Xylene (total)	7500	7530	100	7630	102	1	83-119/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3D8057-BS	3D192839.D	1	10/02/23	JN	n/a	n/a	V3D8057
V3D8057-BSD	3D192840.D	1	10/02/23	JN	n/a	n/a	V3D8057

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	95%	97%	80-124%
17060-07-0	1,2-Dichloroethane-D4	101%	103%	75-133%
2037-26-5	Toluene-D8	96%	96%	79-125%
460-00-4	4-Bromofluorobenzene	86%	86%	58-148%

(a) High percent recovery and no associated positive reported in the QC batch.
(b) Outside in house control limits.

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-BS	I252486.D	1	10/02/23	JN	n/a	n/a	VI10241
VI10241-BSD	I252487.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	200	278	139	282	141	1	52-156/12
71-43-2	Benzene	50	44.1	88	44.0	88	0	82-119/10
108-86-1	Bromobenzene	50	47.0	94	47.0	94	0	82-115/10
74-97-5	Bromochloromethane	50	48.1	96	48.8	98	1	82-123/10
75-27-4	Bromodichloromethane	50	46.8	94	46.4	93	1	83-121/10
75-25-2	Bromoform	50	52.0	104	52.0	104	0	74-138/10
74-83-9	Bromomethane	50	43.7	87	44.4	89	2	56-150/12
78-93-3	2-Butanone (MEK)	200	267	134	278	139* [a]	4	72-138/10
104-51-8	n-Butylbenzene	50	43.8	88	44.3	89	1	81-124/11
135-98-8	sec-Butylbenzene	50	42.9	86	43.4	87	1	78-120/10
98-06-6	tert-Butylbenzene	50	42.6	85	43.0	86	1	78-121/10
75-15-0	Carbon disulfide	50	43.2	86	42.6	85	1	67-131/11
56-23-5	Carbon tetrachloride	50	40.9	82	41.2	82	1	72-130/11
108-90-7	Chlorobenzene	50	46.4	93	46.7	93	1	83-114/10
75-00-3	Chloroethane	50	41.1	82	41.1	82	0	67-141/12
67-66-3	Chloroform	50	42.7	85	43.1	86	1	76-115/10
74-87-3	Chloromethane	50	41.0	82	40.8	82	0	57-141/13
95-49-8	o-Chlorotoluene	50	45.5	91	45.6	91	0	81-118/10
106-43-4	p-Chlorotoluene	50	44.8	90	44.7	89	0	78-117/10
108-20-3	Di-Isopropyl ether	50	46.1	92	46.3	93	0	66-138/10
96-12-8	1,2-Dibromo-3-chloropropane	50	52.8	106	50.7	101	4	72-131/11
124-48-1	Dibromochloromethane	50	48.4	97	48.2	96	0	80-128/10
106-93-4	1,2-Dibromoethane	50	49.3	99	49.7	99	1	58-145/10
95-50-1	1,2-Dichlorobenzene	50	45.7	91	46.3	93	1	83-117/10
541-73-1	1,3-Dichlorobenzene	50	44.4	89	44.7	89	1	82-114/10
106-46-7	1,4-Dichlorobenzene	50	45.6	91	45.8	92	0	79-114/10
75-71-8	Dichlorodifluoromethane	50	41.7	83	43.4	87	4	49-146/13
75-34-3	1,1-Dichloroethane	50	44.8	90	45.0	90	0	76-126/10
107-06-2	1,2-Dichloroethane	50	43.0	86	41.9	84	3	76-118/10
75-35-4	1,1-Dichloroethene	50	40.9	82	41.6	83	2	72-125/11
156-59-2	cis-1,2-Dichloroethene	50	45.7	91	46.8	94	2	80-118/10
156-60-5	trans-1,2-Dichloroethene	50	43.2	86	42.5	85	2	76-122/10
78-87-5	1,2-Dichloropropane	50	45.3	91	44.6	89	2	82-123/10
142-28-9	1,3-Dichloropropane	50	47.9	96	48.3	97	1	84-120/10
594-20-7	2,2-Dichloropropane	50	40.6	81	40.9	82	1	66-130/11
563-58-6	1,1-Dichloropropene	50	41.4	83	42.2	84	2	78-122/10

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* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-BS	I252486.D	1	10/02/23	JN	n/a	n/a	VI10241
VI10241-BSD	I252487.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	50	48.4	97	47.7	95	1	83-123/10
10061-02-6	trans-1,3-Dichloropropene	50	47.6	95	48.4	97	2	83-123/10
123-91-1	1,4-Dioxane	1250	1310	105	1360	109	4	64-163/20
60-29-7	Ethyl Ether	50	48.0	96	47.3	95	1	78-131/10
100-41-4	Ethylbenzene	50	44.5	89	44.8	90	1	83-115/10
87-68-3	Hexachlorobutadiene	50	43.1	86	43.2	86	0	65-130/11
591-78-6	2-Hexanone	200	251	126	245	123	2	73-138/10
98-82-8	Isopropylbenzene	50	43.7	87	44.6	89	2	81-122/11
99-87-6	p-Isopropyltoluene	50	43.8	88	43.9	88	0	80-120/10
1634-04-4	Methyl Tert Butyl Ether	50	45.6	91	46.4	93	2	75-126/12
108-10-1	4-Methyl-2-pentanone(MIBK)	200	229	115	226	113	1	71-138/10
74-95-3	Methylene bromide	50	48.3	97	48.1	96	0	81-122/10
75-09-2	Methylene chloride	50	44.9	90	44.8	90	0	73-122/10
91-20-3	Naphthalene	50	46.5	93	46.6	93	0	71-129/14
103-65-1	n-Propylbenzene	50	44.1	88	44.9	90	2	77-120/10
100-42-5	Styrene	50	48.9	98	48.9	98	0	84-122/10
994-05-8	tert-Amyl Methyl Ether	50	47.8	96	48.5	97	1	77-125/11
637-92-3	tert-Butyl Ethyl Ether	50	46.5	93	47.2	94	1	75-131/10
630-20-6	1,1,1,2-Tetrachloroethane	50	48.2	96	49.0	98	2	81-125/10
79-34-5	1,1,2,2-Tetrachloroethane	50	46.2	92	46.3	93	0	75-127/10
127-18-4	Tetrachloroethene	50	42.3	85	42.5	85	0	73-125/11
109-99-9	Tetrahydrofuran	50	50.4	101	49.2	98	2	61-136/11
108-88-3	Toluene	50	43.8	88	43.7	87	0	82-118/10
87-61-6	1,2,3-Trichlorobenzene	50	47.0	94	46.4	93	1	68-132/13
120-82-1	1,2,4-Trichlorobenzene	50	46.1	92	46.4	93	1	72-133/12
71-55-6	1,1,1-Trichloroethane	50	41.7	83	42.5	85	2	77-124/11
79-00-5	1,1,2-Trichloroethane	50	49.1	98	49.7	99	1	83-122/10
79-01-6	Trichloroethene	50	43.4	87	43.4	87	0	80-122/10
75-69-4	Trichlorofluoromethane	50	43.1	86	44.4	89	3	69-132/11
96-18-4	1,2,3-Trichloropropane	50	49.1	98	51.5	103	5	80-120/10
95-63-6	1,2,4-Trimethylbenzene	50	44.5	89	44.8	90	1	80-119/10
108-67-8	1,3,5-Trimethylbenzene	50	44.6	89	45.7	91	2	79-120/10
75-01-4	Vinyl chloride	50	40.0	80	39.5	79	1	60-144/13
	m,p-Xylene	100	91.9	92	94.4	94	3	82-119/10
95-47-6	o-Xylene	50	47.3	95	47.7	95	1	84-120/10
1330-20-7	Xylene (total)	150	139	93	142	95	2	83-119/10

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI10241-BS	I252486.D	1	10/02/23	JN	n/a	n/a	VI10241
VI10241-BSD	I252487.D	1	10/02/23	JN	n/a	n/a	VI10241

The QC reported here applies to the following samples: **Method:** SW846 8260D

JD73885-1, JD73885-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	102%	102%	80-124%
17060-07-0	1,2-Dichloroethane-D4	90%	89%	75-133%
2037-26-5	Toluene-D8	99%	99%	79-125%
460-00-4	4-Bromofluorobenzene	97%	99%	58-148%

(a) Outside in house control limits.

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* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std:	V3D8057-CC8035	**Injection Date:**	10/02/23
Lab File ID:	3D192838.D	**Injection Time:**	09:43
Instrument ID:	GCMS3D	**Method:**	SW846 8260D

	IS 1		**IS 2**		**IS 3**		**IS 4**		**IS 5**	
	AREA	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**
Check Std	186719	2.69	368940	3.86	692479	4.40	642028	6.76	301169	8.94
Upper Limit [a]	373438	3.19	737880	4.36	1384958	4.90	1284056	7.26	602338	9.44
Lower Limit [b]	93360	2.19	184470	3.36	346240	3.90	321014	6.26	150585	8.44

Lab	**IS 1**		**IS 2**		**IS 3**		**IS 4**		**IS 5**	
Sample ID	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**
V3D8057-BS	205180	2.69	401579	3.86	719658	4.40	684057	6.76	341518	8.94
V3D8057-BSD	237685	2.69	409138	3.86	748328	4.40	712334	6.76	366667	8.94
V3D8057-MB	183939	2.70	389205	3.86	703100	4.40	657004	6.76	300498	8.94
JD73885-2	177159	2.70	355277	3.86	642622	4.40	604239	6.76	277731	8.94
ZZZZZZ	184792	2.70	358750	3.86	642147	4.40	599609	6.76	280740	8.94
ZZZZZZ	174421	2.70	353366	3.86	638682	4.40	583340	6.76	273745	8.94
ZZZZZZ	175728	2.70	350980	3.86	633892	4.40	596969	6.76	279736	8.94
ZZZZZZ	179514	2.71	353306	3.86	635256	4.40	592488	6.76	275693	8.94
JD73677-3	186352	2.70	349844	3.86	624273	4.40	584328	6.76	277335	8.94
ZZZZZZ	195484	2.70	358814	3.86	644661	4.40	605611	6.76	281768	8.94
ZZZZZZ	178460	2.70	348853	3.86	622701	4.40	593198	6.76	278256	8.94
ZZZZZZ	180820	2.69	363287	3.86	647344	4.40	625206	6.76	322290	8.94
ZZZZZZ	179049	2.69	356911	3.86	662512	4.40	667779	6.76	374412	8.94
ZZZZZZ	188313	2.69	358541	3.86	654378	4.40	674066	6.76	378582	8.94
ZZZZZZ	196113	2.69	364814	3.86	669805	4.40	669303	6.76	377795	8.94
ZZZZZZ	212569	2.69	364387	3.86	656514	4.40	622276	6.76	291238	8.94
ZZZZZZ	173678	2.70	363419	3.86	708581	4.40	941417	6.76	525334	8.94
ZZZZZZ	219245	2.70	433868	3.86	836355	4.40	957837	6.76	489250	8.94
ZZZZZZ	231736	2.70	463212	3.86	967855	4.40	1117728	6.76	556961	8.94
JD73677-3MS	269434	2.71	488370	3.86	879908	4.40	799292	6.76	422176	8.94
JD73677-3MSD	240639	2.71	443835	3.86	802436	4.40	767622	6.76	416010	8.94
ZZZZZZ	198222	2.69	393634	3.86	716315	4.40	668709	6.76	309422	8.94
JD73885-1	180484	2.70	357268	3.86	653798	4.40	617686	6.76	295141	8.94
ZZZZZZ	175166	2.70	357147	3.86	645467	4.40	611363	6.76	291409	8.94

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Internal Standard Area Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Check Std: VI10241-CC10232
Lab File ID: I252484.D
Instrument ID: GCMSI
Injection Date: 10/02/23
Injection Time: 09:42
Method: SW846 8260D

	IS 1		**IS 2**		**IS 3**		**IS 4**		**IS 5**	
	AREA	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**
Check Std	164566	4.45	597835	5.54	931418	6.07	696940	7.99	329412	9.52
Upper Limit [a]	329132	4.95	1195670	6.04	1862836	6.57	1393880	8.49	658824	10.02
Lower Limit [b]	82283	3.95	298918	5.04	465709	5.57	348470	7.49	164706	9.02

Lab	**IS 1**		**IS 2**		**IS 3**		**IS 4**		**IS 5**	
Sample ID	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**	**AREA**	**RT**
VI10241-BS	181632	4.45	597662	5.54	916692	6.07	715395	7.99	342639	9.52
VI10241-BSD	179267	4.45	594237	5.54	924958	6.07	714507	7.99	339297	9.52
VI10241-MB	173933	4.45	579549	5.55	919937	6.07	709823	7.99	314991	9.52
ZZZZZZ	162121	4.45	550836	5.55	892610	6.07	686333	7.99	303577	9.52
JD73885-3	159858	4.45	549580	5.55	885698	6.07	690550	7.99	300608	9.52
JD73885-1	173369	4.45	561609	5.55	883544	6.08	721914	7.99	318363	9.52
JD73769-1	168837	4.45	560352	5.55	899489	6.07	709408	7.99	315994	9.52
JD73769-2	164503	4.45	550091	5.55	898837	6.07	698194	7.99	307772	9.52
ZZZZZZ	174943	4.45	559715	5.55	915222	6.07	723902	7.99	321068	9.52
ZZZZZZ	170718	4.45	526442	5.55	868972	6.07	663109	7.99	278383	9.52
ZZZZZZ	170288	4.45	539359	5.55	893888	6.07	695473	7.99	306681	9.52
ZZZZZZ	131473	4.45	501061	5.55	819300	6.07	609057	7.99	233059	9.52
JD73769-2MS	157449	4.45	604783	5.55	954299	6.07	751475	7.99	355637	9.52
JD73769-1DUP	179386	4.45	591737	5.54	943798	6.07	732737	7.99	327125	9.52
ZZZZZZ	177740	4.45	571592	5.54	911253	6.07	714647	7.99	315866	9.52
ZZZZZZ	178589	4.45	580802	5.54	929000	6.07	722246	7.99	316405	9.52
ZZZZZZ	175428	4.45	580459	5.54	933198	6.07	726996	7.99	325540	9.52
ZZZZZZ	170521	4.45	583884	5.54	936784	6.07	712557	7.99	310588	9.52
ZZZZZZ	164023	4.45	586490	5.54	938810	6.07	722155	7.99	312836	9.52
ZZZZZZ	156298	4.45	580105	5.54	927021	6.07	706823	7.99	308242	9.52
ZZZZZZ	177557	4.45	582639	5.54	924946	6.07	712871	7.99	312894	9.52
ZZZZZZ	171179	4.45	581434	5.54	920752	6.07	702447	7.99	301555	9.52
ZZZZZZ	167965	4.45	573937	5.54	915532	6.07	696674	7.99	302013	9.52
ZZZZZZ	168968	4.45	577508	5.55	916458	6.07	707774	7.99	310494	9.52
ZZZZZZ	165132	4.45	577831	5.55	914009	6.07	701060	7.99	303297	9.52

IS 1 = Tert Butyl Alcohol-D9
IS 2 = Pentafluorobenzene
IS 3 = 1,4-Difluorobenzene
IS 4 = Chlorobenzene-D5
IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Surrogate Recovery Summary

Job Number: JD73885
Account: JACOBMAB Jacobs Engineering
Project: Varian, Beverly, MA

Method: SW846 8260D **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JD73885-1	3D192866.D	90	99	95	86
JD73885-1	I252492.D	107	99	97	96
JD73885-2	3D192846.D	89	100	95	88
JD73885-3	I252491.D	106	95	97	97
V3D8057-BS	3D192839.D	95	101	96	86
V3D8057-BSD	3D192840.D	97	103	96	86
V3D8057-MB	3D192842.D	91	100	95	90
VI10241-BS	I252486.D	102	90	99	97
VI10241-BSD	I252487.D	102	89	99	99
VI10241-MB	I252489.D	106	95	98	97

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	80-124%
S2 = 1,2-Dichloroethane-D4	75-133%
S3 = Toluene-D8	79-125%
S4 = 4-Bromofluorobenzene	58-148%

Appendix D
Health and Safety Plan

Varian Medical Systems
Project Health, Safety and Environment Plan

Beverly, Essex County, Massachusetts

October 2023

Varian Medical Systems

Approvals

This Project Health, Safety, and Environment Plan (PHSEP) has been written for use by Jacobs only. Jacobs claims no responsibility for its use by others unless that use has been specified and defined in project or contract documents. The plan is written for the specific project and site conditions and identified scope(s) of work and must be amended if those conditions or scope(s) of work change.

By approving this PHSEP, the Project Health and Safety Lead, or Project Health and Safety Manager (HSM) certifies that the personal protective equipment has been selected based on the task hazard/impact identification and risk assessment (HIIRA).

Author:	Sandra Wise
Project Health and Safety Manager Approval:	Sandra Wise, CSP, CHMM
Project Manager Approval:	Lauren McKinlay, Raymond Cadorette
Contract Number:	

Document history and status

Revision	Date	Description of Revisions	Author	Approved By/Title:
0	5/16/23	Initial document	Sandra Wise	Sandra K. Wise Health and Safety Manager Project Manager
1	6/23/23	Add O&M task for monitoring of residential vapor intrusion system	Sandra Wise	Sandra K. Wise Health and Safety Manager Project Manager
2	7/24/23	Add vapor pin installation/utility locating tasks	Sandra Wise	Sandra K. Wise Health and Safety Manager Raymond Cadorette via email Project Manager
3	8/10/23	Add drilling, soil gas study activities	Sandra Wise	Sandra K. Wise Project Manager

Revision	Date	Description of Revisions	Author	Approved By/Title:
4	10/12/23	Addition of seep mat installation/hazards/controls	Sandra Wise	Sandra L. Wise
				Health and Safety Manager
				Raymond Cadorette via email
				Project Manager

Contents

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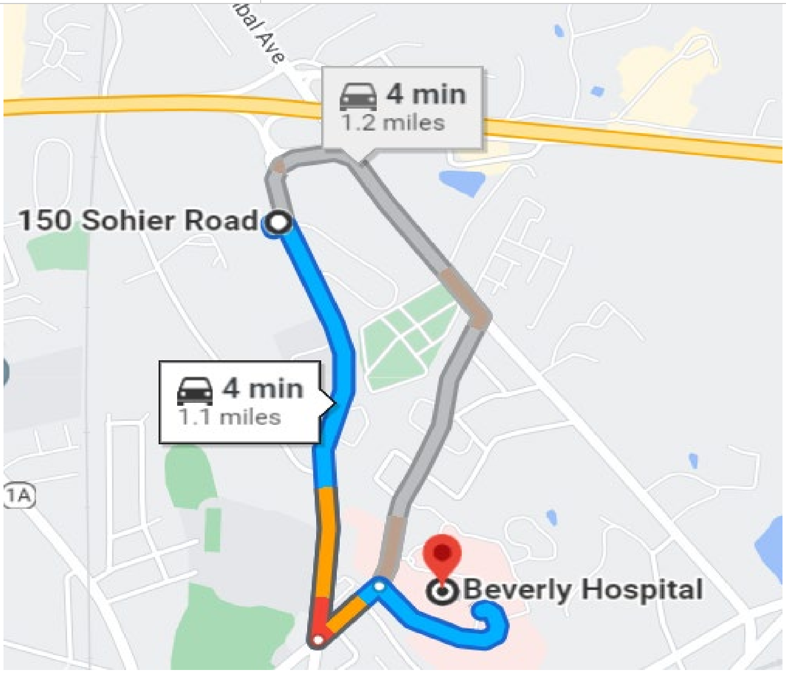
Project Emergency Contacts

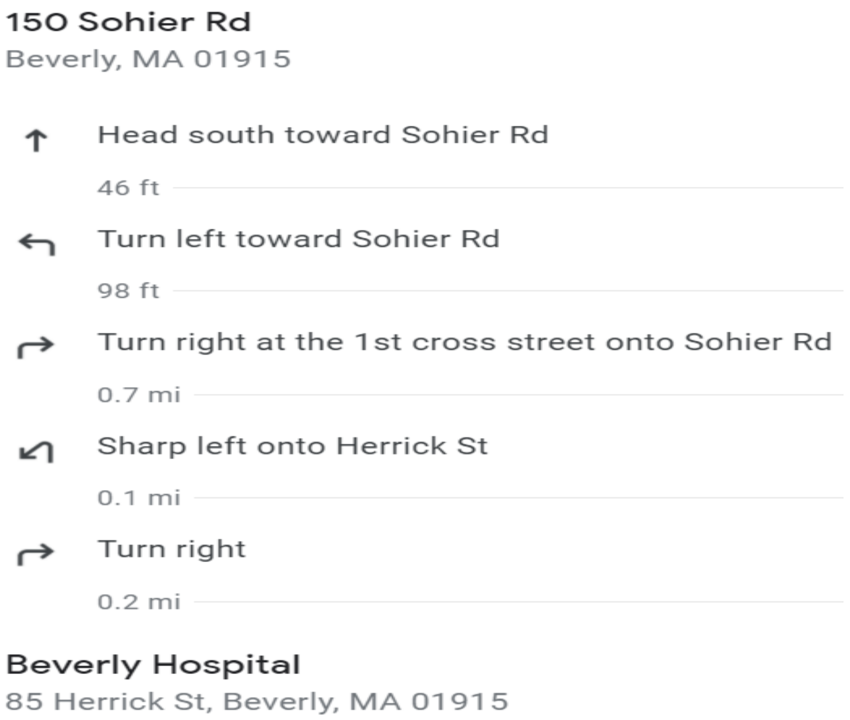
WorkCare 24-hour Injury Care – 1-888-449-7787

Medical Emergency—911 See local hospital information and route to hospital below	**Non-Emergency medical Injuries** (no matter how minor) WorkCare: 1-888-449-7787 (call as soon as injury occurs—they will find an occupational clinic if clinic is needed)
Fire/Spill Emergency—911 **Security & Police—911**	**Utilities Emergency Phone Numbers** Water: 911 Gas: 911 Electric: 911
Jacobs Project Manager (PM) Name: Lauren McKinlay Phone: (781) 413-6589 Name: Raymond Cadorette Phone: (774) 571-1183 **Jacobs Site Manager** Name: Laurent Levy Phone: (617) 417-5340	**Jacobs Project Health and Safety Manager (HSM)** Name: Sandra Wise; or Mark Orman Phone: (303) 944-5214; (414) 712-4138
Jacobs Deputy Site Manager Name: Raymond Cadorette Phone: (774) 571-1183	**Jacobs Safety Liaison (SL)** Name: Deirdre Kearney Phone: (781) 710-4276 Name: Steve Fox Phone: 508-250-3399
Jacobs US Security Officer Name: Keith Waddell Phone: 214-920-8327	**Jacobs Project Environmental Manager and Waste Coordinator** Name: Beth Vaughan Phone: (334) 734-4489
Automobile Accidents **Rental**: Vehicle Accident Form required to be sent to AutoClaims@jacobs.com (see Vehicle Accident Guidance attached to this plan) **Fleet Vehicle**: Karyna Zarate 281-721-8634	**Media Inquiries Corporate Strategic Communications** Name: Kerrie Sparks Phone: 214-583-8433 **Human Resources Department** Submit a request through Global People Services on Jacobs Connect Workman's Compensation Claims: WCClaims@jacobs.com
Facility/Site Alarms: TBD by SL upon mobilization **Facility/Site Evacuation Route(s):** TBD by SL upon mobilization **Evacuation Assembly Areas(s):** TBD by SL upon mobilization	**Federal Express Dangerous Goods Shipping** Phone: 800-238-5355 **Jacobs Contact for Dangerous Goods Shipping** Name/Phone: Chris Heckler/484-661-6494 **CHEMTEL (hazardous material spills)** Phone: 800-255-3924

Directions and Map to Local Hospital

Beverly Hospital 85 Herrick St, Beverly, MA 01915 Phone: 978-922-3000	**Local Occupational Clinic (Consult with WorkCare prior to any clinic visit)** **WorkCare**: 1-888-449-7787 (call as soon as injury occurs) :





150 Sohier Rd
Beverly, MA 01915

↑ Head south toward Sohier Rd

46 ft

↰ Turn left toward Sohier Rd

98 ft

↱ Turn right at the 1st cross street onto Sohier Rd

0.7 mi

↲ Sharp left onto Herrick St

0.1 mi

↱ Turn right

0.2 mi

Beverly Hospital
85 Herrick St, Beverly, MA 01915

Applicability

This PHSEP applies to:

All Jacobs staff, including subcontractors and tiered subcontractors of Jacobs working on the site;

- All visitors to Jacobs construction or remediation sites in the custody of Jacobs (including, but not limited to, visitors from the Client, the Government, or the public,).
- In addition, subcontractors and tiered subcontractors shall also follow any of their company HSE programs, and site-specific PHSEPs and task hazard/impact identification and risk assessment (HIIRA) (e.g., activity or job hazard analyses). Even though this plan applies to non-Jacobs personnel as stated above, each employer is ultimately responsible for the health, safety, and well-being of their employees.

This PHSEP does not apply to the third-party contractors, their workers, their subcontractors, their visitors, or any other persons not under the direct control or custody of Jacobs.

The objective of this PHSEP is to ensure that project hazards and environmental impacts are eliminated or mitigated through the identification of hazards, environmental impacts assessment of risk and the application of effective control measures and to achieve a safe and healthy workplace for ourselves and subcontractor to whom we have a legal and moral duty of care. Further, there is a requirement to ensure that our activities are conducted in an environmentally friendly and responsible manner.

Jacobs has undertaken a structured hazard/impact identification and risk assessment process and shall implement a Safe System of Work (SSoW) for delivery of our services on this project. As part of the SSoW, this PHSEP defines the procedures and requirements for the health and safety of staff and visitors when they are physically on the work site. The work site includes the project area (as defined by the contract documents) and the project offices, trailers, and facilities thereon.

This PHSEP will be kept onsite during field activities and will be reviewed, as necessary. The PHSEP will be reviewed at least annually and revised as project activities or conditions change or when supplemental information becomes available. The PHSEP adopts, by reference, the Jacobs Business Management System Global Health, Safety and Environment (HSE) and People and Places Solutions (P&PS) HSE Procedures and Work Instructions, as appropriate. In addition, applicable requirements contained in the Jacobs Federal and Environmental Services (F&ES) Field Handbook (Handbook) will be implemented. The Handbook is attached to this PHSEP. The PHSEP may adopt procedures from the project Work Plan and any governing regulations. If there is a contradiction between this PHSEP and any governing regulation, the more stringent and protective requirement shall apply.

All staff and subcontractors must sign the employee sign-off form (Attached to this PHSEP) to acknowledge review of this document. Copies of the signature page will be maintained onsite by the Safety Liaison (SL).

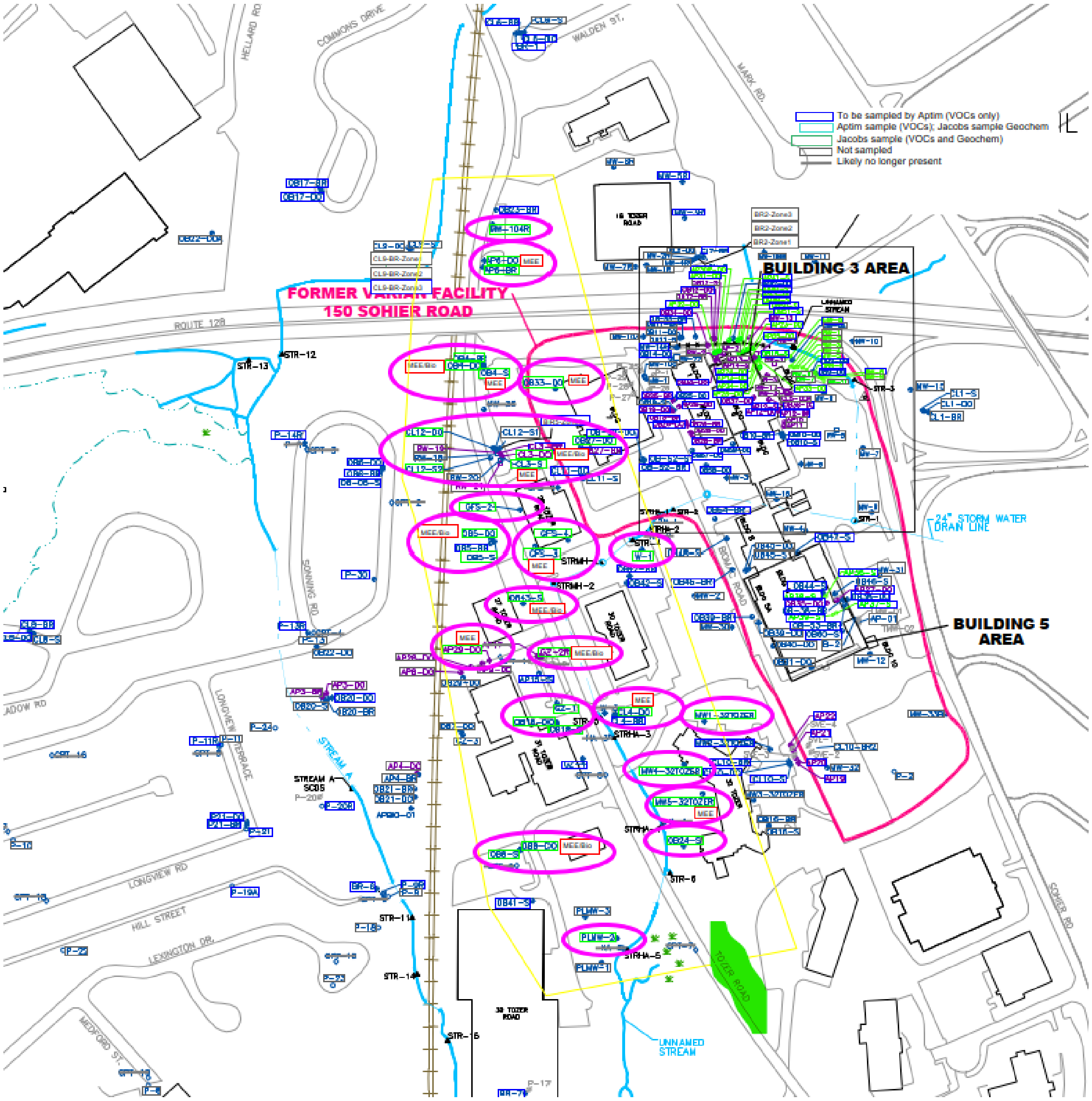
1. General Project Information

1.1 Project Information and Background

Project Number: VARMS106; VARMS108; VARMS 111	Project/Site Name: Varian Medical Systems
Client: Varian Medical Systems	Site Address: 150 Sohier Road in Beverly, Essex County, Massachusetts
Date HSE Plan Prepared: 05-2023; Updated 10-2023	Date(s) of Site Work: 05/22/23 – 05/01/24

1.2 Site Background, Setting and Map

The former Varian facility is located at 150 Sohier Road in Beverly, Essex County, Massachusetts. The facility and surrounding area are shown below.



The facility is located on approximately 24 acres of land and contains four large complexes of buildings covering approximately 250,000 square feet. The facility's southern portion includes an open field and a paved parking area. The central portion of the Site includes a building complex (Buildings 5, 5A, 8, and 10) (referred to as the Building 5 complex). North of the Building 5 complex is a paved parking area and to the northwest is another building complex (Buildings 1, 2, 3, 4, and 6) (referred to as the Building 3 complex). Northeast of the Building 3 complex is a wastewater treatment plant in Building 9. West of the Building 3 complex is former Building 7, which is now operated as Kelly Classics and Restoration. Presently, Communications & Power Industries, Inc. (CPI) maintains the use of Buildings 1 through 6, 8, 9, and 10 and other structures at the 150 Sohier Road property.

Information about historical industrial processes and subsurface analytical data from Potential Source Location (PSL) investigations indicated that the contaminants of concern (COCs) at the Site are chlorinated volatile organic compounds (VOCs). Trichloroethene (TCE), tetrachloroethene (PCE), and 1,1,1-trichloroethane (1,1,1-TCA) were the three primary chlorinated solvents historically used at Varian's former facility. Eight COCs were identified for the Site including the three parent compounds, TCE, PCE, 1,1,1-TCA, and five common degradation ("daughter") compounds, cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), and vinyl chloride (VC).

Releases of VOCs appear to have occurred in PSL-5 (former Building 1 septic tank/leach field), PSL-6 (former septic tank/leach field beneath Building 6), and PSL-11 (Building 3 chemical laboratory). These PSLs are collectively referred to as the Building 3 Source Area. Releases of VOCs appear to have also occurred at PSL-7 (Building 5 chemical laboratory), which is referred to as the Building 5 Source Area. Additionally, VOC releases seem to have occurred at PSL-10 (open field), primarily on the western property line near 32 Tozer Road. This location is referred to as the PSL-10 Source Area.

Tozer Road is located approximately 500 feet to the west of the facility western property boundary. It runs northwest to southeast. Tozer Road is hydraulically downgradient of the facility and generally perpendicular to the groundwater flow direction.

The objective of the sampling event is to collect groundwater samples along Tozer Road to assess groundwater COC concentrations and geochemical conditions downgradient of the former Varian facility. A synoptic water level survey will also be conducted. The results will be used to develop remedial strategies and designs for the Tozer Road area.

On November 5, 2021, the Massachusetts Department of Environmental Protection (MassDEP) was orally notified by APTIM of concentrations of trichloroethene (TCE) in subs-lab soil gas above the MassDEP Residential Threshold Value (TV) and soil gas concentrations above the MassDEP Residential Sub-Slab Soil Gas Screening Level at the 34 Longview Drive property. Although a condition of No Significant Risk continues to exist at the property, a sub-slab depressurization system (SSDS) was installed at the 34 Longview Drive property to limit the potential for TCE concentrations in indoor air above the MassDEP Residential TV.

The SSDS process utilizes a vacuum blower which induces negative pressure on extraction nodes to create a zone of negative pressure beneath a portion of the building floor slab (referred also as pressure field extension [PFE]), largely focused on the highest concentration of sub-slab VOCs. Sub-slab soil gas is drawn under vacuum from the nodes and into a conveyance pipe where the airflow is routed under vacuum through a regenerative blower (fitted with a variable-frequency drive [VFD]) outside of the building. And then under positive pressure, airflow passes through an exhaust stack to discharge above the roofline. The system installed at the property has three nodes (two which extend through the slab of the building and one affixed to the sump pump) and three vapor monitoring points (vapor pins) to assess overall performance of the system. Final system design will be confirmed during the startup visits.

1.3 Description of Tasks

Below is a description of the tasks covered by this plan. Any additions or changes in scope will require a revision to this PHSEP; see Change Management below.

Scope of work covered by this PHSEP includes:

- Groundwater sampling across the site
- Waste Management
- Monitoring of the SDSS at 34 Longview Drive
- MiP drilling on Tozer Road
- Monitoring well installation
- Soil gas vapor study on Varian property
- Site walks, biological surveys
- Vapor pin installation and monitoring at select residences
- Seep mat installation (subcontractor)
- Utility locating for intrusive work (subcontractor)
- Surveying (subcontractor)

1.4 Change Management

Changes to this PHSEP shall be documented and approved by the HSM for the project. The following are examples of changes that may require a revision to the plan:

- Change in staff listed by name in this plan;
- New subcontractor to perform work;
- New chemicals brought to site for use;
- Change in scope or addition of new tasks;
- Change in contaminants of concern (COCs) or change in concentrations of COCs;
- New hazards or hazards not previously identified that are not addressed in this PHSEP; and
- New environmental impacts or environmental impacts not previously identified that are not addressed in this PHSEP.

1.5 Changes to Project Health, Safety and Environment Plans

Changes to the PHSEP shall be documented and accepted by using the Health and Safety Field Change Request (FCR) form (included in Attachments) or by resubmitting a revised PHSEP for acceptance. A revised PHSEP should be produced when several changes using FCRs have been issued. The Project Manager (PM) and HSM shall be responsible for the review and acceptance of the FCR, and the HSM will maintain an FCR log of approved changes. FCRs are not required for safety-related changes that a Safety Liaison (SL) or HSM would normally make in the field, such as upgrade or downgrade to PPE within pre-established action levels, expansion or reduction of work control zones based on air monitoring results, and similar changes made within the operating parameters of the PHSEP. The field copy of the PHSEP shall be kept up to date by annotating the appropriate section to indicate that an FCR is in effect; copies of FCRs should be kept with the PHSEP. The FCR number must be referenced in the PHSEP and available for review.

1.6 Daily Safety Meetings and Point of Work Risk Assessments

Daily safety meetings are a means to coordinate project HSE activities and review HSE performance on a regular basis. Daily safety meetings are to be held with all project personnel in attendance, including subcontractors, to review the hazards, controls, and task HIIRAs that apply for each day's activities, as well as any environmental impacts, requirements and/or best management practices. Site supervisors/Field Team Leads (FTL) shall lead the daily safety meeting. Everyone involved in the day's work needs to participate and sign a sign-in form to show they've attended the meeting.

Point of Work Risk Assessments (POWRAs) (previously known as Safe Plan of Action or Pre-Task Safety Plans) shall be completed by individual crews to focus on those hazards and environmental impacts posed by their specific work, taking into account field conditions and/or hazards at the point of work. If a POWRA shows an unacceptable level of risk, field crew shall contact the PM and HSM.

A copy of the POWRA, form is included as an Attachment to this PHSEP.

1.7 Readiness Review

The PM shall complete a HSE readiness review with the project site supervisor, SL, HSM, and EM prior to field work. The readiness review shall discuss work scope, schedule, equipment, safety plan, training, hazards and controls.

1.8 StepBack Process

(Reference BMS Procedure JJ-HS-PR-0300-G-01, *BeyondZero StepBack*)

The StepBack process applies to all Jacobs employees and subcontractors that are performing tasks in an office or at a site location. It is a critical thinking process to supplement HSE planning tools such as the POWRA, task HIIRA, and PHSEPs and should be applied at the start of shift, after a break, when the task or location change, when adjacent work may present additional hazards, or any other hazard or change to task is identified. The StepBack questions are included as an attachment to this plan. See the Handbook for additional information.

2. Management of Subcontractors to Jacobs

Currently no subcontractors are part of this effort. If waste disposal becomes necessary, this plan will be updated.

2.1 Procurement and pre-start

The Project Manager subcontracting any field or site-based work activity will take reasonably practicable steps to ensure that our subcontractor is competent and able to carry out work safely before they start work. Specifically, they will:

- Ensure subcontractors are pre-qualified for health and safety and environmental activities
- Carry out competency checks i.e., view safety policy, risk assessments, ascertain experience, technical knowledge & competence
- Provide the subcontractor with information on foreseeable hazards and the controls required by Jacobs
- Communicate Jacobs HSE expectations in our subcontract and at start-up
- Discuss job/safety requirements and coordinate work activities
- Request and review the subcontractor's task/location specific safe systems of work and risk assessments
- Ensure that the subcontractors' personnel are briefed on their own risk assessments and safe systems of work
- Coordinate work activities which may require an emergency response with the Client Representative

- In coordination with the HSM, determine level of supervision to be provided by subcontractor and Jacobs. A level of Jacobs oversight of subcontractors for all field tasks is expected. If oversight has not been coordinated, work must pause until a risk mitigation plan is in place prior to commencing with the work. The plan is developed by the HSM in coordination with the PM.
- Provide a Jacobs induction
- Ensure a Client induction is given where required

2.2 During work

The Project Manager will:

- Ensure that our subcontractor attends a pre shift briefing and has completed a point of work risk assessment immediately before commencement of work
- Monitor our subcontractor when they are working (in proportion to the risk)
- Hold our subcontractor accountable for any substandard HSE performance.

2.3 After work

The Project Manager will review and document the subcontractor's performance and consider:

- Was subcontractor satisfactory?
- Was our risk assessment valid?
- Any changes for future use with this subcontractor?

2.4 Subcontractor HSE Chartering Meeting

(Reference P&PS Work Instruction, IB-HS-WI-0520, Health, Safety, and Environmental Requirements for Subcontractors)

A subcontractor HSE chartering meeting shall be held with subcontractors performing field work on the project. The purpose of the meeting is to discuss and agree on key HSE requirements on a project, and to emphasize and reinforce expectations for subcontractor HSE performance. The target audience includes key project staff with HSE responsibilities (e.g., PM, HSM, SL, EM FTL) and key subcontractor staff (e.g., project manager, supervisors, designated field HSE contact, drill team leads, foreman). The subcontractor crew members should attend if available. The meeting should be held prior to mobilization with enough time to ensure that HSE issues identified can be addressed prior to the start of work. The meeting can be held over the phone or in person depending on project needs. An example agenda can be found attached to this PHSEP, titled "Site Work HSE Pre-Start Meeting Agenda."

3. Project HSE Objective Targets and Indicators

All project personnel and its visitors are to strive to meet the project-specific HSE goals outlined below.

- Project management to demonstrate a top-down commitment to HSE
- Create an incident-free environment
- Establish and share the BeyondZero® culture
- Accomplish zero loss incidents (e.g., injuries, spills, vehicle incidents property damage)
- Reduce risks to our health and the environment by identifying, assessing, and mitigating hazards and environmental impacts.
- Continually improve project environmental performance (e.g., reduce number of spills, achieve compliance with any applicable environmental permit)
- Ensure 100% participation in training programs, conformance to company requirements and HSE compliance
- 100% participation in safety meetings
- 100% on-schedule completion of environmental, safety and security corrective actions from audits or incidents
- Achieve recognition from the client for outstanding performance
- Participate in the BZO process and strive for recognition in the BZO of the month awards.
- Recognize project and subcontractor HSE excellence through project or corporate reward and recognition programs.

4. Project Organization and Responsibilities

A full description of responsibilities, including Employee Responsibilities and Authority, can be found in the Handbook, Section 3, "Roles and Responsibilities."

4.1 Client

Facility Contact Name:	Matt Gillis, Varian Program Manager
Phone:	(410) 459-1710

4.2 Jacobs

Project Manager
PM Name: Lauren McKinlay; Raymond Cadorette
Office: BOS
Cellular Number: 781-413-6589; 774-571-1183

Environmental Manager
EM Name: Beth Vaughan
Office: PNS
Cellular Number: 334-734-4489

Responsible Health and Safety Manager
Project HSM Name: Sandra Wise or Mark Orman
Office: DEN/KNV
Cellular Number: 303-944-5214/414-712 4138

Safety Liaison
FTL Name: Deirdre Kearney
Office: BOS
Cellular Number: 781-710-4276

Manager of Projects
MoP Name: Garth Colvin
Office: DET
Telephone number: 517-290 6405

Field Team Lead
FTL Name: Deirdre Kearney
Office: BOS
Telephone number: 781-710-4276

Safety Liaison
MoP Name: Steve Fox
Office: BOS
Telephone number: 508-250-3399

4.3 Subcontractors

Subcontractor: GPRS
Scope: Utility locating
Contact Name: Tom Mell
Contact number: (617) 448-8098

Subcontractor: Geo Logic Earth Explorations(PRL-10)
Scope: Geoprobe soil gas installation
Contact Name: Phil Mealy
Contact number: (508) 384-4434

Subcontractor: A1 Plus Construction Services
Scope: Surveying
Contact Name: Michael Coleman
Contact number: 781-681-6667

Subcontractor: Cascade
Scope: Monitoring Well Installation
Contact Name: Rob Danckert
Contact number: (508) 581-9880

Subcontractor: US Ecology (RSI)
Scope: Seep Mat Installation
Contact Name: Tim Warr
Contact number: 603-770-2988

Subcontractor: TBD
Scope: Traffic Control – Tozer Road
Contact Name:
Contact number:

4.4 Client Contractors

Client Contractor: APTIM
Contact Name:
Telephone number:
Cellular Number:

Client Contractor:
Contact Name:
Telephone number:
Cellular Number:

This PHSEP does not cover contractors that are contracted directly to the client or the owner. Jacobs is not responsible for the health and safety or means and methods of the client contractor’s work, and we must never assume such responsibility through our actions (such as advising on health and safety issues).

5. Task Hazard/Impact Identification and Risk Assessment

(See P&PS Work Instruction IB-HS-WI-0101-IB, P&PS Risk Assessment and Safety System of Work)

As part of the SSoW, a hazard identification and environmental impact risk assessment (HIIRA) must be undertaken for all tasks performed by Jacobs and their subcontractors. A task hazard/impact identification (Table 1) has been completed for this project. Specific project tasks are listed in Table 1 with a designation of who could be affected by the hazards associated with the task; Jacobs, subcontractor, or both. The environmental impacts are also included in the table and visitors and members of the public, when on or near the site, will be assumed to be affected by the same hazards and impacts as Jacobs or subcontractor personnel. Initial risk and residual risk associated with the hazards identified below shall be documented in the task HIIRA form (see attachments for form). Visitors that are trained and qualified to enter the work area must be escorted and briefed on the hazards they may be exposed to by reviewing applicable portions of the PHSEP and task HIIRAs.

The SSoW to mitigate these hazards includes:

- The hazard control sections listed in this plan (or referred to in the Handbook)
- The task HIIRA for each project task listed in Table 1; and
- The POWRA performed by the workers prior to performing the task.

Jacobs' task HIIRAs for the tasks below are attached to this plan. Jacobs' subcontractors are required to submit a similar SSoW (e.g., job or activity hazard analyses, HSE plan) specific to their scope of work for acceptance by Jacobs prior to the start of work. Additions or changes in field activities, equipment, tools, or material used to perform work or hazards not addressed requires an updated to be prepared and reviewed by Jacobs.

Table 1: Project Tasks and Associated Hazards and Environmental Impacts

	Project Activity					
Associated Hazard Section	**Site walks, surveys, GW sampling and water level measurements**	**Waste Management**	**SSDS Monitoring 34 Lawnview Drive**	**Vapor Pin Installation and Utility Locating**	**Soil Gas Installation, Monitoring Well Installation MiP Drilling**	**Seep Mat Installation**
General Hazards – Refer to General Hazards and Controls in the F&ES HSE Field Handbook, Section 5, or Jacobs BMS HSE Procedures and Work Instructions (where noted by "BMS")						
Bloodborne Pathogens (if first aid is rendered)	J	J	J	J, S	J, S	J, S
Chemical and Petroleum Storage	J	J			J, S	J, S
Driving Safety ***(Critical Risk – Driving)***	J	J	J	J, S	J, S	J, S
Electrical Safety ***(Critical Risk – Electrical Work)***	J		J	J, S	J, S	J, S
Extended Work Hours & Fatigue Management					J, S	J, S
Field Ergonomics and Manual Lifting	J	J	J	J, S	J, S	J, S
Field Vehicles ***(Critical Risk – Driving)***	J	J	J	J, S	J, S	J, S

Table 1: Project Tasks and Associated Hazards and Environmental Impacts

	Project Activity					
Associated Hazard Section	**Site walks, surveys, GW sampling and water level measurements**	**Waste Management**	**SSDS Monitoring 34 Lawnview Drive**	**Vapor Pin Installation and Utility Locating**	**Soil Gas Installation, Monitoring Well Installation MiP Drilling**	**Seep Mat Installation**
Fire Prevention	J	J	J	J, S	J, S	J, S
General Practices and Housekeeping	J	J	J	J, S	J, S	J, S
Hazard Communication	J	J	J	J, S	J, S	J, S
Knife Use	Not permitted					
Lighting	J	J	J	J, S	J, S	J, S
Personal Hygiene	J	J	J	J, S	J, S	J, S
Personal Security	J	J	J	J, S	J, S	J, S
Shipping and Transportation of Hazardous Waste		J				
Substance Abuse	J	J	J	J, S	J, S	J, S
Project-Specific Hazards – Refer to the F&ES HSE Field Handbook, Section 6, and the additional project-specific controls in this plan when specified.						
Chainsaws (see hazard section below)						S
Compressed Gas Cylinders (calibration gas)	J	J	J		J, S	J
Confined Space Entry ***(Critical Risk – Confined Space Entry)***	None identified; Not permitted					
Crystalline Silica (see hazard section below)				J		
Drilling (see hazard section below					J, S	
Drum and Portable Tank Handling	J	J			J, S	
Drum Sampling Safety		J			J, S	
Excavation Activities (see hazard section below)						J, S
Fire Prevention during Vegetation Mowing						J, S
Groundwater Sampling/Water Level	J					

Table 1: Project Tasks and Associated Hazards and Environmental Impacts

Associated Hazard Section	Project Activity	Site walks, surveys, GW sampling and water level measurements	Waste Management	SSDS Monitoring 34 Lawnview Drive	Vapor Pin Installation and Utility Locating	Soil Gas Installation, Monitoring Well Installation MiP Drilling	Seep Mat Installation
Measurements (see hazard section below)							
Hand and Power Tools (see hazard section below)		J	J		J, S	J, S	J, S
Limited Service Workers		Not anticipated					
Mower, Brush Hog and Weed Trimmer Safety (see hazard section below)							J, S
Powered Mobile Equipment (earthmoving equipment (see hazard section below)							J, S
Pressure Washing Operations						J, S	J, S
Public Safety (see hazard section below)		J			J, S	J, S	J, S
Residential Home Hazards (see hazard section below)				J	J, S		
Rigging (see hazard section below)							J, S
Slips, Trips and Falls (see hazard section below)		J	J	J	J, S	J, S	J, S
Spotters during Vehicle Backing Operations (see hazard section below)		J	J	J	J, S	J, S	J, S
Traffic Control (see hazard section below)		J				J, S	
Utilities (underground) (see hazard section below)					J, S	J, S	J, S
Utilities (overhead) (see hazard section below)						J, S	J, S
Working Alone (see hazard section below)				J			

Table 1: Project Tasks and Associated Hazards and Environmental Impacts

Associated Hazard Section	Project Activity	Site walks, surveys, GW sampling and water level measurements	Waste Management	SSDS Monitoring 34 Lawnview Drive	Vapor Pin Installation and Utility Locating	Soil Gas Installation, Monitoring Well Installation MiP Drilling	Seep Mat Installation
Working around Material Handling Equipment (see hazard section below)						J, S	J, S
Vinyl Chloride		J	J			J, S	
Physical Hazards – Refer to Physical Hazards in the F&ES HSE Field Handbook, Section 7, and the additional project-specific controls in this plan when specified.							
Ultraviolet Light exposure (sunburn)		J	J	J	J, S	J,S	J, S
Temperature Extremes		J	J	J	J, S	J,S	J, S
Biological Hazards – Refer to Biological Hazards in the F&ES HSE Field Handbook, Section 8, and the additional project-specific controls in this plan when specified.							
Aggressive Dogs (residential areas) (see hazard section below)		J		J	J, S	J, S	J, S
Bees and Other Stinging Insects		J	J	J	J, S	J, S	J, S
COVID Exposure		J	J	J	J, S	J, S	J, S
Poison Ivy, Oak and Sumac (see hazard section below)		J		J	J, S	J, S	J, S
Snakes		J	J	J	J, S	J, S	J, S
Spiders – Brown Recluse and Black Widow		J	J	J	J, S	J, S	J, S
Ticks (see hazard section below)		J		J	J, S	J, S	J, S
Environment Impacts – Refer to additional project-specific controls in this plan, specific HIIRAs, or in the project's stand-alone environmental plan (if applicable).							
Protected Fauna		J				J, S	J, S
Protected Flora		J				J, S	J, S
Waste Management		J	J		J	J, S	J, S
Wastewater		J	J			J, S	J, S
Water (Water Contamination)		J				J, S	J, S
Wetlands		J				J, S	J, S

Table 1: Project Tasks and Associated Hazards and Environmental Impacts

Associated Hazard Section	Project Activity	Site walks, surveys, GW sampling and water level measurements	Waste Management	SSDS Monitoring 34 Lawnview Drive	Vapor Pin Installation and Utility Locating	Soil Gas Installation, Monitoring Well Installation MiP Drilling	Seep Mat Installation

J – Hazard identification applicable to Jacobs personnel
S – Hazard identification applicable to Subcontractor personnel

* For activities above identified as Critical Risks, refer to Jacobs Global Work Instruction JJ-HS-WI-0303-JJ, *Critical Risk Management,* the Critical Risk Awareness Booklet, and the Critical Risk Awareness Guide for Managers and Supervisors. For Environmental Aspects, refer to P&PS Work Instruction IB-HS-WI-0101-IB, *Risk Assessment and Safe System of Work,* Table 9.4.

6. Hazards and Controls

(See P&PS Work Instruction IB-HS-WI-0101-IB, P&PS Risk Assessment and Safety System of Work)

Safe work practices and hazard control measures to reduce or eliminate potential hazards as identified in Table 1 are stated in the Handbook, Sections 7-10, the associated Jacobs Procedure, Work Instruction, or Guideline, and/or are addressed in task HIIRAs. Any additional project-specific control measures, or those hazards requiring additional emphasis, are identified in the following sections.

Always consult the appropriate Procedures or Work Instruction referenced in the hazard sections to ensure all requirements are implemented. All employees and subcontractors must remain aware of the hazards affecting them regardless of who is responsible for controlling the hazards. Jacobs employees and subcontractors who do not understand any of these provisions should contact the HSM for clarification prior to commencing with work.

A POWRA shall be performed at the start of each shift or when conditions significantly change. Implement the StepBack process throughout the duration of the task.

6.1 General Hazards and Controls

See the associated general hazard section of the Jacobs HSE Field Handbook for hazards identified in Table 1.

6.2 Project-Specific Hazards and Controls

6.2.1 Chainsaws

Below are the hazard controls and safe work practices to follow when working around or operating chainsaws.

Equipment

Only chainsaws equipped with a spark arrestor and fully functioning chain brake or “safety chain” shall be used. The following safety equipment shall be readily available while operating a chainsaw:

- Chainsaw operator’s manual;
- Fully stocked first aid kit;
- Multipurpose fire extinguisher;
- Grounded extension cord approved for outdoor use and ground fault circuit interrupter (GFCI) for electrical-powered chainsaws;
- Approved safety gasoline container and funnel or flexible nozzle for refueling gasoline-powered chainsaws; and
- Sledgehammer and non-metallic wedges when necessary to prevent pinching of the chain.

PPE Requirements

The following personal protective equipment shall be worn while operating chainsaws:

- Safety glasses with side shields and face shield to prevent injury from wood chips, sawdust, or other flying objects;
- Hard hat with properly fitted suspension to prevent head injury from falling debris;
- Steel-toed safety shoes or boots to prevent foot injury from falling objects and accidental contact with the moving chain;

- Hearing protection to prevent permanent damage to hearing. Earmuffs or plugs will have a decibel noise reduction rating (NRR) assigned to them. The higher the rating, the greater the protection offered;
- Non-leather, fabric work gloves to prevent hand injury from abrasions, splinters and cuts;
- Clothing that is well-fitted and free of loose edges that could become entangled in the saw; and
- Protective chaps or leggings that cover the area from the groin to about 2 inches (5.08 cm) above the ankles should be used. These chaps are made from synthetic fabrics that are designed to prevent the running saw chain from coming in contact with your legs.

Safe Operation

The following safe operation guidelines shall be followed regardless of the purpose for using a chainsaw:

- Inspect the chainsaw prior to use;
- Chainsaws shall be held firmly with both hands, with thumbs and fingers encircling both chainsaw handles;
- Stand slightly to the left side of the saw, out of the plane of the cutting chain and guide bar to reduce the risk of injury in the event of a kickback;
- Position saw so that it is between the waist and mid-chest level. Overreaching or cutting above the mid-chest height shall be avoided;
- Maintain a full throttle setting while cutting. Chainsaws are designed to be run at full speed;
- Always be aware of what is in the saw's downward path after the cut;
- Do not attempt to cut material that is larger than the guide bar of the saw;
- Avoid cuts that will cause the chainsaw to jam. Always cut into the compression wood first until the cut starts to close; then cut from the other side toward the compression cut;
- Use a non-metallic wedge to prevent the compression cut jamming on the blade;
- Chainsaws are designed to feed themselves into the wood and require only light pressure to cut efficiently. If extra force is required to keep cutting, the chain requires sharpening. Additional signs of a dull chain include a saw that is cutting crooked, results in fine sawdust instead of chips, or the smell of burnt wood. Do not use a dull chain;
- Bystanders and helpers shall be kept at a safe distance from operation;
- Do not operate a chainsaw when fatigued; take frequent breaks;
- Work slowly; don't rush; and
- A fire extinguisher shall be present at all times when operating the chainsaw in forest or brushy areas.

Refueling the Engine

The fuel for gasoline-powered chainsaws shall be mixed in accordance with the manufacturer's recommendations as outlined in the chainsaw operator's manual. Fuel shall be stored and transported in an approved safety container. The following precautions should also be followed:

- The engine shall be shut off and allowed to cool before refueling; never refuel a hot engine;
- A fire extinguisher shall be present during fueling and refueling;
- Smoking around fueling or refueling operations shall be prohibited; and
- A funnel or a flexible nozzle shall be used to avoid spilling fuel on the engine.
- Use the chainsaw self-assessment checklist to verify compliance with chainsaw operations in the field.

6.2.2 Crystalline Silica

(Reference BMS Work Instruction US-HS-WI-0203-US, *Hazardous Substances Management*)

Crystalline silica can be a hazard during use of rotary drills on concrete surfaces.

Jacobs and its subcontractors shall control employee exposure to crystalline silica when exposures are at or above the ACGIH TLV and the OSHA action level of 0.025 mg/m^3.

Exposure control measures include for vapor pin installation include:

- When using handheld and stand-mounted drills (including impact and rotary hammer drills) (e.g., for soil vapor probe installation):
    - Use a drill equipped with commercially available shroud or cowling with HEPA filtered dust collection system
    - Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions
    - The dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism
    - Use a HEPA-filtered vacuum when cleaning holes
- Maintaining surfaces as clean as practicable to minimize accumulation of crystalline silica containing particulate material;
- Clean surfaces with a HEPA-filter vacuum or equivalent method;
- An area on the worksite must be designated to be free of crystalline silica for workers to consume food or beverages;
- Restricting access to the work area where crystalline silica exposure may exist to only those authorized to perform work or enter the area;
- Do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in these areas; and
- Respiratory protection and other exposure controls selection shall be based on the most recent exposure monitoring results obtained from the competent person. This is not anticipated for this project provided a shroud and HEPA vacuum are used for vapor pin installation as long as all the control measures above are implemented.
- Take the Respirable Crystalline Silica Awareness training on e3.

6.2.3 Drilling

Below are the hazard controls and safe work practices to follow when working around or performing drilling.

- When considering drilling at sites with nearby monitoring wells, particularly in cases where drilling methods use pressurized fluids (air or water), consider the potential risk of hydraulic communication between the drilling location and the adjacent wells and/or other subsurface conduits.
- The drill rig is not to be operated in inclement weather.
- The driller is to verify that the rig is properly leveled and stabilized before raising the mast.
- Personnel should be cleared from the sides and rear of the rig before the mast is raised.
- The driller is not to drive the rig with the mast in the raised position.

- The driller must check for overhead power lines before raising the mast if within 50 feet of any overhead line. Maintain a minimum distance of 20 feet between mast and overhead lines and an additional 0.4 inch for every 1 kV over 50 kV. Verify the voltage of nearby overhead power lines to determine the minimum distance.
- Personnel should stand clear before rig startup.
- The driller is to verify that the rig is in neutral when the operator is not at the controls.
- Become familiar with the hazards associated with the drilling method used (e.g., cable tool, direct-push technology, and hollow-stem auger).
- Do not wear things that could get caught in moving parts (e.g., loose-fitting clothing or watches).
- Do not smoke or permit other spark-producing equipment around the drill rig.
- The drill rig must be equipped with a kill wire or switch, and all personnel are to be informed of its location.
- Be aware and stand clear of heavy objects that are hoisted overhead.
- The driller is to verify that the rig is properly maintained in accordance with the drilling company's maintenance program.
- The driller is to verify that all machine guards are in place while the rig is in operation.
- The driller is responsible for housekeeping (maintaining a clean work area).
- The drill rig should be equipped with at least one fire extinguisher.
- If the drill rig comes into contact with electrical wires and becomes electrically energized, do not touch any part of the rig or any person in contact with the rig, and stay as far away as possible. Notify emergency personnel immediately.
- Use the drilling self-assessment checklist to evaluate drilling operations and the 385 drilling equipment checklist (Attachment 4).

6.2.4 Drum and Portable Tank Handling

Below are the hazard controls and safe work practices to follow when overseeing the movement of drums or when handling drums:

- Ensure that personnel are trained in proper lifting and moving techniques to prevent back injuries;
- Ensure drum or tank bungs and lids are secured and are labeled prior to moving;
- Ensure that drums and tanks remain covered except when removing or adding material or waste. Covers and/or lids will be properly secured at the end of each workday;
- Provide equipment to keep the operator removed from the drums to lessen the likelihood of injury. Such equipment might include: a drum grappler attached to a hydraulic excavator; a small front-end loader, which can be either loaded manually or equipped with a bucket sling; a rough terrain forklift; Roller conveyor equipped with solid rollers; drum carts designed specifically for drum handling;
- Drums containing liquids or hazardous waste will be provided with secondary containment and may not be located near a storm water inlet or conveyance;
- Allow enough aisle space between drum pallets and between drums and other equipment that the drums can be easily accessed (at least 2 to 3 feet) by fire control equipment and similar equipment; and

- Make sure that a spill kit is available in drum or tank storage areas (or where liquids are transferred from one vessel to another).

6.2.5 Drum Sampling Safety

Personnel are permitted to handle and/or sample drums containing certain types of waste (drilling waste, investigation-derived waste, and waste from known sources) only. Handling or sampling drums with unknown contents requires a plan revision or amendment approved by the HSM. The following control measures will be taken when sampling drums:

- Minimize transportation of drums;
- Sample only labeled drums or drums from a known waste stream;
- Do not sample bulging or swollen drums. Contact the HSM;
- If drums contain, or potentially contain, flammable materials, use non-sparking tools to open;
- Use the proper tools to open and seal drums;
- Reseal bung holes or plugs whenever possible;
- Avoid mixing incompatible drum contents;
- Sample drums without leaning over the drum opening;
- Transfer/sample the content of drums using a method that minimizes contact with material;
- Use the PPE and perform air monitoring as specified in the PPE and Site Monitoring sections of the project safety plan;
- Take precautions to prevent contaminated media from contacting the floor or ground, such as having plastic under the sampling area, having a spill kit accessible during sampling activities; and
- If transferring/sampling drums containing flammable or combustible liquids, drums and liquid transfer equipment should be grounded and bonded to reduce the potential of a static discharge.

6.2.6 Excavation Activities

(Reference BMS Work Instruction HS-HS-WI-0333-PC, *Excavation and Trenching*)

The requirements in this section shall be followed whenever excavation is being performed along with the requirements in Work instruction HS-HS-WI-0333-PC, *Excavation and Trenching*. Refer to the Earthmoving Equipment section of this PHSEP for additional requirements applicable to operating/oversight of earthmoving equipment. Below are the hazard controls and safe work practices to follow when working around or performing excavation. Ensure the requirements below are followed.

- Make sure HIIRA and PHSEP for proposed excavation are specific to and accurately reflect the proposed excavation. This work involves excavation of trenches to a depth of two feet for mat installation.
- Subcontractor shall designate an excavation supervisor (excavation competent person).
- Prior to the first excavation at a site or after a significant gap in excavation work, complete an Excavation Readiness Review Form, HS-HS-WI-0333-PC-F-02.
- Prior to starting excavation complete Excavation Inspection Checklist, HS-HS-WI-0333-PC-F-03.
- Locate underground utilities such as electric, fuel, water, cable, sewer and underground storage tanks to a minimum of 6 feet past proposed excavation before excavating.

- Jacobs underground utility verification checklist must be completed and reviewed by the PM. Subcontractor and field crew review this checklist prior to intrusive work (see "Utilities (underground)" section of this PHSEP).
- Evaluate the presence of wetlands, endangered species, or cultural/historic resources through field delineation and/or maps prior to excavation and comply with all permit conditions of the mat installation.
- If the footprint of the excavation is within 3 feet (1 meter) of a known underground utility, apply for a permit to hand dig (HS-HS-WI-0333-PC-F-01) with insulated hand tools or water/vacuum excavation in order to positively locate and identify all services detected/inferred with the utility location and to expose them along their full length within and at least six feet beyond the planned excavation boundary (to correlate with the utility clearance marking of the excavation area).
- Support any exposed utilities and protect them from inadvertent damage with boards, sandbags or similar. Monitor the excavation for signs of undetected utilities. Where such signs are observed, stop work immediately and rescan with utility location tools. Make sure utilities are marked on the excavation permit once the utility assessment has been completed.
- Once the by hand excavation has been completed (if any utilities anticipated to be within 3 ft (1 meter) of the excavation footprint), hand dig permit is returned and closed.
- If any excavation is required at a distance greater than 3 feet (1 meter) from any suspected utility, request permit to machine dig (HS-HS-WI-0333-PC-F-01 (excavation permit).
- Fill material may require a clean fill certification.
- Prior to entering an excavation, make sure the excavation supervisor/excavation competent person has assessed the excavation for suitability of entry, and posted an excavation tag at the point of entry into each excavation when satisfied that it is safe to enter (date and time of inspection and name of inspector). If findings indicate an unsafe excavation, remove excavation tag and post do not enter sign and inform workers that excavation is off limits (this shouldn't be applicable for this work).
- Do not enter the excavations unless completely necessary, and only after the excavation competent person has completed their daily inspection and has authorized entry. An inspection shall be conducted by the competent person prior to the start of work, as needed throughout the shift, after every rainstorm, and after any hazard increasing occurrence. Documentation of the inspection must be maintained onsite at all times.
- Follow all excavation entry requirements established by the excavation competent person and any excavation permit being used.
- Sloping, benching, shoring, shielding, or other protective systems are required to protect personnel from cave-ins except when the excavation is made entirely in stable rock or is less than 5 feet deep (1.5 meters) (or less depending on local or client requirements) and there is no indication of possible cave-in, as determined by the excavation competent person. Requirements are in 29 CFR 1926 Subpart P. Protective systems for excavations deeper than 20 feet (6.1 meters) must be designed or approved by a registered professional engineer.
- Trenches greater than 4 feet (1.2 meters) deep shall be provided with a ladder, stairway, or ramp positioned so that the maximum lateral travel distance is no more than 25 feet (7.6 meters).
- The atmosphere of excavations greater than 4 feet (1.2 meters) deep shall be tested prior to entry when a hazardous atmosphere exists or could reasonably be expected to exist, such as excavating landfills, hazardous waste dumps; or areas containing sewer or gas utility systems, petroleum distillates, or areas where hazardous substances are stored nearby.

- Spoil piles, material, and equipment must be kept at least 3 feet (1 meter) from the edge of the excavation at a safe angle of repose, or a retaining device must be used to prevent the material from falling into the excavation.
- Where the stability of adjacent structures, buildings, walls, sidewalks, pavements is endangered by excavation operations, support systems like shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.
- Excavations shall not be entered when:
    - Protective systems are damaged or unstable;
    - Objects or structures above the work location may become unstable and fall into the excavation;
    - The potential for a hazardous atmosphere exists, unless the air has been tested and found to be at safe levels; or
    - Accumulated water exists in the excavation, unless precautions have been taken to prevent excavation cave-in.
- The Excavation Inspection Form, HS-HS-WI-0333-PC-F03, shall be used to evaluate excavations prior to entry. Conduct daily briefings prior to excavation entry.

6.2.7 Groundwater Sampling/Water Level Measurements

Below are the hazard controls and safe work practices to follow when personnel or subcontractors are performing groundwater sampling and/or water level measurements.

- Full coolers are heavy. Plan in advance to have two people available at the end of the sampling effort to load full coolers into vehicles. If two people won't be available use several smaller coolers instead of fewer large ones.
- Wear the appropriate PPE when sampling, including safety glasses, nitrile gloves, and steel toe boots (see PPE section of this plan and HIIRA).
- Monitor headspace of wells prior to sampling to minimize any vapor inhalation (refer to the "Site Monitoring" section of this plan).
- Use caution when opening well lids. Wells may contain poisonous spiders and hornet or wasp nests. Wear leather gloves.
- Use the appropriate lifting procedures when unloading equipment and sampling at each well.
- Avoid sharp edges on well casings.
- Avoid contact with pump outflow while purging or troubleshooting. Never place effluent line near the body or face, as pumps and flow can start unexpectedly.
- If dermal contact occurs with groundwater or the acid used in sample preservation, immediately wash all affected skin thoroughly with soap and water.
- Preservatives are often corrosive. Review SDS prior to use and document training. Ensure spills are thoroughly cleaned up as residual preservative on surfaces can still cause burns.
- Spilled liquids (in coolers, or in work areas) may be corrosive liquids (preservatives). Test for spill corrosivity hazards with pH paper and immediately clean up small spills.
- Utilize spill pads or neutralizing agents for spill cleanup.

- Inspect sample containers. If sample containers appear sticky or have indication of spilled acid, wash off all containers and surfaces they have contacted with copious water, and notify field team/coworkers of potential acid release from sample bottles.
- If sample containers arrive with leaked acid, also contact lab to inform them so they can be more careful about lid tightness before shipping
- Avoid eating and drinking on site and during sampling.
- Use ear plugs during sampling if sampling involves a generator.
- Containerize all purge water and transport to the appropriate storage area.
- Use two people to transport full coolers/containers whenever possible. If two people are not available use a dolly to move coolers. If the coolers weigh more than 50 pounds, they should never be lifted by one person.

6.2.8 Hand and Power Tools

- Hand and power tools will be used for their intended use and operated in accordance with manufacturer's instructions and design limitations;
- Screwdrivers are one of the most used and abused tools, never:
  - Hammer with a screwdriver
  - Use as a pry bar
  - Use with a broken handle
  - Use with worn out tips
- Maintain all hand and power tools in a safe condition;
- When possible, use power tools over hand tools. Powered tools tend to require less exertion and reduce repetitive motion. Be sure that the weight of a powered tool (and cording) does not create additional force issues.
- Whenever possible, select tools that use a full-hand power grip rather than a precision finger grip. The greater the efforts to maintain control of a hand tool, the higher the potential for injury. A compressible gripping surface rather than hard plastic should be used.
- Avoid repetitive trigger-finger actions. Select tools with large switches that can be operated with all four fingers.
- When possible, use tools with extension handles that let you stand up while performing a floor-level task (extension handles must be manufacturer-approved)
- To lessen vibration:
  - Pad tool handles with a soft compressible surface
  - Use vibration damping (gel filled) gloves
  - Select tools (hammers and chippers) with built in damping systems (springs/hydraulics)
- Maintain straight wrists. Avoid bending or rotating the wrists; a variety of bent-handle tools are commercially available.
- Avoid static muscle loading. Reduce both the weight and size of the tool. Do not raise or extend elbows when working with heavy tools.

- Use PPE (such as gloves, safety glasses, earplugs, and face shields) when exposed to a hazard from a tool;
- Do not carry or lower a power tool by its cord or hose;
- Portable power tools will be plugged into GFCI protected outlets;
- Portable power tools will be Underwriters Laboratories (UL) listed and have a three-wire grounded plug or be double insulated;
- Disconnect tools from energy sources when they are not in use, before servicing and cleaning them, and when changing accessories (such as blades, bits, and cutters);
- Safety guards on tools must remain installed while the tool is in use and must be promptly replaced after repair or maintenance has been performed; and
- If a cordless tool is connected to its recharge unit, both pieces of equipment must conform strictly with electrical standards and manufacturer's specifications.

6.2.9 Mower, Brush Hog and Weed Trimmer Safety

Below are hazard controls and safe work practices to follow when personnel or subcontractors are working near or using mowers, brush hogs and weed trimmers. The brush hog is a dangerous machine that will throw rocks and debris long distances at speeds that can and have caused significant injury. It can also become entangled in rope, wire or other objects that can endanger workers in the vicinity.

Ensure that the following requirements are followed.

Mower/Brush Hog

- Meet with the brush hog or mower crew during the safety tailgate meeting and immediately prior to operations to ensure all personnel understand the signal that indicates when the operator will operate the brush hog.
- Conduct a sweep of the area where the brush hog or mower is scheduled to cut vegetation and 100-foot buffer prior to mower, brush hog, masticator and trimmer operations for loose debris, rocks, logs, foreign objects, wire, rope, fencing, etc. that could present a safety hazard.
- Restrict other workers and oversight activities to 300 feet outside the staked limits of the work area while brush clearing equipment is operating.
- Workers should position themselves 180 degrees towards the rear of the mower, always maintaining >300 feet from the edge the area being cleared by the mower.
- Minimum PPE Requirements – leather boots with safety toes, safety glasses, leather gloves, hard hat, long pants, and high visibility vest.
- The equipment operator must read the owner's manual prior to operating the equipment.
- Make all necessary adjustment prior to turning on the equipment.
- Practice operation in an open area.
- Make sure all protective guards are in place. Never remove guards.
- Determine that steering is responsive before beginning a job.
- Test the brakes.
- Clean the steps and operating platform to prevent slipping.
- Ensure that tires are properly inflated.
- Only the operator should be riding on the equipment, no passengers are allowed.
- When leaving the seat, the operator should disengage the Power Take Off (PTO), engage the brake, stop the engine, and wait for all parts to stop before dismounting.

- The operator should not adjust any mechanism of the equipment while the mower is running, making sure all parts have stopped moving prior to making any adjustments.
- When driving between mowing jobs, crossing a road, path or sidewalk, or when not using the mower, the operator should disengage the PTO to stop the mower blade.
- Operators should not mow in conditions where traction or stability is questionable. If uncertain, test drive a section with the PTO off.
- Never refuel equipment while the engine is running or extremely hot. A fire or explosion could result.
- Maintain a fire extinguisher nearby.
- When mowing on uneven ground follow these rules:
    - Reduce the travel speed so that you can see and react to hazards in your path. Overturns are four times more likely to occur when the speed is doubled.
    - Be on the alert for holes and ditches covered by grass or debris. A wheel may drop and cause an overturn.
    - Drive up and down a hill, not across.
    - Do not stop when going uphill or downhill. If the mower stops going uphill, turn off the PTO and back down slowly.
    - Do not try to stabilize the mower by putting your foot on the ground.

Weed Trimmer

- Wear snug, tight-fitting equipment while operating the weed trimmer or tri-blade. Retain long hair or any other loose items or clothing.
- Inspect guard/shield and ensure it is securely in place.
- Do not change string with equipment running. Turn off equipment before removing any jams.
- When cutting, keep spinning string low and maintain control.
- Never operate the weed trimmer one handed; hold with both hands with thumbs opposed to direction of other fingers, using a firm grip to prevent loosing grip if the tool kicks back or bucks.
- Start cutting in a position so that it is off to the side of your body, so that if the tool bucks it doesn’t come back up into your body.
- Inspect brush/weeds for any objects that could become a harmful projectile.
- Clear area of people and vehicles; minimum of 100 feet safe zone.

6.2.10 Public Safety

Due to the fact that part of this work involves work in residential neighborhoods, emphasis must be placed on warning and directing the public. Work areas will be clearly demarcated and signs will be posted to indicate no authorized entry.

Should a member of the public inadvertently enter the work area, site personnel shall cease all work until the unauthorized person is escorted out of the work area.

If members of the public ask you what you are doing, you can have them call the task manager or check with the project manager beforehand to ask what an appropriate response would be (e.g., performing long-term monitoring for the client).

6.2.11 Residential Home Hazards and Precautions

Follow the requirements below when performing work on residential property:

- Contact residents by phone prior to arriving on site. Inquire whether there are any pets or any other conditions to be aware of when in their yard. Communicate that pets need to be kept inside the house during sampling. If this is not possible, ask how the pets will be secured during work.
- There is no need to enter the main home; SSDS is accessed through a separate entry
- Upon arrival at the site, verify with each property owner, or adult resident, whether dogs (or other pets) are present and secured prior to entry. Ask owner and then inform each crew member of location / number of dogs. Do not enter if you suspect dogs are not secured.
- If residents appear to be under the influence of something and do not seem to understand your requests – don't continue onto property. Elevate concerns to the PM and RHSM.
- Be good stewards of property (don't leave puddles of water, leave hoses as you found them, don't assume you can put sampling equipment on furniture, don't leave trash, park considerately, etc.).
- If the homeowner is not present, leave behind the card indicating the time you were there and that you collected a sample.
- Survey travel path before carrying sample equipment through the yard or down the stairs. Ensure area is free from slip/trip hazards, always have one free hand to hold handrail. Use material handling devices such as carts or equipment dollies if necessary.
- See the working alone section of this HSE plan.

6.2.12 Rigging

(Reference BMS Work Instruction HS-HS-WI-0345-PC, *Mechanical Lifting Operations)*

General

Below are the hazard controls and safe work practices to follow when personnel are overseeing or performing rigging. Ensure the requirements in the referenced work instruction are followed.

- All rigging equipment shall be used only for its intended purpose, inspected by a qualified and competent person prior to use, and shall not be loaded in excess of its capacity rating. Defective rigging shall be removed from service.
- The rigging of loads to be lifted shall be performed by qualified and competent personnel.
- Rigging equipment must have permanently affixed and legible identification markings as prescribed by the manufacturer which indicate the recommended safe working load; and not loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer.
- Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments, shall not be used.
- Ensure all loads to be lifted or lowered are correctly slung and made secure to prevent any part of them slipping and falling.
- Tag lines shall be attached to every load unless it is creating a larger hazard.
- Rigging equipment, when not in use, shall be stored in an area free from damage caused by environmental elements, hazardous substances, and other factors that may compromise equipment integrity and performance.

- No modification or addition, which that could affect the capacity and or safe operation of the equipment, shall be made without the manufacturer's written approval.
- Rigging equipment shall not be shortened with knots, bolts or other makeshift devices.
- The manufacturer's recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which applicable manufacturer's recommendations are available shall be tested to twice the intended safe working load before they are initially put into their initial use. Venders or suppliers will provide documentation of proof testing documentation.
- Special hoisting devices, slings, spreaders, chokers, hooks, clamps, or other lifting accessories shall be marked to indicate the safe working loads and shall be proof-tested prior to initial use to 125 percent of their rated load. Vendors or suppliers will provide documentation of proof testing documentation.

Equipment

- Protruding end strands of wire rope shall be covered or blunted.
- Wire rope shall not be used if, in any length of eight rope diameters, the number of visible broken wires exceeds 10 percent of the total number of wires, or if the rope shows other signs of excessive wear, corrosion, or defect.
- When inspecting the end fittings of wire rope slings, if more than one wire in a lay is broken in the fitting, do not use the sling.
- Synthetic web slings shall be immediately removed from service if any of the following conditions are present:
  - acid or caustic burns; melting or charring of any part of the sling
  - surface; snags, punctures, tears or cuts; broken or worn stitches; distortion of fittings;
  - discoloration of or rotting; red warning line showing.
- Never use makeshift hooks, links or other fasteners. Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments, shall not be used.
- Alloy steel chains shall have permanently affixed identification stating size, grade, rated capacity and reach.
- Shackles and hooks shall be constructed of forged alloy steel with the identifiable load rating on the shackle or hook.

Rigging Use

- Rigging shall not be pulled from under a load when the load is resting on the rigging.
- Place sling(s) in center bowl of hook.
- When attaching slings to the load hoist hook, corners and sharp edges should be "packed" to prevent cutting or damaging the rope or slings.
- Never use nylon, polyester, polypropylene web slings, or web slings with aluminum fittings where fumes, vapors, sprays, mists or liquids of acids, caustics or phenolics are present.
- Natural and synthetic fiber rope slings, except for wet frozen slings, may be used in a temperature range form from -20º F to +180º F (-29º C to +82º C) without decreasing the working load limit. For operations outside this temperature range, and for wet frozen slings, the sling manufacturer's recommendations shall be followed.
- When used for eye splices, the U-bolt shall be installed so that the "U" section is in contact with the dead end of the rope.

6.2.13 Slips, Trips and Falls

'Stop before you go' and evaluate the walking hazards.

- As soon as you enter the area you are working in—whether it's a remote project site, office setting, or construction site, evaluate the conditions and your state of mind and physical fitness.

  Pause and evaluate before you get of your vehicle, before heading down a slope, when the terrain changes, when performing a different task. Are you fit for duty? A current medical evaluation should be completed by a physician for your job description, tasks, hazards (e.g., heat, terrain) and PPE. If you have had a recent injury or illness, your supervisor and PM must review any work restrictions or releases.

- Consider whether there is a safer entry point.

  This may mean looking at a sloped surface for the best route to traverse or looking for the least hazardous conditions (a cleared path vs. one covered with ice or heavy vegetation). Weather can be a creator of changed conditions—mud, ice, slick surfaces due to rain, snow. Stop and re-evaluate if the weather created conditions that weren't anticipated. Avoid slopes, if possible, especially if slopes are greater than 30 degrees. This would require additional control measures.

- Confirm walking the route or the trip is necessary.

  Is it important to survey/collect data from precisely "that spot"? Can the area be excluded due to vegetation or slope? Are there alternatives to a person walking a challenging area—for example, can we use emerging technologies such as drones to gather information in remote or challenging terrain? Note: this may not be an option at some sites. Minimize walking by using a UTV or vehicle when safe to do so.

- Consider whether you can justify entering a hazard area to your supervisor, client, or (work) family.

  This especially comes into play when working in remote sites where the walking/working conditions aren't in an improved state. If there is any question and you recognize hazards that aren't addressed—always stop. Discuss with the HSM and/or PM before an incident occurs to determine the hazard controls. Talking to the PM and project team may reveal you don't need to access that area.

- Reinforce walking on a cleared path, when possible.

  Stick to paths that are maintained for walking or designate walkways when working on a congested site. If you find yourself at a remote site—walk on established hiking trails or if there aren't trails, where vehicles have been (being vigilant for any traffic). In vegetated areas, walk around vegetation instead of through it. Don't step or try to clear a path by breaking brush or branches as this has caused past injuries. In office environments, don't cut across landscaped areas—use the crosswalks and stay on pavement.

- Be deliberate about walking, minimize distractions.

  Cell phones can contribute to 'distracted walking.' Do not use cell phones or read equipment screens when walking. Stand in one spot to text, dial a phone number, or use other functions of your mobile device. It only takes a few minutes but can make a big impact because you are free to focus on your surroundings. If you are traversing challenging terrain, halt conversations until you can take a break. Watch for biological hazards such as rattlesnakes, wasps that nest on the ground, poison ivy and oak, depressions or holes, vegetation, tree roots.

- Evaluate your state of mind.

Are you rushing, fatigued, or otherwise distracted? Have you been hiking for miles and now find yourself having to traverse challenging terrain? Even with the best of walking surfaces, if you are in any of these trigger states, that may lead to an increased chance of an incident. Stop and take a break and then resume once you've had a chance to refocus.

- Be aware of trigger states: frustration, rushing, fatigue, complacency. These lead to errors including eyes not on task, mind not on task, placing yourself or body parts in the "line of fire," reduction in balance, traction or grip. Errors like these can lead to incidents.

General

- Institute and maintain good housekeeping practices.
- Designate foot traffic paths in and out of sites, when necessary, to ensure paths are kept free from slip, trip, and fall hazards or to deter personnel from taking "shortcuts" where slip, trip, hazards may be.
- Mitigate icy conditions by keeping foot traffic paths clear of ice and snow.
- Watch footing as you walk to avoid trip hazards, animal holes, or other obstacles, especially in tall grassy areas.

Muddy Conditions

- Muddy conditions present a slipping hazard. Use mats or other similar surface to work from if footing cannot be stabilized.
- Take shortened steps across muddy areas.
- Use a walking staff or other similar means to assist with balance.

Steep Slopes/Uneven Ground/Rock and Vertical Slopes

- Be aware that escarpments can slough. Avoid these areas.
- Exercise caution in relying on rocks and trees/tree stumps to support yourself – many times they are loose.
- Whenever possible, switchback your way up/down steep areas, and maintain a slow pace with firm footing.
- Employees walking in ditches, swales and other drainage structures adjacent to roads or across undeveloped land must use caution to prevent slips and falls which can result in twisted or sprained ankles, knees, and backs.
- Whenever possible observe the conditions from a flat surface and do not enter a steep ditch or side of a steep road bed.
- If steep terrain must be negotiated coordinate with HSM to evaluate the need for ladders or ropes to provide stability.

Snow and Ice on Walking/Working Surfaces

<u>Housekeeping and Preparedness</u>

- Evaluate whether the work can be postponed until site conditions improve for both our work and our subcontractors.
- Remove snow from walkways regularly and use ice-melt or sand, when necessary.
- Notify those responsible for clearing walkways and work areas when we observe a potentially hazardous location. At our project sites, be sure someone is responsible for maintaining walkways.
- Don't assume that the walk path is not slippery if it has been plowed and sanded already.
- Mark potential hazards (e.g., holes, rebar, plastic, etc.) prior to snowfall. Designate walkways that avoid such hazards.

- Avoid any ice or snow-covered location where a hazard may exist; use a vehicle rather than walking, when possible.
- If you cannot avoid the area, wear shoes or boots that provide traction on snow and ice or use YakTrax™, ice cleats, or similar product (see links below). *Note* - Additional hazards could be introduced if these types of footwear are worn inside, on stairs, etc. Be sure appropriate donning and doffing areas are established.
- Inspect your footwear before wearing it.
- Ensure that your safety plan or Activity Hazard Analysis is up to date and adequately addresses hazards of winter work environments.

How to Walk in Icy Conditions

- Give yourself sufficient time and plan your route.
- Keep your eyes on where you are stepping and GO S-L-O-W-L-Y!! This will help your reaction time to changes in traction.
- Be aware of hazards you might have missed such as black ice and ice covered by snow.
- Keep both hands free for balance --NOT in your pockets.
- When handrails are available – USE THEM!
- Wear gloves to keep hands warm and readily available to hold snow-covered handrails.
- Take short steps or shuffle for stability, bend slightly, and walk flat-footed. Keep your center of gravity directly over your feet as much as possible. Keep your eyes on where you are going. Remember the "Walk like a penguin" method.
- Don't carry too much or block your line of vision.
- Be prepared to fall!

How to Fall

Have you ever practiced falling? In the event that you slip and fall while walking in the office, to your car, or on a project site try and remember the following:

- Do not try to break your fall by sticking out your arm, elbow or wrist due to potential for fractures or ligament damage.
- Try instead to create a large surface area by either outstretching your arm and landing on your side or tucking your arm and curling to a ball and landing on your back.

Getting in and out of Vehicles on Icy or Snowy Surfaces

Use special care when entering and exiting vehicles:

- Use the vehicle for support
- Step out planting foot firmly on the ground
- Have hands free for support

6.2.14 Spotters during Vehicle Backing Operations

Spotters should be used for these tasks as indicated below.

- Evaluate vehicle operations prior to performing the task to assess the following:
  - Can the distance of reversing the vehicle be eliminated or minimized?

  - Are there any hazards along the route that would interfere with the safe completion of the job including any points along the path of travel where the spotter may be placed in a dangerous position or line of fire?
  - Can the route be modified to make the task safer?
  - Can the route be cleared of workers (pedestrians) within 8 feet (2.5m) of the moving vehicle? If not, do not proceed. Contact HSM and PM.

- In additional to verbal communications, the driver/operator and spotter must agree to communicate via one of the following: hand signals, two-way radio, lights, handheld air horn or other (specify in daily safety briefings, POWRA, etc.).

- Only one spotter should be used at a time.

- Spotters responsibilities are:
  - Position to enable the driver to maintain visual contact with me
  - Never cross the path of travel of a **moving** vehicle
  - Maintain a minimum 8 feet (2.5 m) distance from **moving** vehicle
  - Wear a high visibility vest
  - Wear the PPE requirements for the area
  - Communicate to the driver to **STOP** immediately if any unexpected hazards are observed
  - Never ride on the vehicle while it is moving
  - Keep the route free of people that don't need to be there

- Driver responsibilities include:
  - STOP immediately if visual contact with the spotter is lost
  - STOP immediately if instructed by the spotter
  - STOP immediately if anyone comes within 8 feet (2.5 m) of the vehicle
  - Operate the vehicle so speed does not exceed the walking pace of the spotter
  - Communicate the blind spots of the vehicle to the spotter
  - Turn radio and any other distractions off in the cab of vehicle
  - Make sure window(s) are open to receive spotter communications
  - Make sure windows and mirrors are clear to ensure good visibility

6.2.15 Traffic Control

(Reference BMS Work Instruction HS-HS-WI-0036-PC, Working Adjacent to Live Traffic)

The following precautions must be taken when working around traffic, and in or near an area where traffic controls have been established by a subcontractor. Ensure the requirements below are followed.

- Jacobs employees must never perform traffic control activities for 3rd party subcontractors.
- Exercise caution when exiting traveled way or parking along street – avoid sudden stops, use flashers, etc.
- Park in a manner that will allow for safe exit from vehicle, and where practicable, park vehicle so that it can serve as a barrier.
- All staff working on or adjacent to active roadways or within traffic control zones must wear reflective/high-visibility safety vests, safety-toed shoes or boots, hard hats, and safety glasses.
- Remain aware of factors that influence traffic related hazards and required controls – sun glare, rain, wind, flash flooding, limited sight-distance, hills, curves, guardrails, width of shoulder (i.e., breakdown lane), etc.
- Always remain aware of an escape route (e.g., behind an established barrier, parked vehicle, guardrail, etc.).
- Always pay attention to moving traffic – never assume drivers are looking out for you.

- Work as far from traveled way as possible to avoid creating confusion for drivers.
- When workers must face away from traffic, a “buddy system” should be used, where one worker is looking towards traffic.
- Use cones and caution tape to delineate work areas. Inspect and maintain traffic control devices. Inspect equipment at the beginning of each work shift and periodically throughout the day. Immediately restore equipment to its original position if knocked over. Reflective equipment shall be kept clean.
- Traffic control training module on the e3 shall be completed when Jacobs workers who work in and around roadways and who exposed to public vehicular traffic.

6.2.16 Utilities (overhead)

(Reference P&PS Work Instruction, HS-HS-WI-0335-PC, *Utility Avoidance*)

Ensure any task that may take work equipment, load line or load (including rigging and accessories) within 50 feet (15.25 meters) of an overhead power line undertakes a site/task specific risk assessment (e.g., AHA, PoWRA, with HSM review) which shall include reviewing the proximity to power lines and verifying voltage with line owners. If in any doubt, the overhead line’s owner will be able to advise you on safe clearance distances.

Ensure operators know the working height of their equipment. Ensure the distance to and voltage of conductors or cables are established and briefed to all staff. The distance (height) should be obtained from the line owner or measured by a suitably trained person using non-contact measuring devices and documented in the field notebook/AHA. Note that the height of the suspended conductors or cables may alter depending on the temperature and weather conditions including ice and wind.

Request and verify power to any overhead utilities has been shut off and positive means have been taken to prevent lines from being energized (such as lockout) in coordination with the local power utility and is visibly grounded at the work site.

If it is not possible to isolate the energized overhead line, exclusion zones shall be established, and overhead conductors or cables shall be highlighted with warning signs and or barriers and use of insulating blankets have been placed by the utility owner. If insulating blankets are used, the utility will determine the minimum safe operating distance (get this determination in writing the utility owner representative’s signature). Refer to table below for exclusion zone distances. Note that exclusion zones must take account of unintended scenarios (e.g., drilling rig collapse see figure below).

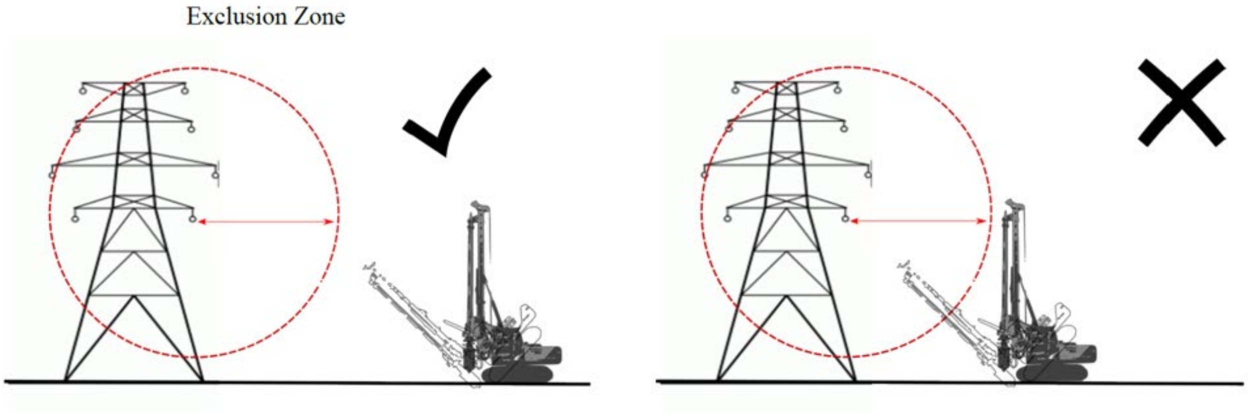
Erect and maintain, where vehicle routes pass below an overhead cable, an elevated non-conductive warning line (goal post), barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings, at the minimum clearance distance cited in local regulations. **Note:** If the operator is unable to see the elevated warning line, a dedicated banksman/spotter must be used. The notices and warning line may need to be illuminated at night, or in poor weather conditions, to make sure they are visible.

Note: Any deviation from the exclusion zone distances must be approved by both the PM and HSM with consultation from MoP and F&ES HSE Lead. Deviations submitted for approval must include a risk assessment and an update to this PHSEP.

MINIMUM DISTANCES FROM POWERLINES – per Jacobs Utility Avoidance Work Instruction

Powerlines Nominal System Kv	Minimum Required Distance (“exclusion zone”), Feet (Meters)
0-350	20 (6.1)
351-500	25 (7.6)
501 – 1000	45 (13.7)
Over 1000	Established by utility owner/operator or by a professional engineer in electrical power transmission/distribution

(These distances have been determined to eliminate the potential for arcing based on the line voltage.)



6.2.17 Utilities (underground)

(Reference P&PS Work Instruction, HS-HS-WI-0335-PC, *Utility Avoidance*)

An assessment for underground utilities must be conducted where there is a potential to contact underground utilities or similar subsurface obstructions during intrusive activities. Intrusive activities include excavation, trenching, drilling, vapor pin installation, hand-augering, soil sampling, or similar activities.

The assessment must be conducted <u>before any intrusive subsurface activity</u> and must include at least the following elements:

- A background and records assessment of known utilities or other subsurface obstructions.
- Contacting and using the designated local utility locating service.
- Conducting an independent field survey to identify, locate, and mark potential underground utilities or subsurface obstructions. Note: This is independent of, and in addition to, any utility survey conducted by the designated local utility locating service above.
- A visual survey of the area to validate the chosen location.
- Complete Utility Verification Checklist.

When any of these steps identifies an underground utility within 3 feet of intrusive work, then non-aggressive means must be used to physically locate the utility before a powered tools, drill rig, backhoe, excavator or other aggressive method is used.

Aggressive methods are never allowed within 3 feet of an identified high risk utility (see paragraph below).

Any deviation from these requirements must be approved by the HSM and the PM.

6.2.17.1 Background and Records Assessment of Known Utilities

Identify any client- or location-specific permit and/or procedural requirements (e.g., dig permit or intrusive work permit) for subsurface activities.

Obtain available utility diagrams and/or as-built drawings for the facility.

Review locations of possible subsurface utilities including sanitary and storm sewers, electrical lines, water supply lines, natural gas lines, fuel tanks and lines, communication lines, lighting protection systems, etc. Note: Use caution in relying on as-built drawings as they are rarely 100 percent accurate.

Request that a facility contact with knowledge of utility locations review and approve proposed locations of intrusive work.

6.2.17.2 Designated Local Utility Locating Service

Contact your designated local utility locating service (e.g., Dig-Safe, Blue Stake, One Call) to identify and mark the location of utilities. In the US, call 811 in the go to www.call811.com to identify the appropriate local service group. Contacting the local utility locating service is a legal requirement in most jurisdictions. (Some US states, [e.g., Washington] require that the entity performing the intrusive work be the responsible for contacting the local service.) Where subcontractors are responsible for the intrusive work, Jacobs personnel shall verify the subcontractor has contacted the designated local utility locating service.

6.2.17.3 Independent Field Survey (Utility Locate)

The organization conducting the intrusive work (Jacobs or subcontractor) shall arrange for an independent field survey to identify, locate, and mark any potential subsurface utilities **extending at least six feet beyond the intrusive work area**. This survey is in addition to any utility survey conducted by the designated local utility locating service.

The independent field survey provider shall determine the most appropriate instrumentation/technique or combinations of instrumentation/techniques to identify subsurface utilities based on their experience and expertise, types of utilities anticipated to be present, and specific site conditions.

A Jacobs or subcontractor representative must be present during the independent field survey to observe the utility locate and verify that the work area and utilities have been properly identified and marked. If there is any question that the survey was not performed adequately or the individual was not qualified, then arrangements must be made to obtain a qualified utility locate service to re-survey the area. Obtain documentation of the survey and clearances in writing and signed by the party conducting the clearance. Maintain all documentation in the project file.

If the site owner (military installation or client) can provide the independent field survey, Jacobs or the subcontractor shall ensure that the survey includes:

- Physically walking the area to verify the work location and identify, locate, and mark underground utility locations:
- Having qualified staff available and instrumentation to conduct the locate;
- Agreeing to document the survey and clearances in writing.
- Should any of the above criteria not be met, Jacobs or subcontractor must arrange for an alternate independent utility locate service to perform the survey.
- The markings from utility surveys must be protected and preserved until the markings are no longer required. If the utility location markings are destroyed or removed before intrusive work commences or is completed, the PM, SL, or designee must notify the independent utility locate service or the designated local utility locating service to resurvey and remark the area.

6.2.17.4 Visual Assessment before and during Intrusive Activities

Perform a “360 degree” assessment. Walk the area and inspect for utility-related items such as valve caps, previous linear cuts, patchwork in pavement, hydrants, manholes, utility vaults, drains, and vent risers in and around the dig area.

The visual survey shall include all surface landmarks, including manholes, previous liner cuts, patchwork in pavement, pad-mounted transformers, utility poles with risers, storm sewer drains, utility vaults, and fire hydrants.

If any unanticipated items are found, conduct further research before initiating intrusive activities and implement any actions needed to avoid striking the utility or obstruction.

6.2.17.5 Completion of the Utility Verification Checklist

The utility verification checklist shall be completed by the SL and submitted to the PM and HSM for review and signature. Follow the instructions on the form and keep it accessible in the field during intrusive operations. Evaluate intrusive activities for changed conditions and contact the PM and HSM to ensure hazards are addressed and whether a new checklist needs to be completed.

6.2.17.6 Intrusive Activities within 3 feet of an Underground Utility (or if there is Uncertainty)

Any intrusive activities conducted within 3 feet of an underground utility or when there is uncertainty about utility locations, utility locations must first be physically verified by non-aggressive means such as air or water knifing, hand digging, or human powered hand augering. Non-conductive tools must be used if electrical hazards may be present.

Once the utility has been located, non-aggressive methods (hand digging, vacuum excavation, etc.) must still be used to perform intrusive activities within 3 feet of a high risk utility). Whenever feasible, utilities shall be de-energized. Deviations from this must be approved by the PM and HSM prior to work.

6.2.17.7 Spotter

A spotter shall be used to monitor for signs of utilities during advancement of intrusive work (e.g., sudden change in advancement of auger or split spoon, presence of pea gravel or sand in soils, presence of concrete or other debris in soils, refusal of auger or excavating equipment). If any suspicious conditions are encountered stop work immediately and contact the PM or HSM to evaluate the situation. The spotter must have a method to alert an operator to stop the intrusive activity (e.g., air horn, hand signals).

6.2.18 Working Alone

Personnel can only be tasked to work alone by the Project Manager, who shall assess potential hazards and appropriate control measures, with assistance from the HSM.

The presence of “lone workers” with an accountability system in place is permitted, depending on the hazards presented during the execution of the task. Reference the “Lone Worker Protocol,” which is included as an attachment to this PHSEP.

Only limited operations tasks are permitted to be performed alone. Activities that are not permitted to be performed by a lone worker include the following:

- Working at heights (e.g., on ladders, lifts, and scaffolding)
- Work on or near energized electrical systems (not permitted under this PHSEP)
- Any entry into a confined space
- Work involving electricity or other hazardous equipment

The employee working alone shall at all times be equipped with a working voice communication device such as a cellular phone, satellite phone, personal alarms, or two-way radio to check in to their project contact(s) at pre-determined times.

6.2.18.1 Call-in System for Lone Worker Accountability

The employee working alone shall at all times be equipped with a working voice communication device such as a cellular phone, satellite phone, personal alarms, or two-way radio to check in to their project contact(s) at pre-determined times.

Each time before going into the field, a daily check-in via phone or text shall be performed between the lone worker and task manager. A record of the check-in must be kept. The log/spreadsheet will document the date and time of check-in and the next scheduled check-in time).

During fieldwork, the lone worker and office contact worker must both have cell phones and each other's' phone number, as well as an alternate person's phone number.

The lone worker shall carry his/her cell phone throughout the field event; the ringer should be set on its loudest setting because wind or other noise can muffle the sound. If for any reason the cell phone becomes inoperable, the fieldworker shall immediately stop work, leave the site, and find an alternative method of contacting the task manager to verify the lone worker's safety and to inform the task manager of the issue.

Work shall not proceed in the field until the lone worker has a working device that provides communication with the task manager.

If at any time the task manager does not receive a check-in at the scheduled time, then they should attempt to contact the lone worker. If no contact is made, then the task manager should contact the facility contact person to check on the lone worker.

If no contact is made with the lone worker, then the task manager shall contact the PM and/or HSM to let them know that there is a possible emergency and to instruct the PM and/or HSM to go to the field location and assist the lone worker. The office contact worker will provide to emergency services the lone worker's name, last known location, vehicle description, and contact information.

6.2.19 Working Around Material Handling Equipment

When Jacobs personnel are exposed to material handling equipment, the following safe work practices/hazard controls shall be implemented:

- Never approach operating equipment from the rear. Always make positive contact with the operator, and confirm that the operator has stopped the motion of the equipment.
- Never approach the side of operating equipment; remain outside of the swing and turning radius.
- Maintain distance from pinch points of operating equipment.
- Never turn your back on any operating equipment.
- Never climb onto operating equipment or operate contractor/subcontractor equipment.
- Never ride contractor/subcontractor equipment unless it is designed to accommodate passengers and equipped with firmly attached passenger seat.
- Never work or walk under a suspended load.
- Never use equipment as a personnel lift; do not ride excavator buckets or crane hooks.
- Always stay alert and maintain a safe distance from operating equipment, especially equipment on cross slopes and unstable terrain.
- Wear a high visibility safety vest or high visibility clothing.

6.3 Physical Hazards and Controls

See the associated physical hazard section of the Jacobs HSE Field Handbook and sections below for hazards identified in Table 1.

6.4 Biological Hazards and Controls

See the associated biological hazard section of the Jacobs HSE Field Handbook and sections below for hazards identified in Table 1.

6.4.1 Aggressive Dogs

Working on in or around residential property can involve work where residents' pets are present. Follow the requirements below when performing work on residential property:

If you encounter a dog, know the signs of aggressive behavior—

- Ears are back, close to head;
- Eyes - Narrow or staring challengingly;
- Mouth/teeth - Lips open, drawn back to expose teeth bared in a snarl. Possible jaw snapping;
- Body is tense, upright, hackles up on neck (dominant position);
- Tail straight out from body and fluffed up; and
- Vocalization is snarling, growling, loud barking.

If you are threatened by a dog, remain calm, do not scream and avoid eye contact. If you say anything, speak calmly and firmly. Do not turn and run, try to stay still until the dog leaves, or back away slowly until the dog is out of sight or you have reached safety (e.g., vehicle). Identify the nearest "safe" location for each property and work area e.g., vehicle, building, etc.

If attacked, retreat to vehicle; attempt to place something between you and the dog, use dog repellant. If you fall or are knocked to the ground, curl into a ball with your hands over your head and neck and protect your face. If bitten, call 911.

6.4.2 Poison Ivy, Poison Oak, and Poison Sumac

Poison ivy, poison oak, and poison sumac typically are found in brush or wooded areas. They are more commonly found in moist areas or along the edges of wooded areas. Shrubs are usually 12 to 30 inches high, or can also be a tree-climbing vine, with triple leaflets and short, smooth hair underneath. Plants are red and dark green in spring and summer, with yellowing leaves anytime especially in dry areas. Leaves may achieve bright reds in fall, but plants lose its (yellowed, then brown) leaves in winter, leaving toxic stems. All parts of the plant remain toxic throughout the seasons. These plants contain urushiol a colorless or pale yellow oil that oozes from any cut or crushed part of the plant, including the roots, stems and leaves and causes allergic skin reactions when contacted. The oil is active year round.

Become familiar with the identity of these plants (see below). Wear protective clothing that covers exposed skin and clothes. Avoid contact with plants and the outside of protective clothing. If skin contacts a plant, wash the area with soap and water immediately. If the reaction is severe or worsens, seek medical attention.

Poison Ivy

Poison Sumac

Poison Oak

Contamination with poison ivy, sumac or oak can happen through several pathways, including:

- Direct skin contact with any part of the plant (even roots once above ground foliage has been removed).
- Contact with clothing that has been contaminated with the oil.
- Contact from removing shoes that have been contaminated (shoes are coated with urishol oil).
- Sitting in a vehicle that has become contaminated.
- Contact with any objects or tools that have become contaminated.
- Inhalation of particles generated by weed whacking, chipping, vegetation clearing.

If you must work on a site with poison ivy, sumac or oak the following precautions are necessary:

- Do not drive vehicles onto the site where it will come into contact with poison ivy, sumac or oak. Vehicles which need to work in the area, such as drill rigs or heavy equipment must be washed as soon as possible after leaving the site.
- All tools used in the poison ivy, sumac or oak area, including those used to cut back poison oak, surveying instruments used in the area, air monitoring equipment or other test apparatus must be decontaminated before they are placed back into the site vehicle. If on-site decontamination is not possible, use plastic to wrap any tools or equipment until they can be decontaminated.
- Personal protective equipment, including Tyvek coveralls (blue coveralls), disposable gloves, and disposable boot covers must be worn. PPE must be placed into plastic bags and sealed if they are not disposed immediately into a trash receptacle.
- As soon as possible following the work, shower to remove any potential contamination. Any body part with suspected or actual exposure should be washed with Zanfel, Tecnu or other product designed for removing urishiol. If you do not have Zanfel or Tecnu wash with cold water. Do not take a bath, as the oils can form and invisible film on top of the water and contaminate your entire body upon exiting the bath.
- Tecnu may also be used to decontaminate equipment.
- Use IvyBlock or similar products to prevent poison oak, ivy and sumac contamination. Check with a local drug store the closest Jacobs warehouse to see if these products are available. Follow all directions for application.
- If you do come into contact with one of these poisonous plants and a reaction develops, contact your supervisor and WorkCare. Be aware that in some instances, there can be a delay between contact with poisonous plants and the symptoms. If you are working near poison ivy or other poisonous plants and feel a mild skin irritation, apply Zanfel/Technu immediately and contact the occupational nurse. Let the PM/HSM know if you are particularly sensitive to poison ivy to look for opportunities to minimize exposure.

6.4.3 Ticks

Every year employees are exposed to tick bites at work and at home putting them at risk of illness. Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to 0.25 inch (6.4 mm) in size.

In areas where significant population density or infestation exists, tick reduction should be considered. Tick reduction can be achieved by disrupting tick habitats and/or direct population reduction using tick-toxic pesticides (e.g., Damminix, Dursban, Sevin).

Habitat disruption may include only simple vegetative reduction such as removing leaf litter and trimming grass and brush. Trim/clear walking paths and specific work locations or request facility mow areas prior to fieldwork. Often, projects schedule subcontractors to assist with vegetation reduction tasks prior to fieldwork. Tick populations can be reduced by between 72 and 100 percent when leaf litter alone is removed. In more heavily infested areas, habitat disruption may include grubbing, tree trimming or removal, and pesticide application (Damminix, Dursban, Sevin, etc.). This approach is practical in smaller, localized areas or perimeter areas that require occasional access. Habitat controls are to be implemented with appropriate health and safety controls, in compliance with applicable environmental requirements, and may be best left to the property owner or tenant or to a licensed pesticide vendor. Caution should be exercised when using chemical repellents or pesticides in or around areas where environmental or industrial media samples will be collected for analysis.

If vegetation removal or pesticide to eliminate ticks is not feasible or not effective, the requirements to prevent tick bites are “the three I’s”: Insecticide, Isolation, and Inspection. You need all three I’s to successfully protect yourself from ticks.

6.4.3.1 Insecticide

- Apply DEET or Picaridin repellent to exposed skin or clothing per product label. CDC recommended natural repellents may be used on a case-by-case basis for project staff sensitive to DEET or Picaridin. Repellant is required when walking in vegetated areas with potential tick habitat; AND
- Apply permethrin to the outside of boots, clothing and cloth field equipment (e.g., backpacks, snake chaps) before wearing, per product label. Consult this video, SDS, FAQ and label instructions for information on one of the available permethrin products that includes how to properly treat clothing and gear. Reapply Permethrin spray per the instructions (typically every six washings or six weeks). Insect Shield clothing is an alternative to spray permethrin, and lasts up to 60 washes.

6.4.3.2 Isolation

- So that ticks may be easily seen, wear light-colored clothing. Full-body New Tyvek (paper-like disposable coveralls) may also be used.
- To prevent ticks from getting underneath clothing tuck pant legs into socks or tape to boots and/or use tick gaiters (available through the warehouses). Tuck shirt into pants.
- Wear long-sleeved shirts, a hat or hard hat, and high safety-toed boots.

6.4.3.3 Inspection

- Carry a tick removal kit (available through the warehouses).
- Carry a lint roller. Frequently check for ticks and remove from clothing. Use lint roller, especially in the areas you can’t see (back, back of the legs), the white roller body of the lint roller makes it much easier to identify and remove the very small ticks.
- At the end of the day, search your entire body for ticks (particularly groin, armpits, neck, and head) and shower.

See the 2022 Tick Fact Sheet for more detailed information on tick identification, illnesses, and removal steps. If bitten by a tick, follow the removal procedures found in the Tick Fact Sheet, and call the HSM, PM, TM, and WorkCare.

Be aware of the symptoms of Lyme disease or Rocky Mountain spotted fever (RMSF). Lyme disease is a rash that might appear that looks like a bull's eye with a small welt in the center. RMSF is a rash of red spots under the skin 3 to 10 days after the tick bite. In both RMSF and Lyme disease, chills, fever, headache, fatigue, stiff neck, and bone pain may develop. If symptoms appear, again call the HSM, PM, TM, and JacobsCare.

Be sure to assist the HSM in completing an Incident Report using the Intelex system on Jacobs Connect if you do come in contact with a tick, attached or not.

7. Required Permits

(See Jacobs Global Work Instruction JJ-HS-WI-0305-JJ, Safe Work Permits)

Safe work permits are used as a work control process for defined hazardous activities. The use of work permits may be required by clients or as a result of task risk assessment.

Safe work permits are mandatory for the following types of operations (others based on client or other requirements may be needed as well):

- Hot Work
- Confined Space Entry
- Excavations
- Line Breaking
- Energized Electrical Work

Excavation permit is required to be completed for the seep mat installation work. See the “excavation” section of this PHSEP for specific requirements to complete the permit.

8. Hazard Communication

(See P&PS Work Instruction IB-HS-WI-0202-IB, Chemical Hazard Communication)

As indicated in Section 7 of the Handbook, under “Hazard Communication,” the hazard communication (HazCom) coordinator (the SL or qualified designee) must perform the following (additional HazCom duties are outlined in the Handbook):

- Complete an inventory of chemicals brought on site by Jacobs using the chemical inventory form included as an attachment to this PHSEP;
- Confirm that an inventory of chemicals brought on site by subcontractors is available;
- Request or confirm locations of Globally Harmonized System (GHS) compliant (i.e., consisting of 16 sections that appear in the same order and contain uniform information regarding the chemical) safety data sheets (SDSs) from the client, contractors, and subcontractors for chemicals to which Jacobs employees potentially are exposed;
- For chemicals used by Jacobs workers, before or as the chemicals arrive onsite, obtain a SDS for each hazardous chemical, include on the chemical inventory sheet (attached to this PHSEP), and maintain SDSs in an accessible binder onsite long with the chemical inventory sheet . Ensure everyone knows where SDSs are kept;
- The six required elements of the GHS label must include the product identifier, pictograms, signal word, hazard statements, precautionary statements, and the name, address, and telephone number of the chemical manufacturer, importer or other responsible party;
- The manufacturer’s original label on any incoming regulated product must not be removed or defaced. The manufacturer’s label and markings must be retained on the package or container until it is sufficiently cleaned of residue and purged of vapors to remove any potential hazards;
- Ensure all secondary containers are labeled in compliance with GHS labeling requirements. If GHS compliant information has not yet been provided by the manufacturer or chemical distributor, the HCC must contact the manufacturer or chemical distributor and document in the chemical inventory when the GHS labeling information will be available, until the labeling requirement is fulfilled;
- In the United States, the container label shall be in English, although labels in other languages may be kept as well. Container labels in other languages for non-speaking English-speaking workers will be made available when specified by the client for their project site or facility;
- Give employees required chemical-specific HazCom training using the chemical-specific training form included as an attachment to this PHSEP and ensure that the GHS training module on Jacobs’ E3 Learning and Development platform has been completed.
- Ensure that chemical use is included in the task HIIRA.

9. Contaminants of Concern

The table below summarizes the potential contaminants of concern (COC) and their occupational exposure limit and signs and symptoms of exposure. The table also includes the maximum concentration of each COC and the associated location and media that was sampled (groundwater, soil boring, surface soil). These concentrations were used to determine engineering and administrative controls described in the "Project-Specific Hazard Controls" section of this PHSEP, as well as PPE and site monitoring requirements.

Table 2: Contaminants of Concern

Contaminant	Location and Average[a] Concentration	Exposure Limits[b]	IDLH[c]	Symptoms and Effects of Exposure	PIP[d] (eV)
Acetone	7,800 µg /L	250 ppm	2500 ppm [10%LEL]	irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	9.69
1,1-Dichloroethane	GW: 120 µg /L	100 ppm	3000 ppm	irritation skin; central nervous system depression; liver, kidney, lung damage	11.06
1,2-Dichloroethane	GW: 100 µg /L	1 ppm (CA), 10 ppm (TLV)	50 Ca	CNS depression, nausea, vomiting, dermatitis, eye irritation, liver, kidney, and CNS damage; corneal opacity	11.05
1,1-Dichloroethene	GW: 180 µg/L	5 ppm	NL Ca	Eye, skin, and throat irritation; dizziness; headache; nausea; difficult breathing; liver and kidney dysfunction; pneumonitis.	9.65
1,2-Dichloroethene (trans)	GW: 110 µg /L	200 ppm	1,000	CNS depression, eye irritation.	9.65
1,1,2,2-Tetrachloroethane	GW: 210 µg/L	1 ppm	100 Ca	Nausea, vomiting, abdominal pain, finger tremors, jaundice, hepatitis, liver tenderness, monocytosis, kidney damage, dermatitis	11.10
Tetrachloroethylene (PCE)	GW: 240,000 µg/L	25 ppm	150 Ca	Eye, nose, and throat irritation; nausea; flushed face and neck; vertigo; dizziness; sleepiness; skin redness; headache; liver damage	9.32
1,1,1-Trichloroethane	GW: 52, 000 µg/L	350 ppm	700 ppm	irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	11.00
1,1,2-Trichloroethane	GW: 2,900 µg/L	10 ppm	100 Ca	Eye and nose irritation, CNS depression, liver damage, dermatitis	11.00

Contaminant	Location and Average[a] Concentration	Exposure Limits[b]	IDLH[c]	Symptoms and Effects of Exposure	PIP[d] (eV)
Trichloroethylene (TCE)	GW: 600,000 µg/L;	10 ppm	1,000 Ca	Headache, vertigo, visual disturbance, eye and skin irritation, fatigue, giddiness, tremors, sleepiness, nausea, vomiting, dermatitis, cardiac arrhythmia, paresthesia, liver injury	9.45
Vinyl chloride	GW: 130,000 µg/L	1 ppm	NL Ca	Weakness, abdominal pain, gastrointestinal bleeding, enlarged liver, pallor or cyanosis of extremities	9.99

Footnotes:

[a] Specify sample-designation and media: SB (Soil Boring), A (Air), D (Drums), GW (Groundwater), L (Lagoon), TK (Tank), SS (Surface Soil), SL (Sludge), SW (Surface Water).

[b] Appropriate value of permissible exposure limit (PEL), recommended exposure limit (REL), Cal/OSHA PEL (CA) or threshold limit value (TLV) listed.

[c] IDLH = immediately dangerous to life and health (units are the same as specified "Exposure Limit" units for that contaminant); NL = No limit found in reference materials; CA = Potential occupational carcinogen.

[d] PIP = photoionization potential; NA = Not applicable; UK = Unknown.

eV = electron volt
mg/kg = milligram per kilogram
mg/m^3 = milligrams per cubic meter
ug/m^3 = micrograms per cubic meter

Potential Routes of Exposure

Dermal: Contact with contaminated media. This route of exposure is minimized through use of engineering controls, administrative controls and proper use of PPE.	**Inhalation:** Vapors and contaminated particulates. This route of exposure is minimized through use of engineering controls, administrative controls and proper use of respiratory protection when other forms of control do not reduce the potential for exposure.	**Other:** Inadvertent ingestion of contaminated media. This route should not present a concern if good hygiene practices are followed (e.g., wash hands and face before drinking or smoking).

10. Site Monitoring

10.1 Direct Reading Monitoring

For each task listed in the table below, perform the associated monitoring ensuring the equipment is calibrated daily (or bump tested) according to the manufacturer's recommendations.

Note: The term "calibration" is used but it may actually be a "bump test" depending on what the manufacturer requires. There is a difference between actually calibrating (manually adjusting sensors to read a value) and "bump testing" (field verification that the instrument is reading what it's supposed to.) Many equipment manufacturers now say that performing actual calibration daily can damage the sensors, so they recommend a "bump test" daily or before use to verify the instrument is reading correctly, and they state a prescribed calibration frequency requirement. Refer to the manufacturer's instrument manual on the recommended daily calibration or bump test requirements. Be sure the calibration/bump test is documented.

Use the Daily Site Monitoring Form (or equivalent) to document the calibration (or bump test) and the readings taken. Retain area monitoring readings with project records.

Personal Breathing Zone and Area Samples

Personal breathing zone and area sampling results must be sent immediately to the HSM..

Exposure records (breathing zone and personal air sampling) must be preserved for the duration of employment plus thirty years. Copies of all project exposure records (e.g., copies of Daily Site Monitoring form or field logbook pages where breathing zone readings are recorded along with associated calibration) shall be sent to the F&ES Safety Program Assistant for retention and also maintained in the project files.

Subcontractors are responsible for air monitoring and performing integrated personal sampling for their employees as documented in their PHSEP or, if permitted, according to the table below.

Table 3: Direct Reading Monitoring Specifications

Instrument	Tasks	Action Levels[a]	Action to be Taken when Action Level reached	Frequency [b]	Calibration
Toxic Gas Monitor: MultiRAE Plus with 11.7 eV lamp (VOCs, O_2, LEL, CO, H_2S)	Drilling, GW monitoring; drum sampling any task, including seep mat installation where contact with contaminated GW or media is possible	< 1 ppm	Continue work	Initially and periodically	Daily
		≥ 1 ppm sustained in breathing zone	Allow to vent, use multiple industrial fans. If sustained, in breathing zone, monitor with vinyl chloride detector tubes noted below. If vinyl chloride not detected, continue work. Until next action level is reached (≥5 ppm)		
		1 to 5 ppm (no vinyl chloride detected)	Level D		
		≥5 ppm sustained in BZ	Suspend work and contact RHSM		

Instrument	Tasks	Action Levels[a]	Action to be Taken when Action Level reached	Frequency [b]	Calibration
CGI: MSA model 260 or 261 or equivalent (or MultiRAE above)	Drilling, GW monitoring	0-10%: >10% LEL:	No explosion hazard Explosion hazard; evacuate or vent	Initially and periodically	Daily
O_2Meter: MSA model 260 or 261 or equivalent (or MultiRAE above)	Drilling, GW monitoring	>25%[c] O_2: 20.9%[c] O_2: <19.5%[c] O_2:	Explosion hazard; evacuate or vent Normal O_2 O_2 deficient; vent or use SCBA	Initially and periodically	Daily
Detector Tubes: Vinyl chloride (0.5 to 30 ppm range) with pre-tube, or equivalent per manufacturer's instructions	When PID levels exceed the action levels in breathing zone	< 0.5 ppm > 0.5	Level D Stop work and contact RHSM (upgrade to would be required).	Initially and periodically when PID ≥ 1 ppm in areas indicated	Not applicable
Heat Stress Monitor - Refer to Flow Chart Below ☒ Ambient Temperature ☐ WBGT ☒ Heat Index ☒ Physiological (pulse or temperature)	Anytime heat index is over 80 degrees (or ambient temperature of 70 degrees is working in Tyvek)	Refer to the Handbook for the type of monitoring conducted.	Refer to the Handbook for the type of monitoring conducted.	When Heat Index reaches criteria.	

[a] Action levels apply to sustained breathing-zone measurements above background.

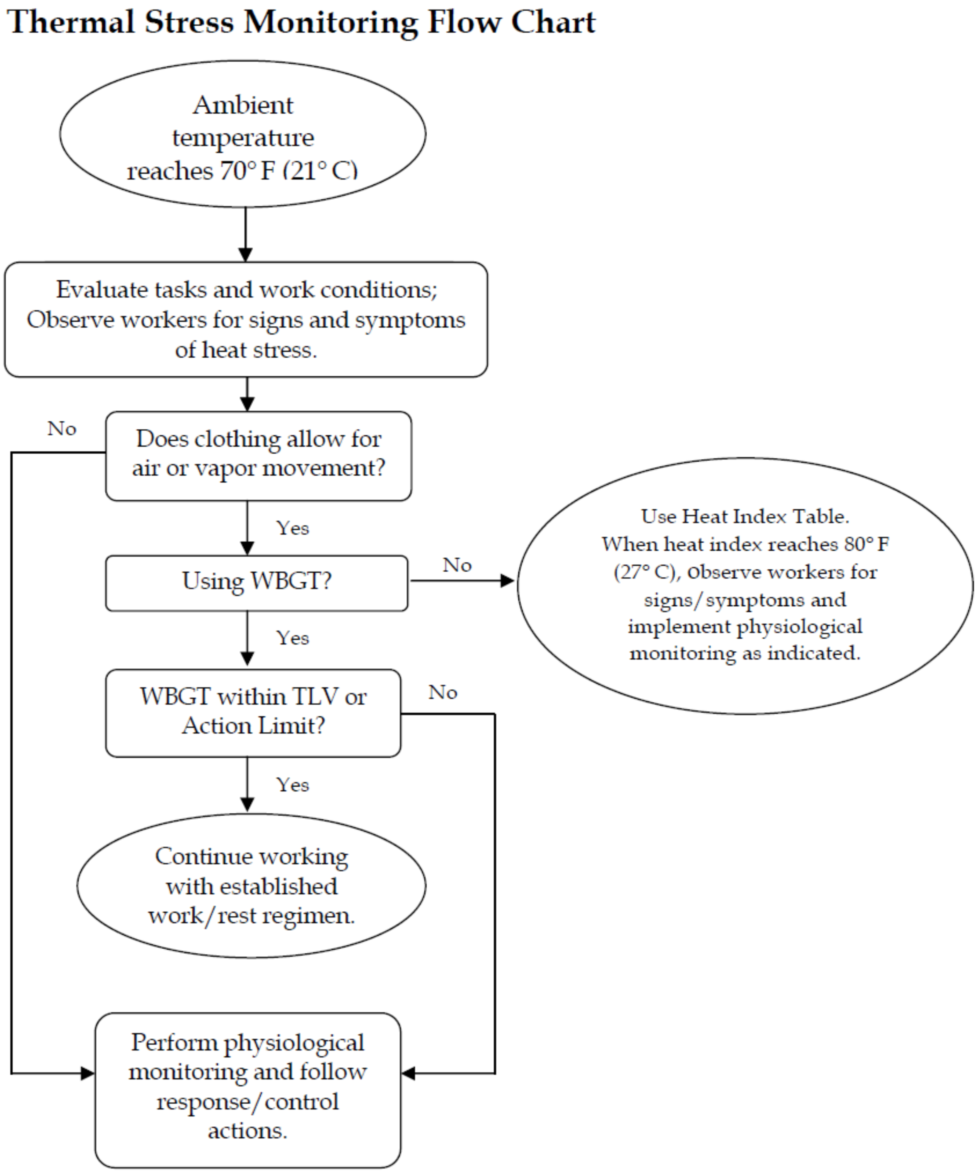
[b] The exact frequency of monitoring depends on field conditions and is to be determined by the SL; generally, every 5 to 15 minutes if acceptable; more frequently may be appropriate.

[c] If the measured percent of O_2 is less than 10, an accurate LEL reading will not be obtained. Percent LEL and percent O_2 action levels apply only to ambient working atmospheres, and not to confined-space entry. More-stringent percent LEL and O_2 action levels are required for confined-space entry.

[d] Noise monitoring and audiometric testing also required.

Figure 1: Heat Stress Monitoring Flow Chart

Use the flow chart below and refer to the applicable protocol in Section 7 of the Handbook for heat stress monitoring.



11. Personal Protective Equipment

11.1 Required Personal Protective Equipment (PPE)

(See P&PS Work Instruction, IB-HS-WI-0310-IB, Personal Protective Equipment Minimum Standards and IB-HS-WI-0310-US, PPE Guidance - USA))

PPE must be worn by employees when actual or potential hazards exist and engineering controls or administrative practices cannot adequately control those hazards.

A PPE assessment has been conducted by the HSM based on project tasks (see PPE specifications below). Verification and certification of assigned PPE by task is completed by the HSM that approved this plan. Refer to the Handbook, Section 9.1, "Personal Protective Equipment," for requirements on the use, care, and maintenance of PPE.

The table below outlines PPE to be used according to task based on project-specific hazard assessment. If a task other than the tasks described in this table needs to be performed, contact the HSM so this table can be updated. Task-specific PPE is also contained in task HIIRA for each task.

Ensure that all PPE is inspected prior to use and that you have been trained in its use. Ensure the PPE used fits properly. Contact the HSM if there are deficiencies or you haven't been trained on care, use, and limitations of PPE.

Table 4: PPE Requirements

Project-Specific Personal Protective Equipment Requirements [a]				
Task	**Level**	**Body**	**Head**	**Respirator** [b]
Site visits, setting up for GW sampling (not in vegetation where additional PPE would be required for ticks/poisonous plants)	D	☒ Work clothes (long-sleeved shirt, long pants) ☐ Cotton Coveralls ☒ Safety-toed Boots ☒ Gloves (leather) when handling materials ☒ ANSI/ISEA 107-2010 high visibility vest when walking near traffic or roadways ☐ Other: (specify)	☒ Hat with wide brim ☒ANSI Z87.1 Safety glasses (clear and shaded in case entry into buildings are needed) ☒Hearing protection, as needed [d]	None required

Project-Specific Personal Protective Equipment Requirements [a]				
Task	**Level**	**Body**	**Head**	**Respirator [b]**
Hand augering Geoprobe boring Soil boring Well installation Seep mat installation	Modified D	☒ Work clothes (sleeved shirt, long pants) ☒ Tyvek coveralls or apron** ☒ ANSI/ISEA 107-2010 high visibility vest ☒ Safety-toed boots ☐ Safety-toed rubber boots (can be deconned in a boot wash) ☒ Outer boot covers** ☒ Inner surgical-style nitrile** ☒ Outer chemical-resistant nitrile gloves.** ☒ Other: (specify) Snake chaps/gaiters as required (see snakes hazard section) when working in tall grass. PPE required if in vegetated areas. Survey area for poisonous plants and refer to AHA/HIIRA for precautions ** (SL/SSHO may determine body protection based on potential contact with site contaminants. If outer layer of personal clothing cannot be kept clean, then outer cotton coveralls or blue uncoated Tyvek coveralls shall be worn. (Polycoated Tyvek when there is potential to contact contaminated groundwater or free liquids from drums).	☒ ANSI Z89.1 Hardhat [c] ☒ ANSI Z87.1 Safety glasses ☒ Hearing protection [d]	None required
Groundwater sampling, Containerizing purge water and transferring to drum (waste management), drum sampling, vapor pin installation	Modified D	☒ Work clothes (long-sleeved shirt, long pants) ☒ Cotton coveralls, Tyvek coveralls or apron ** ☒ ANSI/ISEA 107-2010 high visibility vest ☒ Safety-toed boots ☐ Outer boot covers ☒ Inner surgical-style nitrile** ☒ Leather gloves for opening wells, handling materials, roto-hammer use ** (SL may determine body protection based on potential contact with site contaminants. If outer layer of personal clothing cannot be kept clean, then outer	☒ANSI Z89.1 Hardhat ☒ANSI Z87.1 Safety glasses (clear and shaded in case entry into buildings are needed) ☒Hearing protection, as needed [d]	None required

Project-Specific Personal Protective Equipment Requirements [a]				
Task	**Level**	**Body**	**Head**	**Respirator [b]**
		cotton coveralls or blue uncoated Tyvek coveralls or Tyvek apron shall be worn.		
Working in areas with poison ivy or other poisonous plants --add this to PPE ensembles above	D	☒ Work clothes (long-sleeved shirt, long pants) ☒ Cotton coveralls, blue Tyvek coveralls ☐ Outer disposable boot covers ☒ Disposable gloves such as nitrile ☒ Ivy Block on exposed skin, Zanfel/Technu on hand for washing exposed skin or areas where plant may have contacted. Use Technu to decon tools, equipment. Bag PPE so any oils don't transfer to other surfaces or skin.	ANSI Z89.1 Hardhat [c] ☒ ANSI Z87.1 Safety glasses ☒ Hearing protection [d]	None required
Working in vegetated areas (tick habitat)—add this to PPE ensembles above	D	☒ Permethrin-treated clothing (long-sleeved shirts, pants, socks and boots). Treat and re-treat as needed according to manufacturer's instructions label, there is also pre-treated clothing available through various vendors) ☒ Wear Lymeez tick gaiters or tuck pants into socks and duct tape where they join. ☒ Use DEET-containing insect repellent on exposed skin ☒ Frequent tick checks with lint roller over clothing. Contact HSM if ticks are found crawling to determine if other measures are needed. ☒ Have tick removal kit for each field crew member	☐ ANSI Z89.1 Hardhat [c] ☒ ANSI Z87.1 Safety glasses ☐ Hearing protection [d]	None required.

Reasons for Upgrading or Downgrading Level of Protection (with approval of the HSM)	
Upgrade[f]	**Downgrade**
• Request from individual performing tasks. • Change in work tasks that will increase contact or potential contact with hazardous materials. • Occurrence or likely occurrence of gas or vapor emission. • Known or suspected presence of dermal hazards. • Instrument action levels in the "Site Monitoring" section exceeded.	• New information indicating that situation is less hazardous than originally thought. • Change in site conditions that decrease the hazard. • Change in work task that will reduce contact with hazardous materials.

[a] Modifications are as indicated. Jacobs will provide PPE only to Jacobs employees.

[b] No facial hair that would interfere with respirator fit is permitted.

[c] Hardhat and face-shield areas are to be determined by the SL.

[d] Hearing protection should be worn when conversations cannot be held at distances of 3 feet (1 meter) or less without

Project-Specific Personal Protective Equipment Requirements [a]				
Task	**Level**	**Body**	**Head**	**Respirator [b]**

shouting.

[e] See cartridge change-out schedule.

[f] Performing a task that requires an upgrade to a higher level of protection (e.g., Level D to Level C) is permitted only when the PPE requirements have been approved by the HSM, and an SL qualified at that level is present.

12. Worker Training and Qualification

12.1 Jacobs Worker Training

(See P&PS Work Instruction, IB-HS-WI-0200-IB; HSE Training and Competency)

The Project Manager shall ensure that all employees, including subcontractor employees, have the correct training, skills and experience to undertake the tasks they are engaged in. All project staff will have the necessary licenses to drive vehicles, operate equipment and undertake specialized work as required by law.

The following training is required for Jacobs personnel working onsite, in addition to their assigned worker category training (SLHW, HWW, HWWL). Copies of training will either be available onsite, or readily available from the Jacobs Learning Management System (LMS) training database system. Refer to Section 12 of the Handbook for a description of HAZWOPER-related and Safety Liaison training.

Table 5: Jacobs Required Worker Training

Required Jacobs Worker Training	**Jacobs Task or Equipment-Specific Training (if performing task)**
☒ 40-hour HAZWOPER Training	☐ Aerial Lift Operator Training
☒ 8-hour HAZWOPER Refresher	☐ Confined Space Entry Training
☒ 3-day HAZWOPER OJT	☐ Excavation Safety Training
☒ Jacobs PHSEP Training	☐ Fall Protection (site-specific)
☒ Jacobs F&ES HSE Field Handbook	☐ Forklift Operator
☒ Jacobs task HIIRA	☐ Hazard Communication
☐ Subcontractor PHSEP	☐ On-Track Railroad Safety Training
☒ 10-hour OSHA Construction Safety Training for overseeing construction tasks or individual awareness training such as excavation awareness training	☐ NFPA 70E Training (energized electrical safety training) (refer to raining category/user group for all applicable training needed)
☒ First Aid/CPR/BBP – at least 2 people	
☒ At least one SL-HW (refer to training category/user group for all applicable training needed)	☐ Qualified Earthmoving Equipment Operator
☒ HWW (refer to raining category/user group for all applicable training needed)	☐ Scaffold Training
☐ At least one SL-C (refer to raining category/user group for all applicable training needed)	☒ ADT Driver Training/Jacobs Permit to Drive
☒ Embracing BeyondZero	☒ Other (specify): Familiar with using rotohammer, review operating manual and operate in accordance with the manual

Required Jacobs Worker Training	Jacobs Task or Equipment-Specific Training (if performing task)
Project-Specific Required Training (available on Jacobs' E3 Learning and Development platform)	
☐ 3R Munitions Safety Awareness Training	☒ Hand Safety Training
☐ Cadmium Training	☒ Manual Lifting Training
☒ Drum Handling Training	☐ Railroad Safety On-line Training
☒ Excavation Awareness Safety Training	☒ Traffic Safety Training
☒ Globally Harmonized System Training (HazCom)	☒ Other (specify) Silica awareness training

12.2 Subcontractor Worker Training

The following training is required for subcontractor personnel working onsite. Copies of training shall be available onsite.

Table 6: Subcontractor Required Worker Training

Required Subcontractor Worker Training	Subcontractor Task or Equipment-Specific Training (required if performing this work)
☒ 40-hour HAZWOPER Training	☐ Demolition Competent Person
☒ 8-hour HAZWOPER Refresher	☒ Excavation Competent Person
☒ 8-hour HAZWOPER Supervisor	☐ Fall Protection (site-specific)
☒ 3-day HAZWOPER OJT	☐ Flagger Training
☒ Jacobs PHSEP Training	☐ Forklift Operator
☒ Jacobs F&ES HSE Field Handbook	☐ Hazard Communication
☒ Subcontractor SSoW (safety plan, task HIIRA,)	☐ Ladder Safety Training
☐ Subcontractor PHSEP	☐ Lead Training
☐ 10-hour OSHA Construction Safety Training	☐ Lockout/Tagout Training
☐ 30-hour OSHA Construction Safety Training	☐ On-Track Railroad Safety Training
☐ Respiratory Protection Training	☐ NFPA 70E Training (energized electrical safety training)
☐ First Aid/CPR/BBP – at least 2 people	☐ Qualified Drill Rig Operator
☐ Aerial Lift Operator Training	☒ Qualified Earthmoving Equipment Operator
☐ Asbestos Competent Person	☒ Qualified Rigger

Required Subcontractor Worker Training	Subcontractor Task or Equipment-Specific Training (required if performing this work)
☐ Asbestos Training (Supervisor, Worker)	☐ Qualified Crane Signaler
☐ Confined Space Entry Training	☐ Respirator Training, Medical and Fit Test
☐ Certified Crane Operator	☐ Scaffold Training
☐ Crane Assembly/Disassembly Competent Person	☐ Other (specify):

The designation of competent person is a specific position of authority for a particular activity with defined roles and responsibilities and, in some cases, requisite qualifications. The subcontractor must designate a qualified competent person for the following tasks, and supporting documentation (e.g., training documentation, resume of experience, activity competent person designation is granted for, etc.) must be available for Jacobs' review upon request.

Table 7: Subcontractor Tasks Requiring a Competent Person

☒ Excavation Competent Person	☐ Lead Competent Person
☐ Asbestos Competent Person	☒ Other: Rigging
☐ Scaffolding Competent Person	☐ Other:
☐ Crane Competent Person	☐ Other:

12.3 HAZWOPER-Exempted Tasks

The following tasks are not within the scope of the HAZWOPER standard so HAZWOPER training is not required for workers performing these tasks:

In general, the regulation doesn't apply if:

- Workers work exclusively within uncontaminated areas of the hazardous waste site,
- Do not enter areas where hazardous waste may exist, are stored or are processed, and
- Are not exposed to health or safety hazards related to hazardous waste operations.

Note—tasks below must meet all three bulleted items above.

Task	Task
Site visits outside of demarcated exclusion zones where sampling is being performed	

13. Medical Surveillance and Qualification

The following medical surveillance is required for Jacobs and subcontractor personnel working onsite. Copies of physician's medical opinion will either be available onsite, or for Jacobs staff, readily available from the Jacobs Learning Management System database. Refer to Section 13 of the Handbook for a description of HAZWOPER, respirator user, and hearing conservation medical surveillance.

Table 8: Medical Surveillance Requirements

General Required Medical Surveillance	Job or Activity-Specific Medical Surveillance (required if performing this work)
☒ HAZWOPER Medical Clearance	☒ Noise
☒ Respirator Medical Clearance	☐ Baseline Blood Lead
	☐ Asbestos Medical Clearance
	☐ Other (specify):

14. Site Control Plan

Site control is established to prevent the spread of contamination at the site and to ensure that only authorized individuals are permitted into potentially hazardous areas.

Use of the buddy system will be implemented. The SL will implement site control procedures for Jacobs work. Site control will vary dependent upon the activity and location where the activity is taking place.

For activities such as groundwater sampling, extraction well work, site control shall be dependent upon the potential for unauthorized personnel entering the work space. If there is potential, cones, flagging or some other form of demarcating the work zone shall be used.

Establish onsite communication consisting of the following:

- Line-of-sight and hand signals
- Air horn
- Mobile phone
- Establish and maintain the “buddy system.”
- Initial air monitoring is conducted by the SL in appropriate level of protection.

The SL is to conduct periodic inspections of work practices to determine the effectiveness of site control. Deficiencies are to be corrected by the subcontractor or SL and noted in the field logbook.

15. Decontamination

15.1 Decontamination During Medical Emergencies

Refer to the Handbook, Section 15, “Decontamination,” for a complete description of decontamination activities and diagrams of typical decontamination areas. Decontamination areas will be established for work in potentially contaminated areas to prevent the spread of contamination. Decontamination areas should be located upwind of the exclusion zone where possible and should consider any adjacent or nearby projects and personnel. No eating, drinking, or smoking is permitted in contaminated areas and in exclusion or decontamination zones.

All contaminated material generated through the personnel and equipment decontamination processes (e.g., contaminated disposable items, gross debris, liquids, sludges) will be properly containerized and labeled, stored at a secure location, and disposed in accordance with project plans.

Personnel	Sample Equipment
• Body-coverall/apron removal, if used • Glove removal • Hand wash/rinse • Face wash/rinse • Shower ASAP • Contain PPE for disposal	• Wash/rinse equipment • Contain rinsate for disposal, as directed by the waste management plan • Containerize, label and transport purge water to drum per waste management plan

16. Communications

A primary and backup means of communication for field crews have been established as described below:

Type of Communication	Primary Means	Backup Means
Communication between field crew	☒ Voice	☐ Voice
	☐ Radio	☐ Radio
	☐ Phone	☒ Phone
Communication with Office crew	☐ Radio	☐ Radio
	☒ Phone	☒ Landline
Communication with Fire and Emergency Services	☐ Radio	☐ Radio
	☒ Phone	☒ Landline

17. Required Facilities and Equipment

(See P&PS Procedure, IB-HS-PR-0600-IB, Health and Well Being)

The following facilities and equipment are required and used for safe completion of work:

Facility	Type	Location
☒ Restrooms	In authorized indoor locations (buildings), portable restroom at sites not near buildings	Varies
☒ Supplementary Illumination (as needed)	Portable type if needed	At work site
☒Emergency Eyewash	Squeeze bottle type or full eyewash capable of flushing eyes for 15 minutes (e.g., injections or other chemical)	In field vehicles, staged at work area
☒ First aid kit/supplies, bloodborne pathogen kit	Portable, Class A, Type IV (for GW monitoring)	In field vehicles, staged at work area
☒ Fire extinguishers	Type ABC	In vehicles, staged at work area
☒ Spill Kit(s)	Portable, various sizes	In vehicles, staged at work area
☒ Potable Water		In field vehicles
☒ Shade/rest area	Portable tarps/canopies, A/C vehicle	Varies as needed
☒ COVID Mitigation supplies such as hand sanitizer, disinfectant wipes	hand sanitizer, disinfectant wipes	In field vehicles

18. Emergency Response Plan

Personnel responsible for coordinating emergency situations during site activity are identified below. The Emergency Contacts Page and a site map showing assembly points and directions to the authorized medical facility is at the front of this plan. Documented rehearsal and critique of this plan is required at least once during the task, or more often as necessary.

Responsibility	Name	Phone Number(s)
Emergency Response Coordinator (ERC)	Deirdre Kearney	Mobile: (781) 710-4276
Alternate ERC	Raymond Cadorette	Mobile: (774) 571-1183
Type (desk or field) and frequency of rehearsal	N/A – short duration work, review emergency response actions upon mobilization at new work locations	

If an emergency situation develops which requires evacuation of the work area, the following steps shall be implemented.

Evacuation Step	Methods and comments:
Notify affected workers	Notify Jacobs workers of any evacuation needed via voice, radio or phone, use evacuation route and rally point. Notify subcontractors.
Evacuate to safe location	Evacuate to the designated rally point (determined daily by SL)
Assemble and account for workers	SL to account for all workers, contact subcontractor and ensure subcontractor has accounted for all workers
Notify Supervisor/Manager	Notify Jacobs PM, HSM, (EM if needed) of incident
Complete incident report	HSM or EM to complete with input from SL

Potential emergency situations and response actions are identified below.

In case of:	Response actions:
Injury or illness	Major Medical: FA/CPR trained personnel respond. If additional response required, contact local emergency responders and 911. Have a designee assist with guiding ambulance service to site if needed. If Jacobs P&PS employee, call WorkCare at 888-449-7787. Minor Medical: FA/CPR trained personnel respond. If Jacobs P&PS employee, call WorkCare at 888-449-7787. Transport to occupational health clinic if advised to do so.
Chemical exposure	Decon affected employee, seek medical treatment if necessary. Utilize eyewash and shower if needed. If additional response required, contact local emergency responders. If Jacobs P&PS employee, call WorkCare at 888-449-7787.
Fire or explosion	Evacuate site to designated location, call 911. Provide necessary first aid, seek treatment if necessary. For small fires, only respond to trash can size fires with site fire extinguishers.
Adverse weather	Shut down work; rally to nearest structure.

Heat Stroke	Call 911, have a designee give location and directions to ambulance service if needed. If Jacobs P&PS employee, call WorkCare at 888-449-7787.
Material spill or release	Appropriate spill response materials for all chemicals must be present at the job site. Only qualified (by training and previous experience) who have proper PPE and equipment available shall provide spill response operations, when safe to do so. Immediately identify the character, exact source, amount, and areal extent of any released materials, if safe to do so.
Active Shooter	Have a plan when working on client premises—look for at least 2 evacuation routes/points. Program emergency numbers in your phone (client emergency service numbers, HSM, PM, Supervisor, WorkCare, US Security Officer, Keith Waddell (214-920-8327). If an active shooter is on the premises follow Run, Hide, Fight: • Run: Leave belonging behind. Try to get out of the building or danger area if possible using exits. Call 911 when in a safe area and then call Keith Waddell, Security (+1 214 616 5662 (mobile)), PM and HSM. • Hide: Act quickly - Find a place, closet or office, or something to hide behind out of the vision of shooter. Lock or barricade or otherwise secure the spot if possible. Turn off lights, silence cell phones. Stay calm and quiet • Fight: Last resort! If your life is at risk—work alone as or as a group. Use improvised weapons, act aggressively, disarm or injure the shooter, commit to your actions. When law enforcement arrives – stay calm—show hands, spreading fingers. Avoid sudden movements, yelling or pointing. Allow law enforcement to do their job to control the area. Their first priority is finding the shooter. Once you are safe – be sure to notify your supervisor, the PM, and HSM of your status. The PM/Supervisor shall follow the incident reporting process, including notification in accordance with the incident reporting flowchart. HSM will complete an Intelex report.

Evacuation Signals:	**Meaning:**
Grasping throat with hand	Emergency-help me.
Thumbs up	OK; understood.
Grasping buddy’s wrist	Leave area now.
Continuous sounding of horn	Emergency; leave site now.

19. Incident Notification, Reporting, and Investigation

(See P&PS Work Instruction IB-HS-WI-0400-IB, P&PS Incident Reporting and Investigation)

19.1 Incident Notification

All employees and subcontractors' employees shall immediately report any incident (including "near misses,") in which they are involved or witness to their supervisor.

The Jacobs or subcontractor supervisor, upon receiving an incident report, shall inform his immediate supervisor and the Jacobs SL (see incident notification flowchart at the end of this section).

The SL shall immediately verbally report the following information to the HSM and PM by phone and e-mail (an initial incident notification form is available as an attachment to this PHSEP):

- Project Name and Site Manager;
- Date and time of incident;
- Description of incident;
- Extent of known injuries or damage;
- Level of medical attention; and
- Preliminary root cause/corrective actions

If the incident was an environmental permit issue (potential permit non-compliance, other situation that result in a notice of violation) or a spill or release, contact the Project EM immediately so they can evaluate reportable quantity requirements and if subsequent agency notification is required.

In critical emergency situations (medical, natural disaster, security, civil unrest, etc.), the local emergency responders listed on the Emergency Contact Page should be the initial point of contact. If necessary, use the Jacobs International SOS (ISOS) application (Membership #: 14AGDA950544IT). ISOS provides expanded medical and security advisement resources.

19.1.1 Determine the Actual Severity and Worst Potential Severity

Work with your HSM or EM and use the severity table below to determine the Actual Severity (AS) and the Worst Potential Severity (WPS) of the incident. WPS is a way of rating the incident based on what harm may have realistically been experienced considering the controls in place at the time had the incident realized its full potential. Once the AS and WPS are determined, ensure the verbal reporting take place at the time period specified. Ensure that both operations and HSE chains are notified. AS and WPS with increasing severity requires a higher level of notifications. See table and incident notification flowchart.

AS or WPS (specific Operations reporting requirements)	Injury/Illness	Environment	Reputation	Economic / Material Production	Motor Vehicle Incident (MVI)
5 (Report up to LoB President and CEO within 2 hours)	Fatality or total permanent disability or kidnapping	Serious off-site impact, significant remediation required	International media coverage; regulatory sanction	USD$ > 3 million	Collision with another vehicle or object with at least one vehicle moving at high speed; >50mph (80kph) or an incident involving vehicle roll-over or striking a pedestrian, bicycle or motorcycle
4 (Report up to LoB SVP within 2 hours)	Partial disability; life changing; intensive care or aggravated assault	Significant off-site impact, some remediation required	National media coverage; regulatory action	USD$ 300k-3mill	Collision with another vehicle or object with at least one vehicle moving at medium speed; >40 and 65kph and < 80kph)
3 (Up to VP/GM within 2 hours)	Urgent treatment; surgery or assault	Release significantly above reportable limit or some local impact	State media coverage; Prohibition Notice	USD$ 30k-300k	Collision with another vehicle or object with at least one vehicle moving at medium speed; >30 and < 40mph (>48kph and < 65kph)
2 (Up to Regional Ops within 1-2 hours)	Medical treatment to prevent deterioration (i.e., more than first aid) or harassment	Release above reportable limit or minor impact	Local media coverage; citations/ fines	USD$ 3k-30 k	Low speed collision (< 30mph or 48kph) with another vehicle or object
1 (up to PM by end of the day)	Simple, immediate treatment or simple threat	Small release contained onsite and no impact	No media coverage	USD$ < 3 k	Minor collision while stationary or moving at slow speed while parking, backing, or maneuvering

19.2 Intelex and Incident Report Form

The HSM or EM shall complete an entry into the Intelex system located on JacobsConnect. The SL shall summarize the incident and provide any pictures and forward it to the HSM within 24 hours.

19.3 WorkCare Injury Management and Return to Work (for U.S./Puerto Rico-based P&PS Jacobs Staff Only)

In the event of an injury, or potential injury (i.e., involvement in motor vehicle collision with no apparent injury; a puncture wound with no bleeding or apparent infection, etc.), the following actions shall be taken:

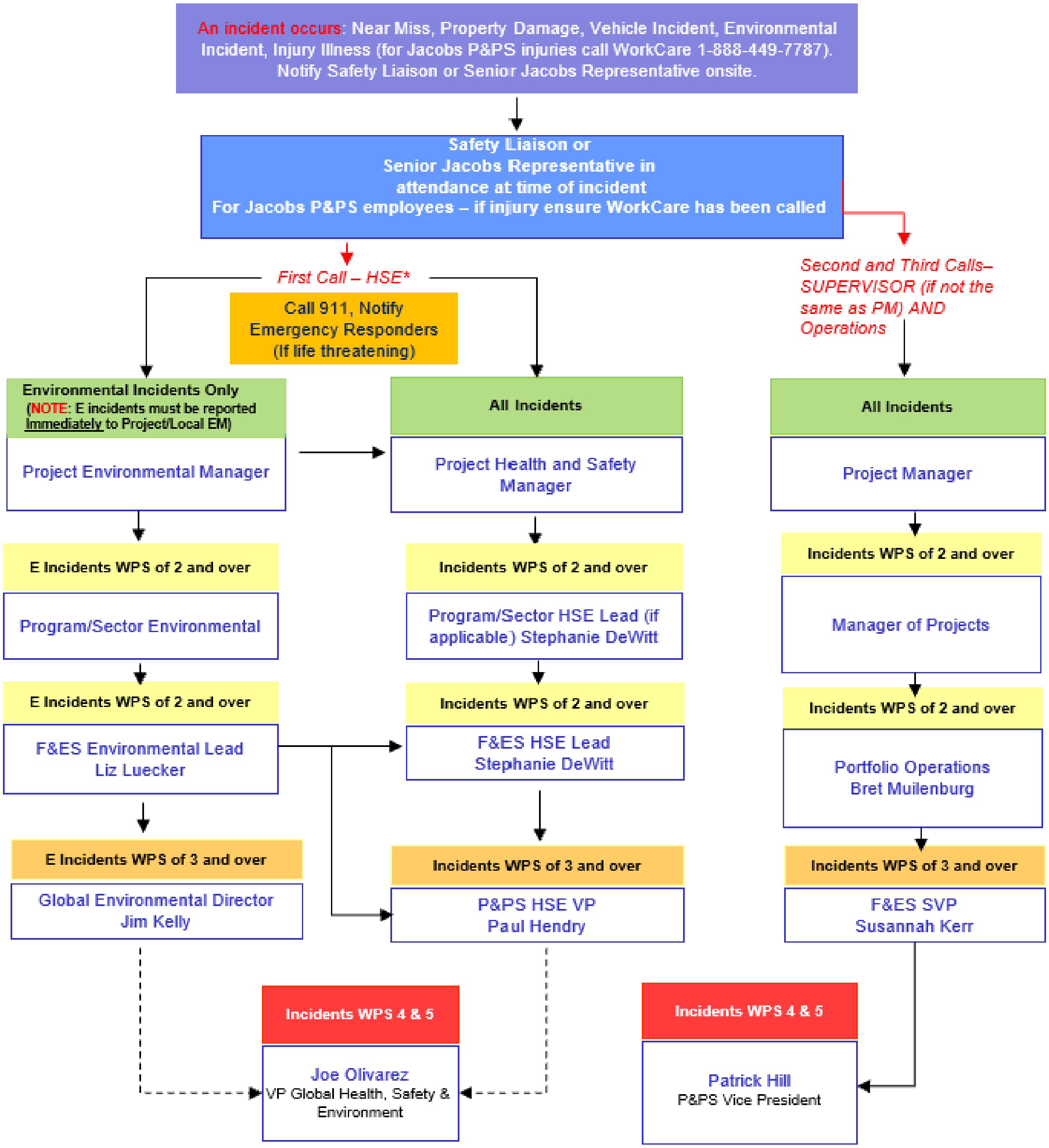
- Employee informs their supervisor.
- Employee calls the Injury Management Program toll free number 1-888-449-7787 immediately and speaks with the Occupational Injury Nurse. This number is operable 24 hours per day, 7 days a week. **Employees are encouraged to enter this phone number into their cell phones prior to starting field work.**
- Supervisor ensures employee immediately calls the Injury Management Program number. Supervisor makes the call with the injured worker or for the injured worker, if needed.
- Nurse assists employee with obtaining appropriate medical treatment, as necessary schedules clinic visit for employee (calls ahead, and assists with any necessary follow up treatment). The supervisor or

SL accompanies the employee if a clinic visit is necessary to ensure that employees receive appropriate and timely care.

- SL or designee shall verbally notify the HSM and PM. The SL or designee may use the hardcopy Incident Report attached to this plan to forward to the HSM for Intelex entry. HSM completes the Intelex entry within 24 hours.
- Nurse notifies appropriate Jacobs staff by e-mail (supervisor, Health & Safety, Human Resources, Workers' Compensation).
- Nurse communicates and coordinates with and for employee on treatment through recovery.
- Supervisor and/or PM ensures suitable duties are identified and available for injured or ill workers who are determined to be medically fit to return to work on transitional duty (temporary and progressive).
- Supervisor and/or PM ensures medical limitations prescribed (if any) by physician are followed until the worker is released to full duty.

Verbal incident notification is made to both the HSE and the Operations chains to the indicated group depending on the severity, and any project, geographic, or client specific notification and reporting requirements as shown in the flowchart below (Also refer to P&PS Work Instruction IB-HS-WI-0400-IB, Incident Reporting and Investigation). The HSM will complete an Intelex report.

Jacobs F&ES Verbal Chain for Reporting all Field Incidents



* First call HSE – If the incident is an environmental incident, immediately (within 15 minutes) call the EM to ensure timely reporting to external agencies, if necessary. If any other type of incident, call the HSM as the first call.

Notes:

1. Worst Potential Severity (WPS) definitions are to be found in Global Work Instruction JJ-HS-WI-0400-JJ, HSE&S Incident Mgmg.
2. Actual 4 and 5 must be communicated to Legal and Communications by the HSE VP or GVP
3. All incidents involving Jacobs employees or a subcontractor under Jacobs control (including motor vehicle accidents, injuries, environmental incidents and near-misses) shall be reported as soon as possible **in person or by telephone**.
4. If your Project Manager is not your Line Manager, it is essential that a call is made to both.
5. Calls must be made to both the relevant HSE and operations chains. These are not alternatives.
6. Security and Sustainability Directors / VP's will be notified where appropriate by HSE&S VP / HSE VP
7. Where required by legislation, a Jacobs HSES&S Manger will make the necessary report to the enforcing authorities.

19.4 Drug and Alcohol-Free Workplace

(See Jacobs Human Resource Policy PL-EB-PL-6830-PL, Drug and Alcohol-Free Workplace)

All employees, subcontractors, and other employed individuals are expected to arrive at work fit to carry out their jobs and to be able to perform duties safely without any limitations due to the use or aftereffects of alcohol or drugs (whether prescribed, over the counter, or illegal).

It is forbidden to be present at the workplace after consuming alcohol or drugs and/or possess and/or consume alcohol or drugs at the workplace. Any employee or subcontractor who violates these rules will not be permitted to work. Immediate supervisors are responsible for monitoring adherence to the policy.

When an employee, subcontractor or employed individual arrives at work or during the workday and a supervisor reasonably believes that they are under the influence of alcohol or drugs, the supervisor must immediately contact Human Resources in order that the person can be provided with assistance and an investigation can be undertaken.

19.5 Post-Incident Drug Testing Requirements

(See Jacobs Human Resource Procedures US-EB-PR-6830-US, Drug and Alcohol-Free Workplace Testing, Searches and Inspection)

Post-Incident Drug and Alcohol testing may be initiated by the employee supervisor, Human Resources and/or Drug and Alcohol-Free Workplace Program Administrator (DAFWPA) when any of the following occur:

- An employee experiences a work-related injury on or in Company Property/Workplace with a Worst Potential Severity of 3 (WPS 3), or greater, as described in JJ-HS-WI-0400-JJ, HSE&S Incident Management, in which the Company reasonably believes (under the reasonable suspicion provisions and processes in the reference procedure (US-EB-PR-6830)) that drug and/or alcohol use is a contributing factor.
- An employee experiences an incident resulting in property damage where the Company reasonably believes the damages are rated at least a WPS 3, resulting in a cost of over US$30,000 or greater and/or where the employee is alleged to be at fault for causing the incident.
- Any incident with a WPS 3 or greater on or in Company property/workplace (to an employee or any third parties) involving the employee's use and operation of any heavy machinery and/or where the employee is alleged to be at fault for causing the Incident leading to injury while operating a motor vehicle or equipment.
- Any work-related incident involving an employee considered to be a serious near miss event rated at least a WPS 3 that occurs in the field or in the office as reasonably determined by the Company and where the Company reasonably believes (under and following the reasonable suspicion provisions and processes in this Procedure) that drug and/or alcohol use by the employee is a contributing factor to the serious near miss.
- Other circumstances as may be appropriate, as determined by management and HR, in consultation with the DAFWPA (and Legal, as necessary).

20. Inspections, Observations, and Leadership Engagement

20.1 Inspections and Audits

(See P&PS HSE Procedures IB-HS-PR-0400-IB, HSE Governance)

Various types of inspections, observations, and leadership engagement may be conducted, including the HSE Site Inspection Report, Leadership HSE Site Walks/Engagement, project activity self-assessments, Beyond Zero Observations, Agency inspections, and operational project reviews which are described below.

20.1.1 HSE Site Inspection Reports

The HSE Site Inspection Report shall be performed monthly by the PM or designee. It is available as an attachment to this plan or can be filled out electronically through the Intelex Audit Module (also available on mobile devices). If using a hard copy form, be sure to keep with the project files. Notify the HSM or EM of any findings.

20.1.2 Leadership Engagement/Site Visits

The project PM and Managers of Project (or their designees) will conduct a minimum of two Leadership Engagement sessions or Site Walks to the project every year (this would include ORRs, subcontractor chartering meetings, site walks, project kick offs when the PM/MoP participates). The PM may delegate completion to the task lead, field team leader, or construction manager if the project is of short duration and a visit is not planned.

The Leadership Engagement session or Site Walk will be documented using the Leadership Engagement tool in the Intelex Beyond Zero Observation Module. Contact your HSM if you need directions for completing the form and copy your HSM on your submittal. Examples of Leadership Engagement include leading the subcontractor chartering call, engaging with project team on matters of HSE, performing a site visit/walk to observe HSE at the project, completing a HSE Site Inspection Report, holding an HSE Stand-Down, etc.

20.1.3 Environmental Inspections

Additional environmental inspections may be required based on the scope of the project. These can include weekly hazardous waste container inspections, daily hazardous waste tank inspections, monthly oil Spill Prevention Control and Countermeasures (SPCC) inspections, and routine stormwater inspections. Contact your Environmental Manager to determine what environmental inspections may be needed. A separate plan (e.g., waste management, environmental, spill plan) may be appropriate and may include environmental inspection checklists; such a plan can be referenced in this section.

20.1.4 HSE Audits

HSE project audits will be determined and scheduled based on the risk profile of the project and input from the LOB or Regional BU HSE Lead. The F&ES HSE Project Audit Plan will be populated in the Intelex Audit Module. Audit findings will be entered into the Audit Module and findings tracked to completion.

20.2 Project Activity Self-Assessment Checklists

The following self-assessment checklists are required when the task or exposure is initiated and weekly thereafter. The checklists shall be completed by the SL or other Jacobs representative and maintained in project files.

Biological Hazards
Lifting
Drilling
Excavation Readiness Checklist
Groundwater Sampling
PPE
Earthmoving Equipment
Chainsaws
Hand and Power Tools
Traffic Control
Rigging

20.3 BeyondZero Observations

(Reference Jacobs Global Work Instruction, JJ-HS-WI-0306-JJ, BeyondZero Observations)

BZOs are a required element of our BeyondZero Culture of Caring and can be performed for project observations as well as away from work. The minimum frequency on this project is to submit a BZO is once per week, using the BZO mobile app of Intelex platform on JacobsConnect.

Reach out to your HSM/EM if you need help entering aa BZO. Be sure to add the HSM (or EM if an environmental observation) to the “additional notifications” field of the BZO form so they are notified. Attach photos whenever possible.

20.4 Agency Inspections

*(*Reference BMS Guideline JJ-HS-PR-0300-US -G-02*; OSHA/EPA Inspections)*

OSHA, U.S. Environmental Protection Agency (EPA), and authorized state or local agencies have authority to inspect any facility that is subject to health, safety, and environmental legislation. Inspections may be announced or unannounced.

Consult the JJ-HS-PR-0300-US-G-02, OSHA/EPA Inspections for a summary of what to do in the event of an agency inspection at your site. Ensure this is added as an attachment to the PHSEPs as well as the JJ-HS-PR-0300-US-F-01, *OSHA/EPA Inspections Response Checklist for Employees*.

- If the inspection is an announced regulatory agency inspection, the Project Manager (PM) shall notify the responsible HSM and responsible EM, as well as Legal, well in advance of the inspection. Designate a Jacobs Representative that will act as the point of contact for the inspection. This person should be confident, familiar with the local operations and knowledgeable of PHSEP. A secondary Jacobs Representative should be designated in the event the Jacobs Representative is unavailable during the government inspection.
- If an unannounced agency inspector visits one of our projects, field personnel must immediately notify the SL and PM.
- The SL or PM must immediately notify the HSM/EM, as appropriate, of unannounced inspections, or designate someone to call the HSM/EM. The HSM/EMs can provide guidance to the field staff and PM. The HSM/EM should immediately notify Legal. HSM/EM should consult JJ-HS-PR-0300-US-F-02, *OSHA/EPA Inspections Response Checklist for Employees.*
- HSE shall verify the inspector’s identity by calling the nearest relevant government office (e.g., OSHA, EPA). HSE staff should make sure inspector has clearly defined the scope of the inspection, including if

it is a partial or comprehensive inspection. HSE staff should remain available for consultation during inspection proceedings.

Consult JJ-HS-PR-0300-US-G-02, OSHA/EPA Inspections for guidance on the opening conference, site walk, providing documentation, and the closing conference.

21. Records and Reports

Refer to the Handbook, Section 19, “Records and Reports,” for a complete description of HSE recordkeeping requirements.

22. PHSEP Induction Record

EMPLOYEE SIGNOFF FORM

By signing below, I have been instructed by the Project Manager (or their designee) in the following HSE requirements:

- Project HSE Plan
- Safe Work Methods
- General Workplace Hazards and Controls.
- I have been trained in the use of PPE
- I am aware of the project emergency procedure requirements.
- I have been introduced to the scope of work and general work locations
- I have completed an orientation of my work area with my supervisor

Project Name:

Project Number:

EMPLOYEE NAME (Please print)	**EMPLOYEE SIGNATURE**	**COMPANY**	**DATE**

Appendix A. Attachments

- Employee Signoff Form
- F&ES HSE Handbook (for additional controls listed in Table 1)
- Project HSE Forms
  - Chemical Inventory
  - Chemical-Specific Training
  - Daily Site Monitoring Report
  - FCR Form
  - FES POWRA and Daily Safety Meeting Sign-In
  - HSE Site Inspection Form
  - Heat Stress Monitoring Form
  - StepBack Form
  - Working Alone Contact Form
  - OSHA/Agency Inspection Checklist
  - Excavation Readiness Checklist
  - Excavation Permit
  - Excavation Inspection
- Project HSE Fact Sheets
  - 2022 Ticks and Tickborne Pathogens Fact Sheet
  - 2022 Vehicle Accident Guidance
  - Agency Inspection Fact Sheet
- Project Self-Assessment Checklists
  - Chainsaws
  - Earthmoving Equipment
  - Drilling
  - Groundwater Sampling
  - Hand and Power Tools
  - Lifting
  - PPE
  - Rigging
  - Traffic Control
- Jacobs HIIRAs

Appendix E
Public Notice

NOTICE OF AVAILABILITY

PUBLIC COMMENT DRAFT PARTIAL PHASE IV REMEDY IMPLEMENTATION PLAN, PART 3

FORMER VARIAN FACILITY SITE
150 SOHIER ROAD, BEVERLY, MASSACHUSETTS
MADEP SITE #3-0485

On November 7, 2023, a Partial Phase IV Remedy Implementation Plan, Part 3 (Phase IV Plan, Part 3) was provided to the Massachusetts Department of Environmental Protection (MassDEP) for the former Varian Facility Site in Beverly, Massachusetts. The purpose of the Phase IV Plan, Part 3, is to present plans for the implementation of the selected remedial alternative for the PSL-10 Area. The Phase IV Plan, Part 3, will be presented at a public meeting on November 14, 2023, and a 20-day public comment period will begin the next day.

A copy of the Public Comment Draft, Partial Phase IV Remedy Implementation Plan, Part 3, is on file and available for review at the local information repository established for this Site at the Beverly Public Library:

Beverly Public Library – Reference Desk
32 Essex Street
Beverly, MA 01915
978.921.6062
HOURS: Monday-Thursday 9:00 am-9:00 pm
Friday and Saturday: 9:00 am-5:00 pm
Sunday: 1:00 pm-5:00 pm

A copy of this report is also available at the MassDEP website at the following link:

<hyperlink>

Copy: PIP Mailing List

PARTIAL PHASE IV REMEDY IMPLEMENTATION PLAN, PART 3
Former Varian Facility Site in Beverly, Massachusetts,
Executive Summary

This Partial Phase IV Remedy Implementation Plan (Phase IV Plan, Part 3) was prepared for the Former Varian Facility Site in Beverly, MA. The Phase IV Plan, Part 3, presents plans for the implementation of the selected remedial alternative to address the presence of volatile organic compounds (VOCs) in the PSL-10 area. The selected remedial alternative for PLS-10 is soil excavation with installation of a reactive treatment zone (subgrade biogeochemical reactor [SBGR] and groundwater recirculation).

The PSL-10 remedy described in the Phase IV Plan, Part 3 is intended to achieve the following objectives:

- Control or eliminate the source
- Control chemical migration
- Remove dense nonaqueous phase liquid (DNAPL), where potentially present
- Reduce chemical concentrations in groundwater

In compliance with the Massachusetts Department of Environmental Protection (MassDEP) requirements, the purpose of the Phase IV Plan, Part 3, is to:

- Ensure that the information, plans, and reports related to the design, construction, and implementation of the selected remedial alternative(s) are sufficiently developed and documented to support the implementation of the selected cleanup alternative(s)
- Ensure that following initial implementation, the selected cleanup plan meets design and performance specifications

To achieve these requirements, the Phase IV Plan, Part 3, provides detailed information on the cleanup approach for the PSL-10 area, including:

- Design and operation parameters for the cleanup alternative
- Spill control
- Waste management
- Control measures for possible adverse impact of treatment
- Inspection and monitoring that will be completed
- Construction plans and specifications
- Operation and maintenance for the cleanup alternatives
- Permits and approvals
- General schedule

This cleanup plan at PSL-10 combined with the remedial actions outlined in the March 2023 Phase IV Plan, Part 1 and September 2023 Phase IV Plan, Part 2, are expected to result in a Permanent Solution at the site.