

November 6, 2020

Mr. Andrew Zwack  
Assistant Engineer  
New York State Department of Environmental Conservation  
Division of Environmental Remediation, Region 9  
270 Michigan Avenue  
Buffalo, New York 14203-2915

Re: Tecumseh Phase II Business Park, Lackawanna, NY  
Site Nos. II-9 (C915198I) and II-10 (C915198J)  
Letter Report for Biotreatment of Impacted Soil: Round 2

Dear Mr. Zwack:

On behalf of Time Release Properties, LLC (TRP), Benchmark Environmental Engineering & Science, PLLC (Benchmark) is herein providing a summary of ex-situ biotreatment activities performed to address a second area of petroleum-impacted soil/fill on Brownfield Cleanup Program (BCP) Site II-9 (see Figure 1).

## BACKGROUND

TRP owns and is redeveloping Tecumseh Phase II Business Park Site II-9 and a portion of Site II-10 for TRS Packaging. During building foundation construction activities, weathered petroleum impacts, evident by olfactory petroleum-like odors and oily sheen, were observed within limited areas of Site II-9. Specifically, petroleum-impacted saturated soil and shallow groundwater were initially identified on Site II-9 in the South Loading Dock area and in the vicinity of two building foundation pile locations deemed “E-6 and E-10”. Benchmark completed biotreatment of these soils in accordance with the NYSDEC approved (July 1, 2020) Addendum to the Remedial Action Work Plan and Cover System Modification Plan for the subject Sites. Documentation of successful treatment was provided to the Department via Benchmark’s Letter Report dated August 18, 2020. The Letter Report was approved by the NYSDEC on August 27, 2020; removal and placement/compaction of this biotreated soil/fill (deemed “Round 1”) in the landscape berm area designated for cover has since been completed.

On July 21, 2020, additional petroleum impacted soil/fill, evident by visual, olfactory and minor PID impacts, was identified in a layer approximately 6-8 feet below grade during storm sewer excavation work along the west side of the building in the planned loading dock area.

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**2558 Hamburg Turnpike, Suite 300 | Buffalo, NY 14218**  
**phone: (716) 856-0599 | fax: (716) 856-0583**

The Department was contacted concerning this finding and impacted soil/fill materials were removed from the excavation until no further impacts were observed and staged on poly sheeting near the biopad. Benchmark's August 27, 2020 Letter Report, referenced above, included analytical characterization (pre-treatment) data for these materials and proposed bioremediation of the soil/fill, deemed "Round 2," in the same manner as Round 1 soil/fill. The Letter Report was approved by the NYSDEC on August 27, 2020; ex-situ biotreatment activities have since been completed as described below.

### **EX-SITU BIOTREATMENT: ROUND 2**

On August 28, 2020, petroleum-impacted soil/fill from the storm sewer excavation, totaling approximately 30 cubic yards, was relocated from the staging area to the cleared biotreatment pad, using a front-end loader and bulldozer, and tilled and spread in a thin (6" +/-) layer across the pad. Community Air Monitoring was performed per the Addendum to the Remedial Action Work Plan and Cover System Modification Plan; no exceedances of CAMP VOC or particulate criteria occurred during movement or tilling of the materials (see Attachment 2).

On September 15, 2020, Benchmark completed a qualitative assessment of the treatment performance based visual and olfactory conditions of the treated soil. No visual or olfactory impacts were identified and all photoionization detector (PID) readings were 0.0 parts per million (ppm) in the treated soil. Based on the results of the qualitative assessment, Benchmark collected one confirmatory composite sample from multiple grab locations across the biotreatment pad. The sample was analyzed by Alpha Analytical for NYSDEC CP-51 List volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).

Table 1 presents the analytical results with comparison to NYSDEC Part 375 Protection of Groundwater Soil Cleanup Objectives (SCOs) and Commercial SCOs for VOCs and the site-specific action limit of 500 mg/kg for total SVOCs. Attachment 1 contains the laboratory analytical data report. As indicated on Table 1, no VOC results were detected at concentrations exceeding Protection of Groundwater Soil Cleanup Objectives SCOs or Commercial SCOs. All VOC results were at concentrations below their respective laboratory detection limits. The total SVOC concentration (8.35 mg/kg) was below the site-specific action limit of 500 mg/kg and similar to round 1 biotreated analytical results (8.63 mg/kg).

Based upon the analytical results and absence of visual, olfactory and PID impacts, we request permission to remove the treated soil/fill and place/compact it as subgrade fill in Sites II-9 and II-10 in an area designated for cover.

The work discussed herein and disposition of the biotreated soil/fill will be documented in the Final Engineering Report for Site II-9.

Please contact us if you have any questions or require additional information.

Mr. Andrew Zwack  
NYSDEC Region 9

November 6, 2020  
Page 3 of 3

Sincerely,  
Benchmark Environmental Engineering & Science, PLLC

A handwritten signature in blue ink, appearing to read "Tom Forbes", is written over a light blue horizontal line.

Thomas H. Forbes, P.E.  
Principal Engineer

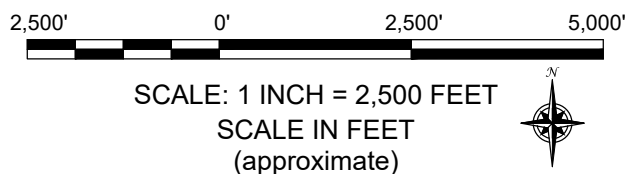
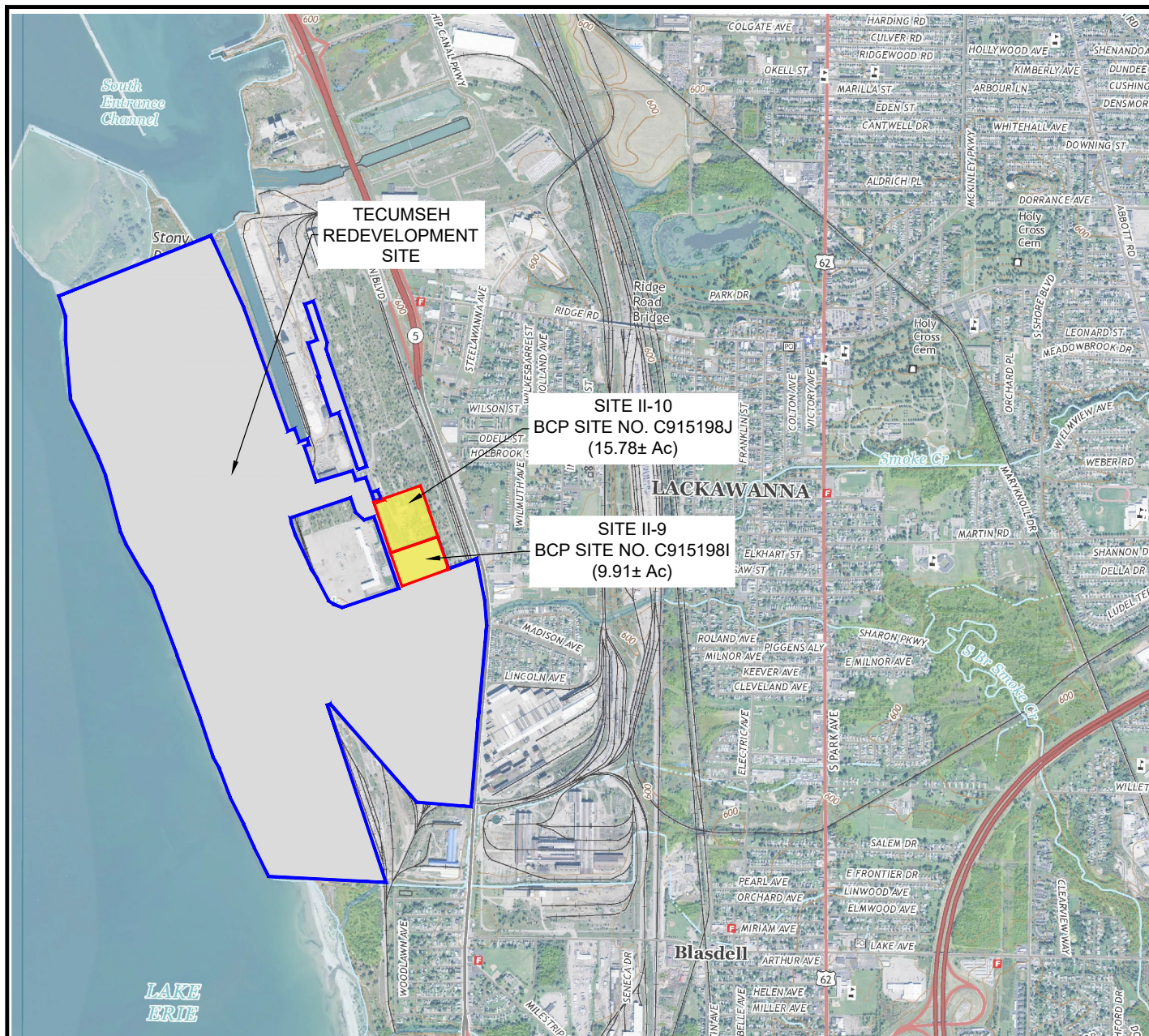
Att.

cc: Ms. Megan Kuczka (NYSDEC)  
Mr. Robert Laughlin (TMP)  
Mr. Luke Stewart (TMP)

## FIGURES



**FIGURE 1**



**LEGEND:**

- TECUMSEH PROPERTY
- TRP SITE

BASE MAP USGS QUAD BUFFALO SE 2016



2558 HAMBURG TURNPIKE  
SUITE 300  
BUFFALO, NY 14218  
(716) 856-0599

PROJECT NO.: 0489-019-002

DATE: SEPTEMBER 2020

DRAFTED BY: CCB

## SITE LOCATION AND VICINITY MAP

LETTER REPORT FOR BIOTREATMENT OF IMPACTED SOIL

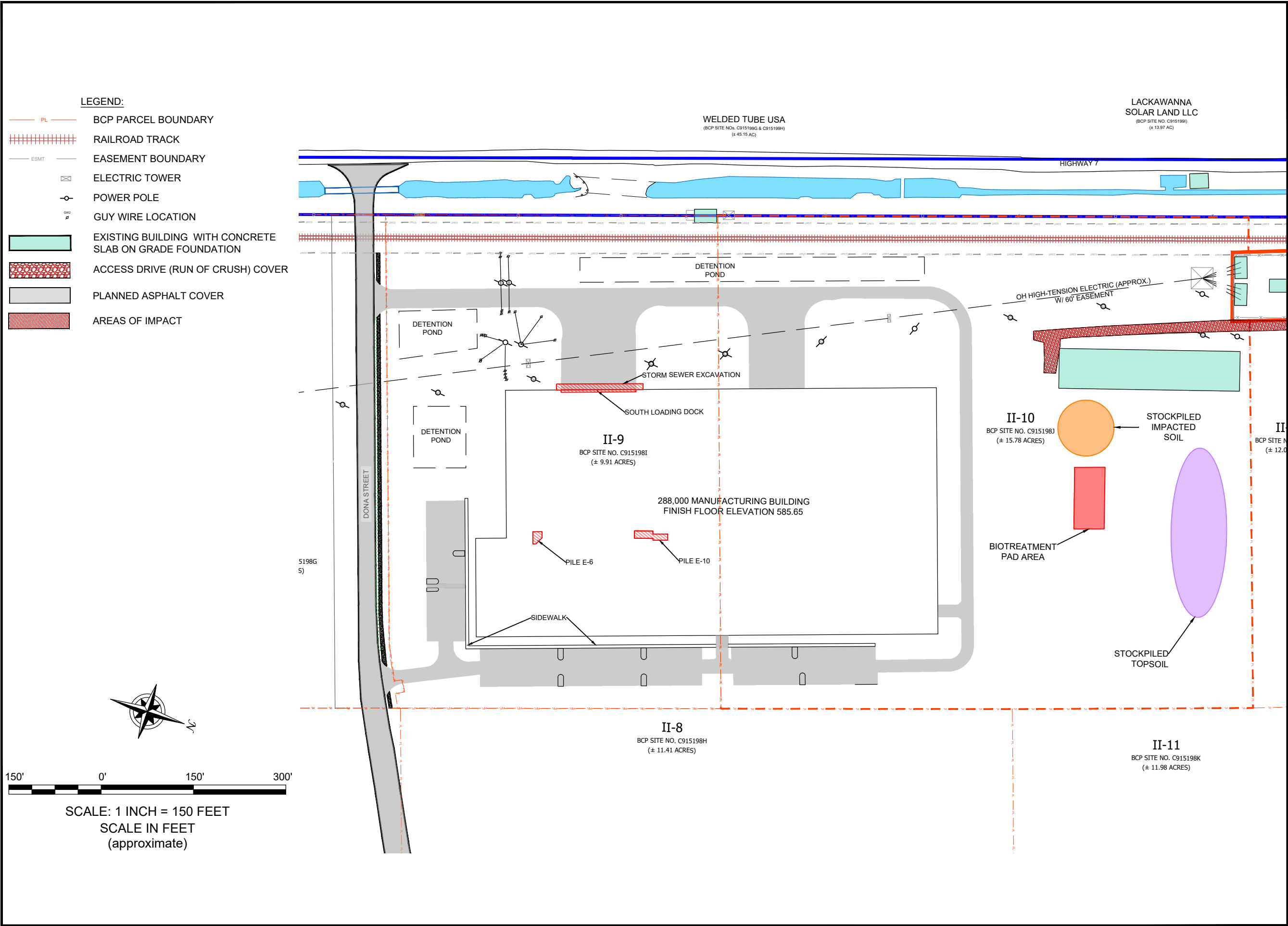
TECUMSEH PHASE II BUSINESS PARK  
SITE NO.s II-9 (C915198I) & II-10 (C915198J)  
LACKAWANNA, NEW YORK

PREPARED FOR

TIME RELEASE PROPERTIES, LLC

**DISCLAIMER:**

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**FIGURE 2**

**BIOTREATMENT LOCATION**

LETTER REPORT FOR BIOTREATMENT OF IMPACTED SOIL

TECUMSEH PHASE II BUSINESS PARK

SITE NO.s II-9 (C915198I) & II-10 (C915198J)

LACKAWANNA, NEW YORK

PREPARED FOR

TIME RELEASE PROPERTIES, LLC

**BENCHMARK**

2558 HAMBURG TURNPIKE  
SUITE 300  
BUFFALO, NY 14218  
(716) 856-0599

ENVIRONMENTAL  
ENGINEERING &  
SCIENCE, PLLC

JOB NO.: 0489-019-002

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LETTER REPORT FOR BIOTREATMENT OF IMPACTED SOIL: ROUND 2  
BCP SITE NOS. C915198I (SITE II-9) & C915198J (SITE II-10)

**TABLE**

TABLE 1

**SUMMARY OF BIOTREATED SOIL/FILL ANALYTICAL RESULTS**  
**LETTER REPORT FOR BIOTREATMENT OF IMPACTED SOIL**  
**TECUMSEH PHASE II BUSINESS PARK**  
**SITE NOS. II-9 (C915198I) AND II-10 (C915198J)**  
**LACKAWANNA, NEW YORK**

PARAMETER <sup>1</sup>	Protection of Groundwater SCOs <sup>2</sup>	Commercial Use SCOs <sup>2</sup>	Site-Specific Action Limit <sup>3</sup>	BIOTREATED POST EX ROUND 1 (POST-TREATMENT)	BIOTREATED POST EX ROUND 2 (POST-TREATMENT)
				7/21/2020	9/15/2020
Volatile Organic Compounds (VOCs) - mg/Kg <sup>4</sup>					
Total VOCs	--	--	--	ND	ND
Semi-Volatile Organic Compounds (SVOCs) - mg/kg <sup>4</sup>					
Acenaphthene	98	500	--	0.11 J	ND
Acenaphthylene	107	500	--	0.12 J	ND
Anthracene	1000	500	--	0.29	ND
Benzo(a)anthracene	1	5.6	--	0.75	0.73 J
Benzo(a)pyrene	22	1	--	0.68	0.89 J
Benzo(b)fluoranthene	1.7	5.6	--	1	1 J
Benzo(ghi)perylene	1000	500	--	0.46	0.56 J
Benzo(k)fluoranthene	1.7	56	--	0.21	ND
Chrysene	1	56	--	0.74	0.9 J
Dibenzo(a,h)anthracene	1000	0.56	--	0.11 J	ND
Fluoranthene	1000	500	--	1.2	1.3 J
Fluorene	386	500	--	0.12 J	ND
Indeno(1,2,3-cd)pyrene	8.2	5.6	--	0.46	0.58 J
Naphthalene	12	500	--	0.28	0.4 J
Phenanthrene	1000	500	--	1	0.79 J
Pyrene	1000	500	--	1.1	1.2 J
Total SVOCs	--	--	500	8.63 J	8.35 J

**Notes:**

- Only those parameters detected at a minimum of one sample location are presented in this table; other compounds were reported as non-detect.
- Values per NYSDEC Part 375 Soil Cleanup Objectives (SCOs).
- Values per Site-Specific Action Limits
- Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparisons to SCOs.

**Definitions:**

ND = Parameter not detected above laboratory detection limit.

-- = No value available for the parameter; Parameter not analyzed for.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

<b>Bold</b>	= Result exceeds Protection of Groundwater SCOs.
<b>Bold</b>	= Result exceeds Commercial Use SCOs.
<b>Bold</b>	= Result exceeds Site-Specific Action Limit.



# ATTACHMENT 1

## POST-TREATMENT ANALYTICAL DATA



## ANALYTICAL REPORT

Lab Number:	L2038398
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Tom Forbes
Phone:	(716) 856-0599
Project Name:	TMP
Project Number:	0489-019-001
Report Date:	09/22/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2038398-01	BIOTREATED POST EX ROUND 2	SOIL	BUFFALO, NY	09/15/20 09:45	09/15/20

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

### Case Narrative

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

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

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

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

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

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

---

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

### Case Narrative (continued)

#### Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

#### Volatile Organics

Any reported concentrations that are below 200 ug/kg may be biased low due to the sample not being collected according to 5035-L/5035A-L low-level specifications.

#### Semivolatile Organics

L2038398-01: The sample has elevated detection limits due to the dilution required by the sample matrix.

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

Authorized Signature:

*Tiffani Morrissey* - Tiffani Morrissey

Title: Technical Director/Representative

Date: 09/22/20



# ORGANICS

# **VOLATILES**

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

**SAMPLE RESULTS**

**Lab ID:** L2038398-01  
**Client ID:** BIOTREATED POST EX ROUND 2  
**Sample Location:** BUFFALO, NY

**Date Collected:** 09/15/20 09:45  
**Date Received:** 09/15/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil  
**Analytical Method:** 1,8260C  
**Analytical Date:** 09/20/20 22:58  
**Analyst:** JC  
**Percent Solids:** 70%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/kg	0.67	0.22	1
Toluene	ND		ug/kg	1.3	0.72	1
Ethylbenzene	ND		ug/kg	1.3	0.19	1
Methyl tert butyl ether	ND		ug/kg	2.7	0.27	1
p/m-Xylene	ND		ug/kg	2.7	0.75	1
o-Xylene	ND		ug/kg	1.3	0.39	1
n-Butylbenzene	ND		ug/kg	1.3	0.22	1
sec-Butylbenzene	ND		ug/kg	1.3	0.19	1
tert-Butylbenzene	ND		ug/kg	2.7	0.16	1
Isopropylbenzene	ND		ug/kg	1.3	0.14	1
p-Isopropyltoluene	ND		ug/kg	1.3	0.14	1
n-Propylbenzene	ND		ug/kg	1.3	0.23	1
1,3,5-Trimethylbenzene	ND		ug/kg	2.7	0.26	1
1,2,4-Trimethylbenzene	ND		ug/kg	2.7	0.44	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

### Method Blank Analysis Batch Quality Control

**Analytical Method:** 1,8260C  
**Analytical Date:** 09/20/20 15:07  
**Analyst:** AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1412411-5					
Benzene	ND		ug/kg	0.50	0.17
Toluene	ND		ug/kg	1.0	0.54
Ethylbenzene	ND		ug/kg	1.0	0.14
Methyl tert butyl ether	0.26	J	ug/kg	2.0	0.20
p/m-Xylene	ND		ug/kg	2.0	0.56
o-Xylene	ND		ug/kg	1.0	0.29
n-Butylbenzene	ND		ug/kg	1.0	0.17
sec-Butylbenzene	ND		ug/kg	1.0	0.15
tert-Butylbenzene	ND		ug/kg	2.0	0.12
Isopropylbenzene	ND		ug/kg	1.0	0.11
p-Isopropyltoluene	ND		ug/kg	1.0	0.11
n-Propylbenzene	ND		ug/kg	1.0	0.17
1,3,5-Trimethylbenzene	ND		ug/kg	2.0	0.19
1,2,4-Trimethylbenzene	ND		ug/kg	2.0	0.33

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	86		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1412411-3 WG1412411-4								
Benzene	105		103		70-130	2		30
Toluene	109		108		70-130	1		30
Ethylbenzene	110		109		70-130	1		30
Methyl tert butyl ether	111		108		66-130	3		30
p/m-Xylene	108		108		70-130	0		30
o-Xylene	100		100		70-130	0		30
n-Butylbenzene	111		110		70-130	1		30
sec-Butylbenzene	114		113		70-130	1		30
tert-Butylbenzene	109		109		70-130	0		30
Isopropylbenzene	111		109		70-130	2		30
p-Isopropyltoluene	112		112		70-130	0		30
n-Propylbenzene	111		110		70-130	1		30
1,3,5-Trimethylbenzene	109		108		70-130	1		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		91		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	90		88		70-130



# SEMIVOLATILES

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

**SAMPLE RESULTS**

**Lab ID:** L2038398-01 D  
**Client ID:** BIOTREATED POST EX ROUND 2  
**Sample Location:** BUFFALO, NY

**Date Collected:** 09/15/20 09:45  
**Date Received:** 09/15/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil  
**Analytical Method:** 1,8270D  
**Analytical Date:** 09/22/20 11:44  
**Analyst:** IM  
**Percent Solids:** 70%

**Extraction Method:** EPA 3546  
**Extraction Date:** 09/19/20 08:22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	1900	240	10
Fluoranthene	1300	J	ug/kg	1400	270	10
Naphthalene	400	J	ug/kg	2400	290	10
Benzo(a)anthracene	730	J	ug/kg	1400	260	10
Benzo(a)pyrene	890	J	ug/kg	1900	580	10
Benzo(b)fluoranthene	1000	J	ug/kg	1400	400	10
Benzo(k)fluoranthene	ND		ug/kg	1400	380	10
Chrysene	900	J	ug/kg	1400	240	10
Acenaphthylene	ND		ug/kg	1900	360	10
Anthracene	ND		ug/kg	1400	460	10
Benzo(ghi)perylene	560	J	ug/kg	1900	280	10
Fluorene	ND		ug/kg	2400	230	10
Phenanthrene	790	J	ug/kg	1400	290	10
Dibenzo(a,h)anthracene	ND		ug/kg	1400	270	10
Indeno(1,2,3-cd)pyrene	580	J	ug/kg	1900	330	10
Pyrene	1200	J	ug/kg	1400	230	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	54		18-120

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

### Method Blank Analysis Batch Quality Control

**Analytical Method:** 1,8270D  
**Analytical Date:** 09/21/20 09:07  
**Analyst:** IM

**Extraction Method:** EPA 3546  
**Extraction Date:** 09/19/20 01:22

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1411937-1					
Acenaphthene	ND		ug/kg	130	17.
Fluoranthene	ND		ug/kg	98	19.
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	98	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	98	28.
Benzo(k)fluoranthene	ND		ug/kg	98	26.
Chrysene	ND		ug/kg	98	17.
Acenaphthylene	ND		ug/kg	130	25.
Anthracene	ND		ug/kg	98	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	98	20.
Dibenzo(a,h)anthracene	ND		ug/kg	98	19.
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130	23.
Pyrene	ND		ug/kg	98	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	74		25-120
Phenol-d6	78		10-120
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	78		30-120
2,4,6-Tribromophenol	72		10-136
4-Terphenyl-d14	80		18-120

# **Lab Control Sample Analysis** Batch Quality Control

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1411937-2 WG1411937-3								
Acenaphthene	75		73		31-137	3		50
Fluoranthene	73		70		40-140	4		50
Naphthalene	69		72		40-140	4		50
Benzo(a)anthracene	77		75		40-140	3		50
Benzo(a)pyrene	78		76		40-140	3		50
Benzo(b)fluoranthene	82		77		40-140	6		50
Benzo(k)fluoranthene	74		72		40-140	3		50
Chrysene	76		74		40-140	3		50
Acenaphthylene	78		77		40-140	1		50
Anthracene	74		73		40-140	1		50
Benzo(ghi)perylene	79		75		40-140	5		50
Fluorene	72		70		40-140	3		50
Phenanthrene	73		72		40-140	1		50
Dibenzo(a,h)anthracene	76		73		40-140	4		50
Indeno(1,2,3-cd)pyrene	79		78		40-140	1		50
Pyrene	74		72		35-142	3		50

# Lab Control Sample Analysis

## Batch Quality Control

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1411937-2 WG1411937-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	77		75		25-120
Phenol-d6	83		79		10-120
Nitrobenzene-d5	82		79		23-120
2-Fluorobiphenyl	79		80		30-120
2,4,6-Tribromophenol	83		79		10-136
4-Terphenyl-d14	79		77		18-120



# **INORGANICS & MISCELLANEOUS**

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

**SAMPLE RESULTS**

**Lab ID:** L2038398-01  
**Client ID:** BIOTREATED POST EX ROUND 2  
**Sample Location:** BUFFALO, NY

**Date Collected:** 09/15/20 09:45  
**Date Received:** 09/15/20  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70.4		%	0.100	NA	1	-	09/18/20 11:31	121,2540G	RI



**Lab Duplicate Analysis**  
*Batch Quality Control*

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1411575-1 QC Sample: L2038368-01 Client ID: DUP Sample						
Solids, Total	96.1	96.4	%	0		20

**Project Name:** TMP**Lab Number:** L2038398**Project Number:** 0489-019-001**Report Date:** 09/22/20**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information****Cooler**                      **Custody Seal**

A                                  Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2038398-01A	Vial Large Septa unpreserved (4oz)	A	NA		5.5	Y	Absent		NYCP51-8260(14)
L2038398-01B	Vial Large Septa unpreserved (4oz)	A	NA		5.5	Y	Absent		NYCP51-PAH(14),TS(7)
L2038398-01X	Vial MeOH preserved	A	NA		5.5	Y	Absent		NYCP51-8260(14)
L2038398-01Y	Vial water preserved	A	NA		5.5	Y	Absent	<b>18-SEP-20 12:39</b>	NYCP51-8260(14)
L2038398-01Z	Vial water preserved	A	NA		5.5	Y	Absent	<b>18-SEP-20 12:39</b>	NYCP51-8260(14)

**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

*Report Format: DU Report with 'J' Qualifiers*





**Project Name:** TMP  
**Project Number:** 0489-019-001

**Lab Number:** L2038398  
**Report Date:** 09/22/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenzo(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

**Report Format:** DU Report with 'J' Qualifiers



**Project Name:** TMP  
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**Data Qualifiers**

- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

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**Project Name:** TMP  
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**Lab Number:** L2038398  
**Report Date:** 09/22/20

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



**Alpha Analytical, Inc.**Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

Published Date: 4/28/2020 9:42:21 AM

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**Certification Information**

The following analytes are not included in our Primary NELAP Scope of Accreditation:

**Westborough Facility****EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**EPA TO-12** Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

**Westborough Facility:****Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

[illegible]

## ATTACHMENT 2

### CAMP DATA

Fri, 28th of Aug 2020, 6:00:00 – 18:00:00  
(GMT-05:00) Eastern Time (US & Canada)



Mass Conc. Total (AVG 15m) mg/m<sup>3</sup>

DustTrak-8530  
RS232(C)

MIN  
0.0171

AVG  
0.0198

MAX  
0.0241

VOC ppm AVG 15m ppm

miniRAE 3000  
RS232(A)

MIN  
0

AVG  
0

MAX  
0

**Name** CAMP Station #4  
**S/N** 0B052904  
**Description** CAMP Station #4  
**Location** 2470 Hamburg  
Turnpike, Buffalo, NY  
14218, USA