August 22, 2018

Mr. Andrew Zwack
Engineer Trainee, Division of Environmental Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203

Re: Tecumseh Redevelopment Site, #915009
Coke Plant By-Products SWMU Area
Transformer Leaks at Compressor Building and Substation 6J
Lackawanna, New York

Dear Mr. Zwack:

On behalf of our client, Tecumseh Redevelopment Inc. (Tecumseh), TurnKey Environmental Restoration, LLC (TurnKey) has prepared this Work Plan in response to the New York State Department of Environmental Conservation (NYSDEC or the Department) letter dated July 5, 2018 with revisions based on NYSDEC comments received August 14 and 22, 2018.

BACKGROUND

The Department was on-site June 26, 2018 to observe the drilling and installation of recovery wells associated with groundwater corrective measures in Operable Unit 4 (OU4). While on-site, an active transformer outside the northwest corner of the Substation 6J/Compressor Building was observed leaking (see Figure 1). Dielectric fluid on the exterior concrete pad and dark staining of the soil in the area surrounding a portion of the exterior concrete pad were observed. Further investigation of the Compressor Building identified a deactivated transformer inside with some localized leakage onto the concrete floor (see Figure 1).

Due to the potential for transformer dielectric fluid to contain polychlorinated biphenyls (PCBs), the Department requested immediate action be taken to address the leaking transformers, evaluate the transformer fluids for PCBs, and submit a plan for clean-up actions to address potentially contaminated media.

TurnKey took immediate action by performing the following tasks:

- Placed oily debris from the concrete pad into a drum for disposal after characterization of dielectric fluids.
- Deployed sorbent materials on the north end of the concrete pad to soak up free oil.
- Placed a drip pan under the transformer leak.

- Deenergized the leaking transformer adjacent to the Substation 6J.

TRANSFORMER OIL TESTING

On July 17, 2018, TurnKey collected an oil sample from each of the three transformers identified by serial number and shown on Figure 1:

- T-5065998; leaking transformer outside at northwest corner of Substation 6J
- T-42318; non-leaking transformer located south of T-5065998
- T-1755269; leaking transformer inside north end of Compressor Building

The samples were analyzed by AlphaAnalytical for PCBs via USEPA Method 8082A. As indicated on Table 1, the oil within the transformer inside the Compressor Building contains PCB Aroclor 1260 at a concentration of 505,000 parts per million (ppm). The outside transformers contain less than 10 ppm total PCBs. Attachment 1 includes the analytical laboratory data package.

TRANSFORMER OIL AND CARCASSES

PCB Transformer

According to 40CFR 761.60, a PCB transformer is any transformer that contains >500 ppm PCBs; therefore, the transformer located in the Compressor Building is a PCB transformer. PCB oil at concentrations ≥50 ppm must be disposed in an incinerator that complies with 40CFR 761.70. TurnKey intends to subcontract Clean Harbors/Safety-Kleen (CH/SK) to drain/dispose the oil, decontaminate the transformer carcass in accordance with 40CFR 761.79, dispose decontamination wastes/residues, and recycle the carcass as scrap metal. A PCB sticker has been affixed to the transformer.

Non-PCB Transformers

CH/SK will also drain the southernmost non-PCB transformers located outside and recycle or dispose the oil and carcass off-site in accordance with state and federal regulations. Since the leaking outdoor transformer is required for current operations, TurnKey intends to repair, refill, and re-activate the transformer as soon as possible. Stickers indicating the transformers contain non-PCB dielectric fluid have been affixed.

IMPACTED SOIL AND CONCRETE

PCB-Impacted Media

The concrete surrounding the indoor PCB transformer is stained with what appears to be oil. Since the concrete is likely impacted by PCBs, TurnKey will chip away the concrete until it no longer appears to be impacted. The concrete pieces will be disposed off-site by CH/SK along with other PCB wastes.

Petroleum-Impacted Media

Three in-situ grab samples of soil will be collected from areas that appear to be impacted by the leaked dielectric fluid adjacent to the outdoor transformer concrete pad and analyzed for PCBs. TurnKey personnel will excavate the impacted soil until no evidence of visual and olfactory petroleum impact remains and the Department approves of the extent of removal. TurnKey will collect a waste characterization sample to obtain disposal approval prior to transport. If PCBs are detected above 25 ppm[1], TurnKey will collect one bottom and four sidewall post-excavation samples for analysis of PCBs. The excavated impacted soil/fill, if small in volume as anticipated, will be placed in a roll-off container for transport and disposal at a permitted commercial solid waste disposal facility. If the characterization sample meets the requirements for biotreatment and the volume of impacted material is large, the soil may be biotreated on-site by TurnKey.

A section of oil-stained concrete will also be submitted to the laboratory for PCB analysis. If PCBs are detected at a concentration above 25 ppm, TurnKey will chip away the concrete until it no longer appears to be impacted. The concrete pieces will be disposed off-site by CH/SK along with other PCB wastes.

TRANSFORMER INVENTORY

During a more recent visit to the Tecumseh Site, the Department noted seven transformers near the former Coke Oven Office. In addition, the Department noted PCB labels on interior doors leading to the Substation 6J electrical equipment room as well as on equipment within the room (observed through the window of the northernmost door).

TurnKey will look for and determine whether the seven transformers near the former Coke Oven Office are on the existing transformer inventory and, if not, dielectric fluid (if present) will be sampled for PCB analysis. TurnKey deenergized Substation 6J and investigated the contents of the electrical equipment room. Based on our inspection, none of the equipment contain liquid. TurnKey intends to remove the PCB stickers from the door.

SCHEDULE

TurnKey received one quote from Emerald Transformer (who acquired the Transformer Services Group of Clean Harbors Inc. in 2017) to address the PCB transformer oil and carcass and a second quote from CH/SK to remove/dispose off-site the interior concrete. Tecumseh intends to contract directly with these companies to perform the work. TurnKey is researching options for repairing the outdoor leaking transformer so it can be placed back in service. TurnKey will notify the Department at least seven days in advance of the above-described activities. TurnKey has begun weekly inspections of the transformer areas to ensure conditions have not deteriorated further.

[1] Per NYSDEC CP-51 Section V.I.3. At industrial use sites, a level of 25 ppm for PCBs provided that access is limited, and individual occupancy is restricted to less than an average of 6.7 hours per week.

REPORTING

Upon completion of transformer sampling, disposal and remediation activities, TurnKey will prepare a letter report describing the field activities along with photo documentation, analytical data, waste profiles, disposal documentation, field notes, and the transformer inventory.

Please contact us if you have any questions or comments on the Work Plan.

Sincerely,
TurnKey Environmental Restoration, LLC

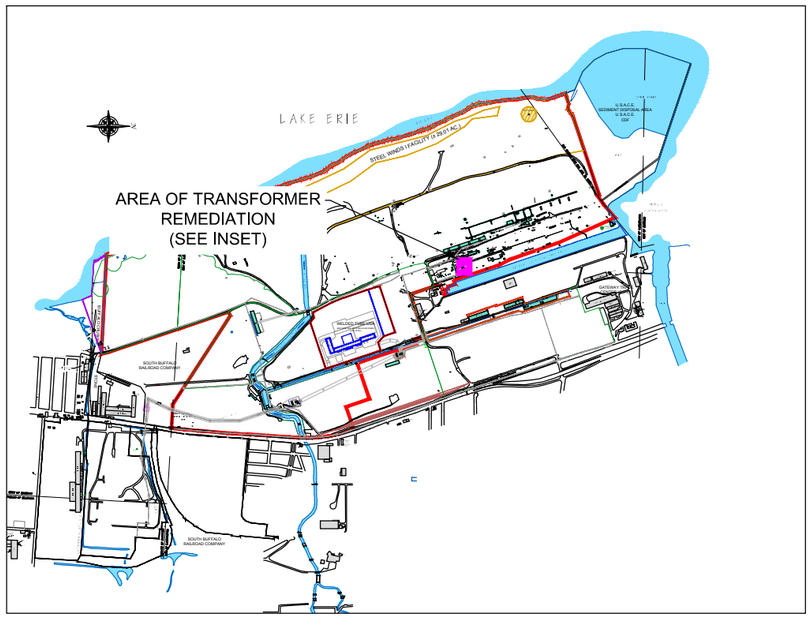
Paul H. Werthman, P.E.
Principal Engineer

Lori E. Riker, P.E.
Sr. Project Manager

Att.
ec: Stanley Radon (NYSDEC Region 9)
Steve Moeller (NYSDEC Region 9)
Keith Nagel (Tecumseh)
Cary Mathias (Tecumseh)
Bill Dowling (Ascertain Consulting, LLC)

File: T0071-013-350

FIGURE



TECUMSEH SITE
NTS

LEGEND:

TECUMSEH PROPERTY BOUNDARY

TRANSFORMER

N

40' 0' 40' 80'

SCALE: 1 INCH = 40 FEET
SCALE IN FEET
(approximate)

INSET: AREA OF TRANSFORMER REMEDIAL ACTION

WORK PLAN FOR TRANSFORMER REMEDIAL ACTION

COKE PLANT BY-PRODUCTS AREA
TECUMSEH LACKAWANNA SITE
LACKAWANNA, NEW YORK

PREPARED FOR
TECUMSEH REDEVELOPMENT LLC.

FIGURE 1

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0071-013-350

DATE: AUGUST 2018
DRAFTED BY: RFL

TABLE

TABLE 1
SUMMARY OF TRANSFORMER OIL ANALYTICAL RESULTS

Tecumseh Redevelopment Site #915009
Lackawanna, New York

Parameter[1]	PCB Oil[2]	Sample ID[3]		
		T-5065998	T-42318	T-1755269
Polychlorinated Biphenyls (PCBs) - mg/kg				
Aroclor 1242	--	<0.470	3.66	<4010
Aroclor 1254	--	3.19 J	<0.294	<2670
Aroclor 1260	--	2.67 J	6.07	505,000
Total PCBs	***>50***	***5.86 J***	***9.73***	***505,000***

Notes:

1. Only those parameters detected at a minimum of one sample location are presented.
2. Per 40CFR 761.60(a).
3. Samples collected on 7/17/18 by TurnKey personnel.

ATTACHMENT 1

ANALYTICAL DATA PACKAGE

ANALYTICAL REPORT

Lab Number:	L1827377
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Tom Forbes
Phone:	(716) 856-0599
Project Name:	TRANSFORMER REMOVAL
Project Number:	T0071-013-350
Report Date:	07/23/18

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

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

Project Name: TRANSFORMER REMOVAL
Project Number: T0071-013-350

Lab Number: L1827377
Report Date: 07/23/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1827377-01	T-5065998	OIL	TECUMSEH	07/17/18 16:15	07/18/18
L1827377-02	T-42318	OIL	TECUMSEH	07/17/18 16:20	07/18/18
L1827377-03	T-1755269	OIL	TECUMSEH	07/17/18 16:25	07/18/18

Project Name:	TRANSFORMER REMOVAL	**Lab Number:**	L1827377
Project Number:	T0071-013-350	**Report Date:**	07/23/18

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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name:	TRANSFORMER REMOVAL	**Lab Number:**	L1827377
Project Number:	T0071-013-350	**Report Date:**	07/23/18

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.

PCBs

L1827377-03: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

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: Melissa Cripps Melissa Cripps

Title: Technical Director/Representative Date: 07/23/18

ORGANICS

PCBS

Project Name: TRANSFORMER REMOVAL
Lab Number: L1827377
Project Number: T0071-013-350
Report Date: 07/23/18

SAMPLE RESULTS

Lab ID: L1827377-01
Client ID: T-5065998
Sample Location: TECUMSEH
Date Collected: 07/17/18 16:15
Date Received: 07/18/18
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8082A
Analytical Date: 07/20/18 20:16
Analyst: HT
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 07/20/18 12:17
Cleanup Method: EPA 3665A
Cleanup Date: 07/20/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/20/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		mg/kg	3.84	0.436	1	A
Aroclor 1221	ND		mg/kg	3.84	0.585	1	A
Aroclor 1232	ND		mg/kg	3.84	0.378	1	A
Aroclor 1242	ND		mg/kg	3.84	0.470	1	A
Aroclor 1248	ND		mg/kg	3.84	0.431	1	A
Aroclor 1254	3.19	J	mg/kg	3.84	0.314	1	B
Aroclor 1260	2.67	J	mg/kg	3.84	0.401	1	B
Aroclor 1262	ND		mg/kg	3.84	0.316	1	A
Aroclor 1268	ND		mg/kg	3.84	0.272	1	A
PCBs, Total	5.86	J	mg/kg	3.84	0.272	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	77		30-150	A
Decachlorobiphenyl	103		30-150	A
2,4,5,6-Tetrachloro-m-xylene	67		30-150	B
Decachlorobiphenyl	133		30-150	B

Project Name: TRANSFORMER REMOVAL **Lab Number:** L1827377

Project Number: T0071-013-350 **Report Date:** 07/23/18

SAMPLE RESULTS

Lab ID: L1827377-02
Client ID: T-42318
Sample Location: TECUMSEH

Date Collected: 07/17/18 16:20
Date Received: 07/18/18
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8082A
Analytical Date: 07/20/18 20:29
Analyst: HT
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 07/20/18 12:17
Cleanup Method: EPA 3665A
Cleanup Date: 07/20/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/20/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		mg/kg	3.60	0.408	1	A
Aroclor 1221	ND		mg/kg	3.60	0.548	1	A
Aroclor 1232	ND		mg/kg	3.60	0.354	1	A
Aroclor 1242	3.66		mg/kg	3.60	0.441	1	B
Aroclor 1248	ND		mg/kg	3.60	0.404	1	A
Aroclor 1254	ND		mg/kg	3.60	0.294	1	A
Aroclor 1260	6.07		mg/kg	3.60	0.376	1	B
Aroclor 1262	ND		mg/kg	3.60	0.296	1	A
Aroclor 1268	ND		mg/kg	3.60	0.255	1	A
PCBs, Total	9.73		mg/kg	3.60	0.255	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	107		30-150	A
2,4,5,6-Tetrachloro-m-xylene	74		30-150	B
Decachlorobiphenyl	137		30-150	B

Project Name: TRANSFORMER REMOVAL
Lab Number: L1827377
Project Number: T0071-013-350
Report Date: 07/23/18

SAMPLE RESULTS

Lab ID: L1827377-03 D
Client ID: T-1755269
Sample Location: TECUMSEH

Date Collected: 07/17/18 16:25
Date Received: 07/18/18
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8082A
Analytical Date: 07/23/18 02:05
Analyst: HT
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 07/20/18 12:17
Cleanup Method: EPA 3665A
Cleanup Date: 07/20/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/20/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		mg/kg	32700	3710	10000	A
Aroclor 1221	ND		mg/kg	32700	4980	10000	A
Aroclor 1232	ND		mg/kg	32700	3220	10000	A
Aroclor 1242	ND		mg/kg	32700	4010	10000	A
Aroclor 1248	ND		mg/kg	32700	3670	10000	A
Aroclor 1254	ND		mg/kg	32700	2670	10000	A
Aroclor 1260	505000		mg/kg	32700	3420	10000	B
Aroclor 1262	ND		mg/kg	32700	2690	10000	A
Aroclor 1268	ND		mg/kg	32700	2320	10000	A
PCBs, Total	505000		mg/kg	32700	2320	10000	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: TRANSFORMER REMOVAL
Project Number: T0071-013-350

Lab Number: L1827377
Report Date: 07/23/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 07/20/18 19:39
Analyst: HT

Extraction Method: EPA 3580A
Extraction Date: 07/20/18 12:17
Cleanup Method: EPA 3665A
Cleanup Date: 07/20/18
Cleanup Method: EPA 3660B
Cleanup Date: 07/20/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-03 Batch: WG1137832-1						
Aroclor 1016	ND		mg/kg	3.63	0.412	A
Aroclor 1221	ND		mg/kg	3.63	0.552	A
Aroclor 1232	ND		mg/kg	3.63	0.357	A
Aroclor 1242	ND		mg/kg	3.63	0.444	A
Aroclor 1248	ND		mg/kg	3.63	0.407	A
Aroclor 1254	ND		mg/kg	3.63	0.296	A
Aroclor 1260	ND		mg/kg	3.63	0.379	A
Aroclor 1262	ND		mg/kg	3.63	0.298	A
Aroclor 1268	ND		mg/kg	3.63	0.257	A
PCBs, Total	ND		mg/kg	3.63	0.257	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	74		30-150	A
Decachlorobiphenyl	98		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	143		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: TRANSFORMER REMOVAL

Project Number: T0071-013-350

Lab Number: L1827377

Report Date: 07/23/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-03 Batch: WG1137832-2 WG1137832-3									
Aroclor 1016	71		78		40-140	9		50	A
Aroclor 1260	78		86		40-140	10		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		82		30-150	A
Decachlorobiphenyl	103		114		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		59		30-150	B
Decachlorobiphenyl	146		117		30-150	B

Project Name: TRANSFORMER REMOVAL
Project Number: T0071-013-350

Lab Number: L1827377
Report Date: 07/23/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1827377-01A	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-01B	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-01C	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-02A	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-02B	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-02C	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-03A	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-03B	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)
L1827377-03C	Vial unpreserved	A	NA		2.4	Y	Absent		NYTCL-8082(14)

*Values in parentheses indicate holding time in days

Project Name:	TRANSFORMER REMOVAL	**Lab Number:**	L1827377
Project Number:	T0071-013-350	**Report Date:**	07/23/18

GLOSSARY

Acronyms

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.
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.
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

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.

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.

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.

Report Format: DU Report with 'J' Qualifiers

Project Name:	TRANSFORMER REMOVAL	**Lab Number:**	L1827377
Project Number:	T0071-013-350	**Report Date:**	07/23/18

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

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).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	TRANSFORMER REMOVAL	**Lab Number:**	L1827377
Project Number:	T0071-013-350	**Report Date:**	07/23/18

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

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

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

Certification Information

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

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

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

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-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**, EPA 351.1, 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 624: Volatile Halocarbons & Aromatics,
EPA 608: 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: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, 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, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

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TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

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Date Rec'd in Lab 7/18/18

ALPHA Job # L1827377

Client Information
Client: Benchmark EES
Address: 2558 Hamburg Turnpike
Phone: 716 856-0599
Fax:
Email: Herbes@benchmarktmkey.com

Project Information
Project Name: Transformer Removal
Project Location: Jellumsen.
Project # T0071-013-350
(Use Project name as Project #) ☐
Project Manager: Candy Fox
ALPHAQuote #:

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☒ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS
PCB 8082

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Total Bottle

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB 8082	Sample Specific Comments
27377-01	T-1064482	7					
-02	T-5065998	7/17/18	1615	AQ	CCB	X	
-03	T-42318	7/17/18	1620	AQ	CCB	X	
	T-17552269	7/17/18	1625	AQ	CCB	X	

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
	7/17/18 1700		7/18/18 1000
	7/18/18 1055		7/18/18 0105

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)