VIA ELECTRONIC MAIL

July 28, 2022

Mr. Daniel R. Lanners, P.E.
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7014

Subject: **Indoor Air Sampling Report for Former Manufacturing Building**
Federal-Mogul/Huck Site, Kingston, New York
NYSDEC Site Number V00171

Dear Mr. Lanners:

WSP USA Inc., on behalf of Tenneco Inc. (as successor in interest to Federal-Mogul LLC), has prepared this report to summarize the results of air samples collected on March 30, 2022, at the former Huck manufacturing facility at 85 Grand Street in Kingston, New York. This indoor air sampling event was recommended in WSP's July 1, 2021, letter report to the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), which included the results of indoor air sampling conducted on March 31, 2021.

Based on the March 2021 indoor air sampling results, WSP recommended in the July 1, 2021, report to evaluate potential alternatives to provide vacuum under the northwest portion of the building to address the potential for vapor intrusion to indoor air in this area. On November 30, 2021, WSP submitted to the NYSDEC a proposed design for a sub-slab depressurization system (SSDS) to be installed in the northwest portion of the main building, and the design was approved in a letter to Tenneco Inc., dated January 13, 2022. The SSDS was installed from January 31 through February 3, 2022, and the results of the SSDS installation activities and record drawings will be included in the first semi-annual progress report for 2022, which will be submitted to the NYSDEC and NYSDOH by August 15, 2022. The purpose of the March 30, 2022, indoor air sampling event was to evaluate the potential impact of the SSDS on indoor air quality.

SCOPE OF WORK

The March 2022 indoor air sampling event consisted of performing a building inspection and material inventory, collecting five indoor air samples within the former manufacturing building, and collecting two ambient outdoor air samples at upwind locations selected on the day of sampling to evaluate potential background sources for volatile organic compounds (VOCs) in outdoor air. The March 2022 indoor air samples were collected from the former Family Services space, the main office complex, and in the self-storage portion of the main building (Figure 1). The former Family Services space had been used for storage during the March and April 2019 sampling events; however, the space was being used as a recording studio during the November 2020, March 2021, and March 2022 sampling events. Consistent with the previous indoor air sampling event in March 2021, the air sparge (AS)/soil vapor extraction (SVE) system Cycle Group 1 AS and SVE wells were operating at full vacuum during the sampling event. In addition, SVE well SV-12 was operating at a reduced vacuum.

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Sampling activities were conducted in accordance with WSP's Indoor Air Sampling Work Plan, dated February 5, 2019, the NYSDEC's conditional approval letter, dated March 4, 2019, and the NYSDOH's Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006, and associated updates. A description of the sampling activities is provided below.

BUILDING INSPECTION AND MATERIAL INVENTORY

WSP performed a pre-sampling site inspection and completed material inventories on March 17, 2022, before the sampling activities on March 30, 2022. During the inspection, WSP completed material inventory forms for the former Family Services space, main office complex, and the self-storage area of the main building. In general, the volatile ingredients of each material, if available, were photographed or recorded on the inventory form, and the containers were scanned with a photoionization detector (RAE Systems ppbRAE) for potential vapor emissions.

Some of the target site-related VOCs (i.e., trichloroethene [TCE], tetrachloroethene [PCE]) are found in many household and commercial products. While WSP attempted to limit the potential for these background sources to affect the indoor air results by performing material inventories in the areas sampled and eliminating potential sources for these VOCs, if identified, the interior of the former manufacturing building contains over 400 self-storage units (with wire mesh ceilings) that were not accessible to WSP. Therefore, WSP could not control or eliminate any potential impacts to indoor quality resulting from VOC-containing materials that may be stored in these units.

INDOOR AIR SAMPLING PROCEDURES

On March 30, 2022, indoor air samples were collected from five locations (IA-1, IA-2, IA-3, IA-5, and IA-6) that were sampled in March and April 2019, November 2020[1], and March 2021 (Figure 1). Samples were collected using evacuated 6-liter SUMMA™-style canisters with flow controllers and particulate filters installed. Each of the indoor air sample canisters were placed approximately 3 to 5 feet above the floor to be representative of the breathing zone. Physical and visual barriers were placed around the canisters, if necessary, so that they would not be disturbed during sample collection. The flow regulators were pre-set by the laboratory to collect the samples over an approximately 8-hour period. The flow regulator was connected to the canister and opened to initiate sample collection. After approximately 8 hours, the flow regulator was closed to complete the sample collection. The sample name, location, time and date of sample collection, final canister vacuum, canister and regulator number, and the analytical method to be used were recorded on the chain-of-custody form and in the field logbook.

AMBIENT OUTDOOR AIR SAMPLING PROCEDURES

On March 30, 2022, ambient (outdoor) air samples were collected from two locations (AA-1 and AA-2) upwind of the facility concurrently with indoor air sample collection. The outdoor air samples were collected west of the former manufacturing building (Figure 1). The outdoor air samples were collected with evacuated 6-liter SUMMA™-style canisters and dedicated flow controllers over an approximately 8-hour period using the same procedures described above for the indoor air samples. Site conditions, including temperature, wind direction and velocity, barometric pressure, and the occurrence of precipitation were documented before initiating the sampling activities.

SAMPLE ANALYSIS AND QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance/quality control procedures were followed to ensure that controls were initiated and maintained throughout sampling and analysis. The canisters were submitted under ambient conditions to an offsite laboratory, ALS Environmental of Simi Valley, California, under strict chain-of-custody procedures. ALS Environmental – Simi Valley is accredited under the NYSDOH Environmental Laboratory Approval Program (ID 11221). As specified in the work plan, the indoor and outdoor air samples were analyzed for site-related VOCs (i.e., TCE, PCE, and cis-1,2-dichloroethene [cis-1,2-DCE]) using U.S. Environmental Protection

[1] The sample collected at location IA-3 in November 2020 could not be analyzed due to an equipment malfunction at the laboratory.

Agency (EPA) Method TO-15. The sample results were validated by a third-party contractor (Laboratory Data Consultants, Inc., in Carlsbad, California).

The canisters used for the sampling activities were 100-percent individually certified-clean by the laboratory by analyzing the ambient air inside a cleaned canister by EPA Method TO-15. If no target compounds were detected at concentrations above compound-specific method reporting limits, then the canister was evacuated again, and the canister was available for sampling. If target compounds were detected at concentrations above the method reporting limits, then the canister was re-cleaned and reanalyzed for the target compounds.

A duplicate indoor air sample was collected from sample location IA-2. The duplicate sample was collected at the same time and from the same sample location using a sample tee. The field duplicate identity was not provided to the laboratory. The field duplicate is useful in documenting the precision of the sampling process. In addition, a laboratory-prepared trip blank accompanied the sample canisters from the laboratory to the field and from the field to the laboratory. The trip blank was used to evaluate the potential for contamination during shipment.

SAMPLING RESULTS

The site-related VOCs detected in indoor and outdoor air samples for the March 2022 sampling event are provided on Table 1 and Figure 1, and the analytical data and data validation report are in Enclosure A. For comparison, Table 1 and Figure 1 also include the results from the March and April 2019 and November 2020 and March 2021 sampling events.

Three indoor air samples (IA-1, IA-3, and IA-5) were collected from the self-storage portion of the main building. Indoor air sample IA-1 contained 0.68 µg/m^3 of TCE and 0.22 µg/m^3 of PCE. Indoor air sample IA-3 contained 0.55 µg/m^3 of TCE and 0.21 µg/m^3 of PCE. Indoor air sample IA-5 contained 0.78 µg/m^3 of TCE and 0.36 µg/m^3 of PCE. No cis-1,2-DCE was detected in the indoor air samples IA-1, IA-3, and IA-5.

The March 2022 indoor air samples from the main office complex (IA-2 and the duplicate sample) contained maximum concentrations of 0.58 µg/m^3 of TCE, 0.23 µg/m^3 of PCE, and no detectable concentrations of cis-1,2-DCE.

The March 2022 indoor air sample from the former Family Services space (IA-6) contained 6.9 µg/m^3 of TCE, 0.67 µg/m^3 of PCE, and no detectable concentrations of cis-1,2-DCE.

The March 2022 outdoor air samples (AA-1 and AA-2) contained no detectable concentrations of TCE, PCE, or cis-1,2-DCE.

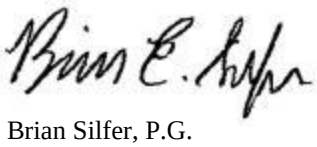
CONCLUSIONS AND RECOMMENDATIONS

The indoor air results from the March 2022 sampling event show a reduction in the concentrations of TCE, PCE, and cis-1,2-DCE detected in samples IA-1, IA-2, IA-3, and IA-5 from the self-storage portion of the building and the main office complex. This reduction in concentrations is likely attributable to the continued operation of sub-slab depressurization pilot test extraction point SSD-TP1 (Figure 2), which was installed in March 2021, and the SSDS that had been operating in the northwest portion of the main building since February 3, 2022. The results from indoor air sample IA-6 showed an increase in the detected concentrations of TCE and PCE as compared to the March 2021 sample results from this location (Table 1).

Given the variability in the detected concentrations of TCE in sample IA-6 over the five sampling events, including concentrations of 2.2 and 1.6 ug/m^3 in March and April 2019, respectively (i.e., before SSD pilot test point SSD-TP1 was activated and the SSDS was installed in the northwest portion of the building), and a concentration of 1.1 µg/m^3 in March 2021, Tenneco is proposing to collect another round of indoor air samples during the upcoming heating season to confirm the March 2022 sample results. Based on the results of the follow-up indoor air sampling event, Tenneco will consider the need for further action to address indoor air quality, if warranted.

If you have any questions or comments regarding this report, please feel free to contact Mark Bauer of Tenneco at (248) 354-8912, or me at (315) 374-5574.

Sincerely,



Brian Silfer, P.G.
Practice Leader

BES:rlo

Encl.

cc: Kristin Kulow, New York State Department of Health
Mark T. Bauer, Tenneco Inc.
Douglas Brooks, Tenneco Inc.

FIGURES

LEGEND

- STORM SEWER GRATE
- MANHOLE COVER
- PROPERTY LINE AND INSTITUTIONAL CONTROL BOUNDARY
- FENCE LINE
- SELF STORAGE UNITS
- FLOOR DRAIN (SEALED)
- INDOOR AIR SAMPLE LOCATION
- OUTDOOR AIR SAMPLE LOCATION

IA-3	3/19/19
cis-1,2-DCE	0.14 J
TCE	4.3
PCE	0.92

- SAMPLE LOCATION
- SAMPLE COLLECTION DATE
- SAMPLE RESULTS IN MICROGRAMS PER CUBIC METER
- CONSTITUENT

DCE	DICHLOROETHENE
TCE	TRICHLOROETHENE
PCE	TETRACHLOROETHENE
J	ESTIMATED CONCENTRATION
ND	NOT DETECTED
NA	NOT ANALYZED DUE TO CANISTER MALFUNCTION

NOTES:

1. A BLIND DUPLICATE SAMPLE WAS COLLECTED AT IA-2 ON MARCH 19, APRIL 4, 2019, NOVEMBER 17, 2020, MARCH 31, 2021, AND MARCH 30, 2022. THE HIGHEST REPORTED RESULT FOR EACH SAMPLING EVENT IS PRESENTED.
2. A SAMPLE WAS NOT COLLECTED AT IA-4 IN NOVEMBER 2020, MARCH 2021, AND MARCH 2022.

AA-2	11/17/20	3/31/21	3/30/22
cis-1,2-DCE	ND	ND	ND
TCE	ND	ND	ND
PCE	0.093 J	0.26	ND

AA-2	3/19/19
cis-1,2-DCE	ND
TCE	ND
PCE	0.11 J

AA-1	3/19/19
cis-1,2-DCE	ND
TCE	ND
PCE	0.11 J

AA-1	11/17/20	3/31/21	3/30/22
cis-1,2-DCE	ND	ND	ND
TCE	ND	ND	ND
PCE	0.12 J	0.13 J	ND

IA-6	3/19/19	4/2/19	11/17/20	3/31/21	3/30/22
cis-1,2-DCE	ND	0.029 J	ND	ND	ND
TCE	2.2	1.6	4.1	1.1	6.9
PCE	0.59	0.23	0.44	0.32	0.67

IA-5	3/19/19	4/2/19	11/17/20	3/31/21	3/30/22
cis-1,2-DCE	0.16	0.25	0.11 J	ND	ND
TCE	4.5	4.6	3.8	2.1	0.78
PCE	1.2	0.73	1.4	1.3	0.36

IA-3	3/19/19	4/2/19	11/17/20	3/31/21	3/30/22
cis-1,2-DCE	0.14 J	0.35	NA	0.14 J	ND
TCE	4.3	6.8	NA	3.7	0.55
PCE	0.92	1.4	NA	1.3	0.21

IA-4	3/19/19	4/2/19
cis-1,2-DCE	ND	0.016 J
TCE	0.81	0.29
PCE	0.81	0.30

IA-2	3/19/19	4/2/19	11/17/20	3/31/21	3/30/22
cis-1,2-DCE	0.13 J	0.20	0.22	0.10 J	ND
TCE	4.8	5.5	6.3	3.0	0.58
PCE	0.79	0.98	1.5	1.0	0.23

IA-1	3/19/19	4/2/19	11/17/20	3/31/21	3/30/22
cis-1,2-DCE	0.14 J	0.23	0.19	0.091 J	ND
TCE	5.2	6.2	6.2	2.7	0.68
PCE	0.77	1.1	1.7	0.93	0.22

AA-1	4/2/19
cis-1,2-DCE	ND
TCE	ND
PCE	0.078 J

AA-2	4/2/19
cis-1,2-DCE	ND
TCE	0.002 J
PCE	0.070 J

CSX TRANSPORTATION, INC. TRACKS
SUSPECTED ONSITE DISPOSAL AREA
FORMER 3,000-GALLON HEATING OIL UNDERGROUND STORAGE TANK AREA
FORMER FUEL OIL UNDERGROUND STORAGE TANK AREA
FORMER 8,000-GAL. AST
COVERED STORAGE AREAS
FORMER HEAT TREAT AREA
FORMER HEAT TREAT TRANSFORMER AREA
FORMER FAMILY SERVICES
KLOMM CONSTRUCTION (STORAGE)
FORMER MANUFACTURING BUILDING (MAIN BUILDING)
TENBROECK AVENUE
FORMER DEGREASER AREA
WAREHOUSE
SOUTHERN PARKING LOT
SMITH AVENUE
BOTTLE RETURN CENTER
OFFICE BUILDING
MAIN OFFICE COMPLEX
EASTERN PARKING LOT
FORMER EASTERN PARKING LOT TRANSFORMER AREA
FORMER METAL FINISH AREA
GRAND STREET
AA-1
AA-2
IA-1
IA-2
IA-3
IA-4
IA-5
IA-6

0 60 120
SCALE IN FEET

Drawn By: EGC
Checked: AMR 5/16/2022
Approved: BES 5/16/2022
DWG Name: 314V1678.006-041

FORMER HUCK MANUFACTURING FACILITY
KINGSTON, NEW YORK
PREPARED FOR
FEDERAL-MOGUL LLC

FIGURE 1

INDOOR AND OUTDOOR AIR SAMPLING RESULTS

WSP USA Inc.
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4TH FLOOR
NEW YORK, NY 10119
TEL: +1 212.465.5000

B

LEGEND

- MW-8 MONITORING WELL
- MP-1 AS/SVE VACUUM MONITORING POINT
- VM-1 SVE TRENCH VACUUM MONITORING POINT
- TVP-19 TEMPORARY SUB-SLAB VACUUM MONITORING POINT
- TVP-08 PREVIOUS SUB-SLAB VACUUM MONITORING POINT
- SSD-TP2 SUB-SLAB DEPRESSURIZATION TEST POINT
- AS-9 AIR SPARGING WELL
- SV-8 SVE WELL
- VP-02 VAPOR PIN
- ASP-1 AIR SPARGE PILOT TEST WELL
- SVE TRENCH VALVE BOX
- STORM SEWER GRATE
- FENCE
- SELF STORAGE UNITS
- SVE TRENCH 6" CONVEYANCE PIPING
- SVE TRENCH 6" SCREENED PIPING
- VACUUM MONITORING POINT DESIGNATION (READINGS IN INCHES H_2O)

MP-3
-0.205
-0.305

SYSTEM CONFIGURATION:

AIR SPARGE + SVE + SSD-TP1 + SSD-TP2
AIR SPARGE + SVE + SSD-TP1

NOTE:

INTERIOR DETAILS, INCLUDING SELF-STORAGE UNIT LOCATIONS ARE APPROXIMATE, AND ARE BASED ON: DRAWING NUMBER A1, FLOOR PLAN-EXISTING CONDITIONS FOR ALLWAYS SELF-STORAGE, 85 GRAND STREET, KINGSTON, NEW YORK, DATED MARCH 15, 2004.

CSX TRANSPORTATION, INC. TRACKS

GRAND STREET

TENBROECK AVENUE

OUTLINE OF SECOND FLOOR ABOVE

COVERED STORAGE AREA

STORAGE UNIT 993

STORAGE UNIT 997

STORAGE UNIT 998

BATHROOM

TRANSFORMER ROOM

SVE TREATMENT ROOM

MANIFOLD ROOM (LOCKER 269)

OFFICE BUILDING

LINE 1
LINE 2
LINE 3

VALVE BOX 4
VALVE BOX 3
VALVE BOX 2
VALVE BOX 1

MP-4
0.026
0.014

TVP-19
0.006
0.001

MP-3	MP-2	MP-1
-0.306	-0.913	-2.384
-0.312	-0.896	-2.326

MP-6
-0.153
-0.175

MP-7
-0.538
-0.553

MP-5
-0.492
-0.627

MP-8
-0.084
-0.105

VP-02
-0.057
-0.064

VP-01
-0.112
-0.124

MP-9
-0.475
-0.531

20 10 0 20 40
SCALE, FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

REVISIONS

REV	DESCRIPTION	Appr.
1	Revised	Chkd.
2	Revised	Chkd.
3	Revised	Chkd.

SEAL

DATE

DRAWN BY
CHECKED
APPROVED

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR. IT IS A VIOLATION OF STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DRAWING IN ANY WAY.

BASELINE AND FINAL VACUUM FIELD READINGS SYSTEM RE-BALANCE – MARCH 24, 2021

FORMER HUCK MANUFACTURING FACILITY
KINGSTON, NEW YORK

PREPARED FOR
TENNECO INC.
SOUTHFIELD, MICHIGAN

WSP USA Inc.
7000 E. GENESEE ST. BLDG D, 2ND FLOOR
FAYETTEVILLE, NY 13066
TEL: +1 315.655.3900

FIGURE 2

Drawing Number
314P1678.006-D35

TABLE

Table 1

Indoor and Outdoor Air Sampling Results
Former Huck Manufacturing Building
Kingston, NY (a)

Location (b)	Sample ID	Sample Date	Compound (µg/m^3)		
			cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene
IA- 1	HUCKIAF031919-1	3/19/2019	0.14 J	5.2	0.77
	HUCKIAF040219-1	4/2/2019	0.23	6.2	1.1
	HUCKIAF111720-1	11/17/2020	0.19	6.2	1.7
	HUCKIAF033121-1	3/31/2021	0.091 J	2.7	0.93
	HUCKIAF033022-1	3/30/2022	0.11 U	0.68	0.22
IA-2	HUCKIAF031919-2	3/19/2019	0.13 J	4.8	0.79
	HUCKIAFR031919-2 (c)	3/19/2019	0.12 J	4.8	0.79
	HUCKIAF040219-2	4/2/2019	0.20	5.5	0.98
	HUCKIAFR040219-2 (d)	4/2/2019	0.20	5.4	0.97
	HUCKIAF111720-2	11/17/2020	0.19	5.9	1.5
	HUCKIAFR111720-2 (e)	11/17/2020	0.22	6.3	1.5
	HUCKIAF033121-2	3/31/2021	0.10 J	3.0	1.0
	HUCKIAFR033121-2 (f)	3/31/2021	0.091 J	2.8	0.93
	HUCKIAF033022-2	3/30/2022	0.11 U	0.58	0.23
	HUCKIAFR033022-2 (g)	3/30/2022	0.10 U	0.51	0.19
IA- 3	HUCKIAF031919-3	3/19/2019	0.14 J	4.3	0.92
	HUCKIAF040219-3	4/2/2019	0.35	6.8	1.4
	HUCKIAF111720-3	11/17/2020	NA	NA	NA
	HUCKIAF033121-3	3/31/2021	0.14 J	3.7	1.3
	HUCKIAF033022-3	3/30/2022	0.11 U	0.55	0.21
IA- 4	HUCKIAF031919-4	3/19/2019	0.11 U	0.81	0.81
	HUCKIAF040219-4	4/2/2019	0.016 J	0.29	0.30
	NS	11/17/2020	NS	NS	NS
	NS	3/31/2021	NS	NS	NS
	NS	3/30/2022	NS	NS	NS
IA- 5	HUCKIAF031919-5	3/19/2019	0.16	4.5	1.2
	HUCKIAF040219-5	4/2/2019	0.25	4.6	0.73
	HUCKIAF111720-5	11/17/2020	0.11 J	3.8	1.4
	HUCKIAF033121-5	3/31/2021	0.014 U	2.1	1.3
	HUCKIAF033022-5	3/30/2022	0.11 U	0.78	0.36
IA - 6	HUCKIAF031919-6	3/19/2019	0.11 U	2.2	0.59
	HUCKIAF040219-6	4/2/2019	0.029 J	1.6	0.23
	HUCKIAF111720-6	11/17/2020	0.11 U	4.1	0.44
	HUCKIAF033121-6	3/31/2021	0.014 U	1.1	0.32
	HUCKIAF033022-6	3/30/2022	0.11 U	6.9	0.67
AA-1	HUCKAA031919-1	3/19/2019	0.10 U	0.099 U	0.11 J
	HUCKAA040219-1	4/2/2019	0.014 U	0.16 U	0.078 J
	HUCKAA111720-1	11/17/2020	0.10 U	0.098 U	0.12 J
	HUCKAA033121-1	3/31/2021	0.013 U	0.012 U	0.13 J
	HUCKAA033022-1	3/30/2022	0.087 U	0.084 U	0.080 U
AA-2	HUCKAA031919-2	3/19/2019	0.11 U	0.10 U	0.11 J
	HUCKAA040219-2	4/2/2019	0.014 U	0.020 J	0.070 J
	HUCKAA111720-2	11/17/2020	0.10 U	0.096 U	0.093 J
	HUCKAA033121-2	3/31/2021	0.012 U	0.011 U	0.26
	HUCKAA033022-2	3/30/2022	0.098 U	0.094 U	0.090 U

a/ µg/m^3 = micrograms per cubic meter.

U = Compound was analyzed for, but not detected above the laboratory detection limit.

J = The result is an estimated concentration that is less than the method reporting limit but greater than or equal to the method detection limit.

NA = not analyzed due to a canister malfunction.

NS = not sampled for this event.

b/ Location: IA = indoor air; AA = outdoor air. (Outdoor air samples were placed in different locations for each sampling event. See Figure 1.)

c/ Duplicate sample of HUCKIAF031919-2.

d/ Duplicate sample of HUCKIAF040219-2.

e/ Duplicate sample of HUCKIAF111720-2.

f/ Duplicate sample of HUCKIAF033121-2.

g/ Duplicate sample of HUCKIAF033022-2.

ENCLOSURE A – ANALYTICAL RESULTS AND DATA VALIDATION REPORTS

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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www.alsglobal.com

LABORATORY REPORT

April 11, 2022

Brian Silfer
WSP USA
7000 East Genesee St., Building D, 2nd Floor
Fayetteville, NY 13066

RE: Former Huck Manufacturing Site / 31401678.006 Task 2

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on April 1, 2022. For your reference, these analyses have been assigned our service request number P2201472.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Nicole Bryson
By Nicole.Bryson at 4:14 pm, Apr 11, 2022

for Sue Anderson
Project Manager

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Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: WSP USA
Project: Former Huck Manufacturing Site / 31401678.006 Task 2

Service Request No: P2201472
New York Lab ID: 11221

CASE NARRATIVE

The samples were received intact under chain of custody on April 1, 2022 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.3 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: WSP USA Service Request: P2201472

Project ID: Former Huck Manufacturing Site / 31401678.006 Task 2

Date Received: 4/1/2022

Time Received: 17:07

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC Cans
HUCKIAF033022-1	P2201472-001	Air	3/30/2022	16:35	SC00760	-1.73	3.98	X
HUCKIAF033022-2	P2201472-002	Air	3/30/2022	16:34	AC02379	-2.36	4.22	X
HUCKIAFR033022-2	P2201472-003	Air	3/30/2022	16:34	AC02353	-1.32	3.81	X
HUCKIAF033022-3	P2201472-004	Air	3/30/2022	16:37	SSC00144	-1.59	3.79	X
HUCKIAF033022-5	P2201472-005	Air	3/30/2022	16:36	SSC00461	-2.21	4.02	X
HUCKIAF033022-6	P2201472-006	Air	3/30/2022	16:20	AC00679	-2.04	4.12	X
HUCKAA033022-1	P2201472-007	Air	3/30/2022	16:15	SC01662	1.15	3.74	X
HUCKAA033022-2	P2201472-008	Air	3/30/2022	16:32	AS01599	-0.64	3.75	X
TRIP BLANK	P2201472-009	Air	3/30/2022	00:00	SSC00277	-14.15	3.88	X

Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

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Requested Turnaround Time in Business Days (Surcharges) please circle: 8-DAY
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard

ALS Project No. P2201472

Company Name & Address (Reporting Information)	WSP USA
Project Manager	BRIAN SILFER
Phone	315-374-5574
Fax	
Email Address for Result Reporting	BRIAN.SILFER@WSP.COM
Project Name	FORMER HUCK MANUFALTURING SITE
Project Number	31401678.006 TASK 02
P.O. # / Billing Information	
Sampler (Print & Sign)	NATE WINSTON
ALS Contact:	

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method: TO-15, PLE, TLE, C15-1,2 DLE (LOW LEVEL)	Comments e.g. Actual Preservative or specific instructions
HUCKIAF033022-1	1	3/30/22	1635	SL00760	SFL00430	-30.80	-4	6L	X	
HUCKIAF033022-2	2		1634	AL02379	FCR00495	-30.80	-5		X	
HUCKIAFR033022-2	3		1634	AL02353	FCR00496	-30.77	-5		X	
HUCKIAF033022-3	4		1637	SSL00144	SFL00485	-30.68	-4		X	
HUCKIAF033022-5	6		1636	SSL00461	SFL00040	-30.57	-3		X	
HUCKIAF033022-6	4		1620	AL00679	3FL00547	-30.83	-4		X	
~~HUCKIAF033022 NTW~~	7		—	—	—	—			~~X~~	
HUCKAA033022-1	7		1615	SL01662	SFL00318	-30.20	-1		X	
HUCKAA033022-2	8		1632	AS01599	SFL00652	-30.76	-5		X	
TRIP BLANK	9	—	—	SSL00977	—	—	—		X	

Report Tier Levels - please select

Tier I - Results (Default if not specified) ____ Tier II (Results + QC Summaries) ____ Tier III (Results + QC & Calibration Summaries) ____ Tier IV (Data Validation Package) 10% Surcharge X

EDD required (Yes) / No Type: CAT B Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date: 3/31/22	Time: 1400	Received by: (Signature)	Date:	Time:	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 4-1-22	Time: 1707	Cooler / Blank Temperature ____ °C

ALS Environmental
Sample Acceptance Check Form

Client: WSP USA Work order: P2201472

Project: Former Huck Manufacturing Site / 31401678.006 Task 2

Sample(s) received on: 4/4/22 Date opened: 4/4/22 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Box sealing. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2201472-001.01	6.0 L Source Can					
P2201472-002.01	6.0 L Ambient Can					
P2201472-003.01	6.0 L Ambient Can					
P2201472-004.01	6.0 L Silonite Can					
P2201472-005.01	6.0 L Silonite Can					
P2201472-006.01	6.0 L Ambient Can					
P2201472-007.01	6.0 L Source Can					
P2201472-008.01	6.0 L Silonite Can					
P2201472-009.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKIAF033022-1** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-001

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC00760

Initial Pressure (psig): -1.73 Final Pressure (psig): 3.98

Canister Dilution Factor: 1.44

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.16	0.11	ND	0.040	0.027	
79-01-6	Trichloroethene	**0.68**	0.16	0.10	**0.13**	0.029	0.019	
127-18-4	Tetrachloroethene	**0.22**	0.16	0.099	**0.033**	0.023	0.015	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKIAF033022-2** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-002

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02379

Initial Pressure (psig): -2.36 Final Pressure (psig): 4.22

Canister Dilution Factor: 1.53

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.17	0.11	ND	0.042	0.029	
79-01-6	Trichloroethene	**0.58**	0.17	0.11	**0.11**	0.031	0.021	
127-18-4	Tetrachloroethene	**0.23**	0.17	0.11	**0.034**	0.025	0.016	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKIAFR033022-2** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-003

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02353

Initial Pressure (psig): -1.32 Final Pressure (psig): 3.81

Canister Dilution Factor: 1.38

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.15	0.10	ND	0.038	0.026	
79-01-6	Trichloroethene	**0.51**	0.15	0.099	**0.095**	0.028	0.018	
127-18-4	Tetrachloroethene	**0.19**	0.15	0.095	**0.028**	0.022	0.014	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKIAF033022-3** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-004

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00144

Initial Pressure (psig): -1.59 Final Pressure (psig): 3.79

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.16	0.11	ND	0.039	0.027	
79-01-6	Trichloroethene	**0.55**	0.16	0.10	**0.10**	0.029	0.019	
127-18-4	Tetrachloroethene	**0.21**	0.16	0.097	**0.031**	0.023	0.014	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKIAF033022-5** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-005

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/9/22
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00461

Initial Pressure (psig): -2.21 Final Pressure (psig): 4.02

Canister Dilution Factor: 1.50

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.17	0.11	ND	0.042	0.028	
79-01-6	Trichloroethene	**0.78**	0.17	0.11	**0.14**	0.031	0.020	
127-18-4	Tetrachloroethene	**0.36**	0.17	0.10	**0.054**	0.024	0.015	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKIAF033022-6** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-006

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/9/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00679

Initial Pressure (psig): -2.04 Final Pressure (psig): 4.12

Canister Dilution Factor: 1.49

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.16	0.11	ND	0.041	0.028	
79-01-6	Trichloroethene	**6.9**	0.16	0.11	**1.3**	0.031	0.020	
127-18-4	Tetrachloroethene	**0.67**	0.16	0.10	**0.099**	0.024	0.015	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKAA033022-1** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-007

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/9/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SC01662

Initial Pressure (psig): 1.15 Final Pressure (psig): 3.74

Canister Dilution Factor: 1.16

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.13	0.087	ND	0.032	0.022	
79-01-6	Trichloroethene	ND	0.13	0.084	ND	0.024	0.016	
127-18-4	Tetrachloroethene	ND	0.13	0.080	ND	0.019	0.012	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **HUCKAA033022-2** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-008

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/9/22
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS01599

Initial Pressure (psig): -0.64 Final Pressure (psig): 3.75

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.14	0.098	ND	0.036	0.025	
79-01-6	Trichloroethene	ND	0.14	0.094	ND	0.027	0.018	
127-18-4	Tetrachloroethene	ND	0.14	0.090	ND	0.021	0.013	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **TRIP BLANK** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P2201472-009

Test Code: EPA TO-15 Date Collected: 3/30/22
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: 4/1/22
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: SSC00277

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.075	ND	0.028	0.019	
79-01-6	Trichloroethene	ND	0.11	0.072	ND	0.020	0.013	
127-18-4	Tetrachloroethene	ND	0.11	0.069	ND	0.016	0.010	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA**
Client Sample ID: **Method Blank** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P220408-MB

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	ND	0.11	0.075	ND	0.028	0.019	
79-01-6	Trichloroethene	ND	0.11	0.072	ND	0.020	0.013	
127-18-4	Tetrachloroethene	ND	0.11	0.069	ND	0.016	0.010	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **WSP USA**
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Project ID: P2201472

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date(s) Collected: 3/30/22
Analyst: Wida Ang Date(s) Received: 4/1/22
Sample Type: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s) Date(s) Analyzed: 4/8 - 4/9/22
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 Percent Recovered	Toluene-d8 Percent Recovered	Bromofluorobenzene Percent Recovered	Acceptance Limits	Data Qualifier
Method Blank	P220408-MB	**96**	**99**	**100**	70-130	
Lab Control Sample	P220408-LCS	**98**	**93**	**97**	70-130	
Duplicate Lab Control Sample	P220408-DLCS	**98**	**93**	**98**	70-130	
HUCKIAF033022-1	P2201472-001	**90**	**98**	**114**	70-130	
HUCKIAF033022-2	P2201472-002	**88**	**99**	**116**	70-130	
HUCKIAFR033022-2	P2201472-003	**88**	**96**	**116**	70-130	
HUCKIAF033022-3	P2201472-004	**87**	**96**	**116**	70-130	
HUCKIAF033022-5	P2201472-005	**87**	**98**	**117**	70-130	
HUCKIAF033022-6	P2201472-006	**88**	**98**	**116**	70-130	
HUCKAA033022-1	P2201472-007	**87**	**100**	**117**	70-130	
HUCKAA033022-2	P2201472-008	**87**	**100**	**118**	70-130	
TRIP BLANK	P2201472-009	**97**	**97**	**98**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **WSP USA**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2201472
Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2** ALS Sample ID: P220408-DLCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Date Received: NA
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS µg/m³	Result LCS µg/m³	Result DLCS µg/m³	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	206	211	208	**102**	**101**	73-117	1	25	
79-01-6	Trichloroethene	204	224	220	**110**	**108**	74-115	2	25	
127-18-4	Tetrachloroethene	212	212	212	**100**	**100**	63-130	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **WSP USA** ALS Project ID: P2201472

Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2**

Method Blank Summary

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 04082203.D

Analyst: Wida Ang Date Analyzed: 4/8/22

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 16:32

Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
TRIP BLANK	P2201472-009	04082204.D	17:07
Lab Control Sample	P220408-LCS	04082205.D	17:40
Duplicate Lab Control Sample	P220408-DLCS	04082210.D	20:32
HUCKIAF033022-1	P2201472-001	04082212.D	21:40
HUCKIAF033022-2	P2201472-002	04082213.D	22:14
HUCKIAFR033022-2	P2201472-003	04082214.D	22:48
HUCKIAF033022-3	P2201472-004	04082216.D	23:57
HUCKIAF033022-5	P2201472-005	04082217.D	00:31
HUCKIAF033022-6	P2201472-006	04082218.D	01:05
HUCKAA033022-1	P2201472-007	04082219.D	01:39
HUCKAA033022-2	P2201472-008	04082220.D	02:12

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **WSP USA** ALS Project ID: P2201472

Client Project ID: **Former Huck Manufacturing Site / 31401678.006 Task 2**

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16 Lab File ID: 04082201.D
Analyst: Wida Ang Date Analyzed: 4/8/22
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 14:46
Test Notes:

		IS1 (BCM)			IS2 (DFB)			IS3 (CBZ)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 Hour Standard	240524		11.32		1107664		13.43		212531		17.73	
	Upper Limit	336734		11.65		1550730		13.76		297543		18.06	
	Lower Limit	144314		10.99		664598		13.10		127519		17.40	
	Client Sample ID												
01	Method Blank	218626		11.30		1002674		13.42		181069		17.73	
02	TRIP BLANK	196934		11.29		910364		13.42		170232		17.73	
03	Lab Control Sample	214161		11.31		977667		13.43		194144		17.73	
04	Duplicate Lab Control Sample	223746		11.31		1022654		13.43		200044		17.73	
05	HUCKIAF033022-1	329674		11.30		1524957		13.42		266837		17.73	
06	HUCKIAF033022-2	329745		11.30		1452843		13.42		263362		17.73	
07	HUCKIAFR033022-2	323760		11.30		1450682		13.42		269262		17.73	
08	HUCKIAF033022-3	328155		11.30		1446050		13.42		267383		17.73	
09	HUCKIAF033022-5	329472		11.30		1451301		13.42		265275		17.73	
10	HUCKIAF033022-6	322139		11.30		1428217		13.42		258224		17.73	
11	HUCKAA033022-1	306034		11.29		1353184		13.42		241820		17.73	
12	HUCKAA033022-2	298507		11.29		1330046		13.42		235764		17.73	
13													
14													
15													
16													
17													
18													
19													
20													

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits.

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

WSP USA Inc.
250 W 34th St., 4th Fl
New York, NY 10119
ATTN: Mr. Brian E. Silfer
brian.silfer@wsp.com

May 27, 2022

SUBJECT: Former Huck Manufacturing Site, Kingston, NY, Data Validation

Dear Mr. Silfer,

Enclosed is the final validation report for the fraction listed below. This SDG was received on April 26, 2022. Attachment 1 is a summary of the samples that were reviewed for analysis.

LDC Project #54047:

SDG	Fraction
P2201472	Volatiles

The data validation was performed under Category B guidelines. The analyses were validated using the following documents, as applicable to each method:

- USEPA Region 2 Analysis of Volatile Organic Compounds in Air Contained Canisters, SOP HW-31, Revision 6 (September 2016)
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, EPA 540-R-2017-002 (January 2017)

Please feel free to contact us if you have any questions.

Sincerely,

Kevin Kha
crink@lab-data.com
Project Manager/Senior Chemist

Category B EDD **LDC# 54047 (WSP USA Corp.- Fayetteville, NY / Former Huck Manufacturing Site, Kingston, NY)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	(3) VOA (TO-15)																															
Matrix: Air/Water/Soil				A	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	P2201472	04/26/22	05/17/22	9	0																														
Total	T/KK			9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9

Shaded cells indicate Category B validation (all other cells are Category A validation). These sample counts do not include MS/MSD, and DUPs

Site: Former Huck Manufacturing Site, Kingston, NY
Laboratory: ALS Environmental, Simi Valley, CA
Report No.: P2201472
Reviewer: Pei Geng and Kevin Kha/Laboratory Data Consultants for WSP Group - Pittsburg, PA
Date: May 25, 2022

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
HUCK1AF033022-1	P2201472-001	VOC
HUCK1AF033022-2	P2201472-002	VOC
HUCK1AFR033022-2	P2201472-003	VOC
HUCK1AF033022-3	P2201472-004	VOC
HUCK1AF033022-5	P2201472-005	VOC
HUCK1AF033022-6	P2201472-006	VOC
HUCKAA0330225-1	P2201472-007	VOC
HUCKAA033022-2	P2201472-008	VOC
TRIP BLANK	P2201472-009	VOC

Associated QC Samples(s):
Field/Trip Blanks: TRIP BLANK
Field Duplicate pair: HUCK1AF033022-2 and HUCK1AFR033022-2

The above-listed air samples were collected on March 30, 2022 and were analyzed for volatile organic compounds (VOCs) by method TO-15. The data validation was performed in accordance with the USEPA Region 2 *Analysis of Volatile Organic Compounds in Air Contained Canisters*, SOP HW-31, Revision 6 (September 2016) and the USEPA *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review,* EPA 540-R-2017-002 (January 2017), modified as necessary to accommodate the non-CLP methodologies used.

The organic data were evaluated based on the following parameters:

- Data Completeness
- Holding Times
- Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
- Initial and Continuing Calibrations
- Blanks
- Surrogate Recoveries
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Internal Standards
- Field Duplicate Results
- Quantitation Limits and Data Assessment
- Sample Quantitation and Compound Identification

Overall Evaluation of Data and Potential Usability Issues

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The data package was complete as defined under the requirements for the NYSDEC ASP category B laboratory deliverables.

Holding Times

All criteria were met.

GC/MS Tunes

All criteria were met.

Initial and Continuing Calibrations

All criteria were met.

Blanks

Contamination was not detected in the method blanks.

No positive results were found in the trip blank sample TRIP BLANK for VOC analysis.

Surrogate Recoveries

All criteria were met.

Laboratory Duplicate Results

Laboratory duplicates were not associated with this sample set. Validation action was not required on this basis.

LCS Results

All criteria were met.

Internal Standards

All criteria were met.

Field Duplicate Results

Samples HUCK1AF033022-2 and HUCK1AFR033022-2 were submitted as the field duplicate pair with this sample group. The following table summarizes the concentrations.

Compound	Concentration (ug/m³)		RPD
	HUCK1AF033022-2	HUCK1AFR033022-2	
Trichloroethene	0.58	0.51	13
Tetrachloroethene	0.23	0.19	19

Quantitation Limits and Data Assessment

No results were reported below the reporting limit (RL) and above the method detection limit (MDL) in the VOC analysis.

No dilutions were required for VOC analysis.

Sample Quantitation and Compound Identification

Calculations were spot-checked; no discrepancies were noted.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

JN - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

LDC #: 54047A48 **VALIDATION COMPLETENESS WORKSHEET** Date: 5/26/22
SDG #: P2201472 Category B Page: 1 of 1
Laboratory: ALS Environmental, Simi Valley, CA Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA Method TO-15)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 30% ICV ≤ 30%
IV.	Continuing calibration	A	CCV ≤ 30%
V.	Laboratory Blanks / canister	A/A	by sample
VI.	Field blanks	ND	TB = 9
VII.	Surrogate spikes	A	
VIII.	~~Matrix spike/Matrix spike~~ duplicates	N	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	SW	D = 2+3
XI.	Internal standards	A	
XII.	Target analyte quantitation	A	
XIII.	Target analyte identification	A	
XIV.	System performance	A	
XV.	Leak Check Compounds	N	
XVI.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	HUCK1AF033022-1	P2201472-001	Air	03/30/22
2	HUCK1AF033022-2	P2201472-002	Air	03/30/22
3	HUCK1AFR033022-2	P2201472-003	Air	03/30/22
4	HUCK1AF033022-3	P2201472-004	Air	03/30/22
5	HUCK1AF033022-5	P2201472-005	Air	03/30/22
6	HUCK1AF033022-6	P2201472-006	Air	03/30/22
7	HUCKAA0330225-1	P2201472-007	Air	03/30/22
8	HUCKAA033022-2	P2201472-008	Air	03/30/22
9	TRIP BLANK	P2201472-009	Air	03/30/22
10				
11				
12				
13				

LDC #: 54047AA8 **VALIDATION FINDINGS CHECKLIST** Page: 1 of 2
Reviewer: Q

Method: Volatiles (EPA Method TO-15)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Were canister pressure criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 24-hour clock criteria?	✓			
III. Initial calibration and Initial calibration verification				
Did the laboratory perform a 5-point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30%?	✓			
Was an initial calibration verification standard analyzed after every ICAL for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 24 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?	✓			
V. Laboratory Blanks/Canister Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 24 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
Was a canister blank analyzed for every canister?	✓			
Was there contamination in the canister blanks?		✓		
VI. Field Blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes (Optional)				
Were all surrogate percent recoveries (%R) within QC limits?	✓			
VIII. Laboratory Duplicate				
Was a laboratory duplicate analyzed for this SDG?		✓		
Were the relative percent differences (RPD) within the QC limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
IX. Laboratory control samples				
Was an LCS analyzed per analytical batch for this SDG?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Internal standards				
Were internal standard area counts within ± 40% from the associated calibration standard?	✓			
Were retention times within ± 20.0 seconds from the associated calibration standard?	✓			
XII. Compound quantitation				
Did the laboratory LOQs/RLs meet the QAPP LOQs/RLs?	✓			
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Leak check compounds				
Was a leak check compound used to evaluate sample integrity and included in the laboratory analyte list?			✓	
Was the leak check compound detected in the samples? If yes, please see leak check validation findings worksheet.			✓	
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

METHOD: GCMS VOA (EPA Method TO15)

Compound	Concentration (ug/m3)		RPD
	2	3	
S	0.58	0.51	13
AA	0.23	0.19	19

LDC #: 54047AA8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: a

METHOD: GC/MS VOA (EPA Method TO-15)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (1.0 std)	Recalculated RRF (1.0 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	1/20/22	RRR (1st internal standard)	1.900	1.900	2.015	2.015	6.41	6.41
			5 (2nd internal standard)	0.303	0.303	0.347	0.347	14.08	14.09
			AA (3rd internal standard)	1.656	1.656	1.961	1.961	17.75	17.77
2			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						
3			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						
4			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 54047A48

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: CT

METHOD: GC/MS VOA (EPA TO-15)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	04082201	4/8/22	RRR (1st internal standard)	2.015	1.894	1.894	6.0	6.0
			5 (2nd internal standard)	0.347	0.341	0.341	1.7	1.7
			AA (3rd internal standard)	1.961	1.889	1.889	3.7	3.7
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: ~~54047A~~ 48

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: Q

METHOD: GC/MS Volatiles (EPA Method TO-15)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:
% Recovery: SF/SS * 100
Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	12.500	12.254	98	98	
Bromofluorobenzene	↓	14.304	114	114	
1,2-Dichloroethane-d4	↓	11.291	90	90	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

LDC #~~54047A4~~ 8

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

METHOD: GC/MS VOA (EPA Method TO-15)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration
SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: P220408-LCS/6

Compound	Spike Added (ug/m3)		Spiked Sample Concentration (ug/m3)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene										
Trichloroethene	204	204	224	220	110	110	108	108	2	2
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 54074A43

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9

METHOD: GC/MS VOA (EPA Method TO-15)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 1 , S :

Conc. = $\frac{(19896)(12.5)(1.44)}{(1524957)(0.347)(1)(\quad)}$

= 0.68 ug/m3

#	Sample ID	Compound	Reported Concentration (ug/m3)	Calculated Concentration ( )	Qualification
	1	S	0.68		

Former Huck Manufacturing Site, Kingston, NY - LDC 54047

SDG: P2201472

Analytical Method TO15

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Validated	Detect	Lab Qual	Val Qual	Final qual	RL	MDL	Units
HUCKIAF033022-1	P2201472-001	trichloroethylene	04/08/2022	0.68	Y	Y					0.10	ug/m3
HUCKIAF033022-1	P2201472-001	Tetrachloroethene	04/08/2022	0.22	Y	Y					0.099	ug/m3
HUCKIAF033022-1	P2201472-001	Cis-1,2-Dichloroethylene	04/08/2022		Y	N	U		U	0.11	0.11	ug/m3
HUCKIAF033022-2	P2201472-002	Cis-1,2-Dichloroethylene	04/08/2022		Y	N	U		U	0.11	0.11	ug/m3
HUCKIAF033022-2	P2201472-002	trichloroethylene	04/08/2022	0.58	Y	Y					0.11	ug/m3
HUCKIAF033022-2	P2201472-002	Tetrachloroethene	04/08/2022	0.23	Y	Y					0.11	ug/m3
HUCKIAFR033022-2	P2201472-003	Cis-1,2-Dichloroethylene	04/08/2022		Y	N	U		U	0.10	0.10	ug/m3
HUCKIAFR033022-2	P2201472-003	trichloroethylene	04/08/2022	0.51	Y	Y					0.099	ug/m3
HUCKIAFR033022-2	P2201472-003	Tetrachloroethene	04/08/2022	0.19	Y	Y					0.095	ug/m3
HUCKIAF033022-3	P2201472-004	Cis-1,2-Dichloroethylene	04/08/2022		Y	N	U		U	0.11	0.11	ug/m3
HUCKIAF033022-3	P2201472-004	trichloroethylene	04/08/2022	0.55	Y	Y					0.10	ug/m3
HUCKIAF033022-3	P2201472-004	Tetrachloroethene	04/08/2022	0.21	Y	Y					0.097	ug/m3
HUCKIAF033022-5	P2201472-005	Tetrachloroethene	04/09/2022	0.36	Y	Y					0.10	ug/m3
HUCKIAF033022-5	P2201472-005	trichloroethylene	04/09/2022	0.78	Y	Y					0.11	ug/m3
HUCKIAF033022-5	P2201472-005	Cis-1,2-Dichloroethylene	04/09/2022		Y	N	U		U	0.11	0.11	ug/m3
HUCKIAF033022-6	P2201472-006	Cis-1,2-Dichloroethylene	04/09/2022		Y	N	U		U	0.11	0.11	ug/m3
HUCKIAF033022-6	P2201472-006	trichloroethylene	04/09/2022	6.9	Y	Y					0.11	ug/m3
HUCKIAF033022-6	P2201472-006	Tetrachloroethene	04/09/2022	0.67	Y	Y					0.10	ug/m3
HUCKAA033022-1	P2201472-007	Cis-1,2-Dichloroethylene	04/09/2022		Y	N	U		U	0.087	0.087	ug/m3
HUCKAA033022-1	P2201472-007	trichloroethylene	04/09/2022		Y	N	U		U	0.084	0.084	ug/m3
HUCKAA033022-1	P2201472-007	Tetrachloroethene	04/09/2022		Y	N	U		U	0.080	0.080	ug/m3
HUCKAA033022-2	P2201472-008	Cis-1,2-Dichloroethylene	04/09/2022		Y	N	U		U	0.098	0.098	ug/m3
HUCKAA033022-2	P2201472-008	trichloroethylene	04/09/2022		Y	N	U		U	0.094	0.094	ug/m3

SDG: P2201472

Analytical Method TO15

Sample ID	Lab Sample ID	Chemical Name	Anal Date	Result	Validated	Detect	Lab Qual	Val Qual	Final qual	RL	MDL	Units
HUCKAA033022-2	P2201472-008	Tetrachloroethene	04/09/2022		Y	N	U		U	0.090	0.090	ug/m3
TRIP BLANK	P2201472-009	Tetrachloroethene	04/08/2022		Y	N	U		U	0.069	0.069	ug/m3
TRIP BLANK	P2201472-009	Cis-1,2-Dichloroethylene	04/08/2022		Y	N	U		U	0.075	0.075	ug/m3
TRIP BLANK	P2201472-009	trichloroethylene	04/08/2022		Y	N	U		U	0.072	0.072	ug/m3