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Date: June 27, 2024

Our Ref: 30210357
Subject: 2024 UPRR Phase II Environmental Site Assessment
Site Address: 450 W Missile Base Road, Rockford, Washington

Dear Mr. Weideman,

Arcadis, on behalf of UPRR, is submitting this revised Phase II Environmental Site Assessment report for the UPRR-owned property at the Cenex and Harvest States, Inc. (CHS) lease property located at 450 W. Missile Base Road in Rockford, Washington. to Washington State Department of Ecology. Thank you.

Sincerely,

Cody Johnson
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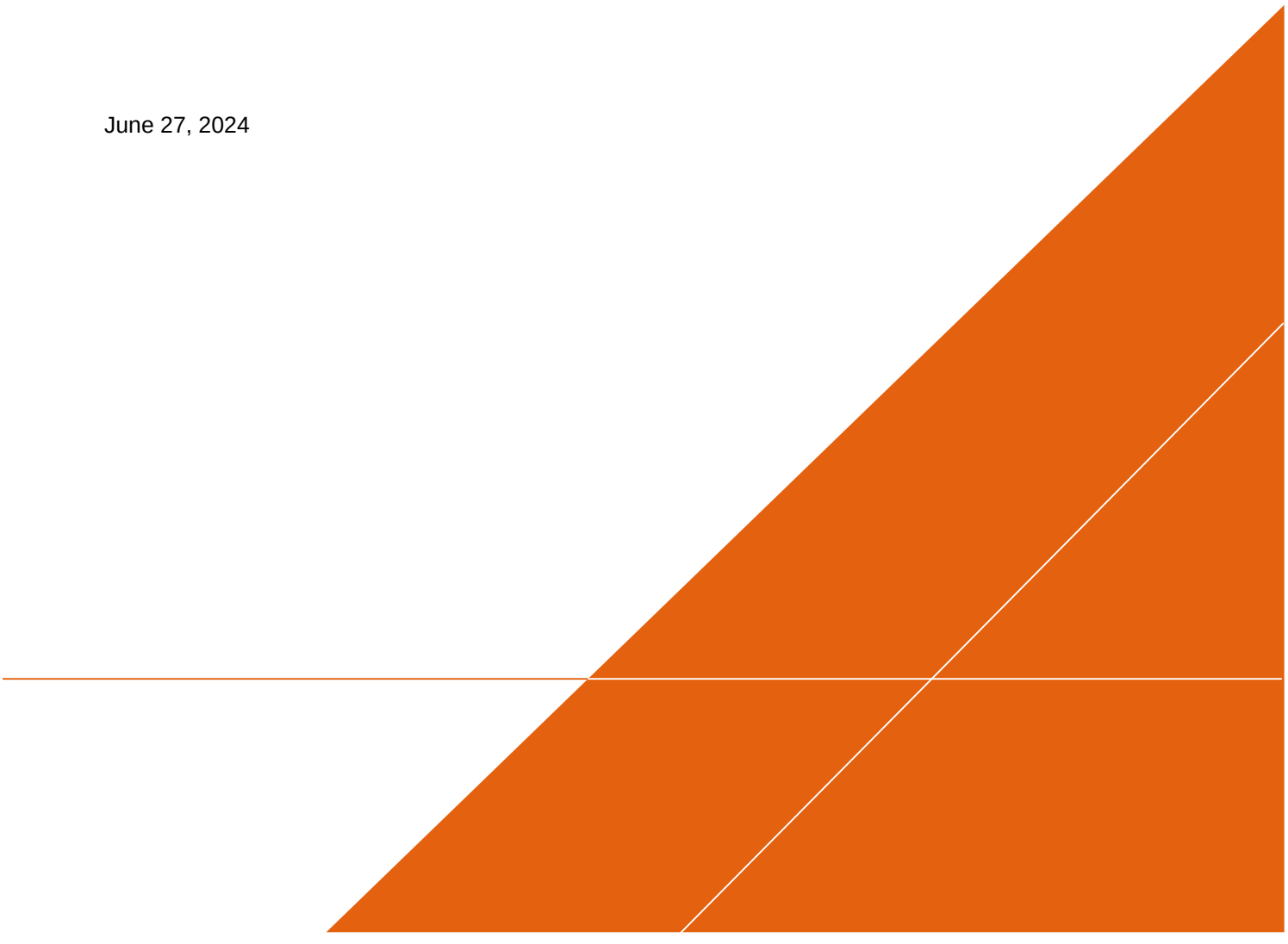
Enclosures:
2024 UPRR Rockford Phase II ESA Report

2024 PHASE II ENVIRONMENTAL SITE ASSESSMENT

CHS Grain Handling Facility,
Rockford, Washington

June 27, 2024



2024 PHASE II ENVIRONMENTAL SITE ASSESSMENT

CHS Grain Handling Facility
Rockford, Washington

Prepared for:

Kyle Weideman

ERTS Coordinator

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ACRONYMS AND ABBREVIATIONS

µg/L	microgram per liter
Arcadis	Arcadis U.S., Inc.
bgs	below ground surface
CHS	Cenex and Harvest States, Inc.
CUL	cleanup level
Ecology	Washington Department of Ecology
FOIA	Freedom of Information Act
PID	photoionization detector
mg/kg	milligram per kilogram
MTCA	Model Toxics Control Act
ROW	right-of-way
UPRR	Union Pacific Railway Company
USEPA	United States Environmental Protection Agency
WCED	West Central Environmental Consultants
WSMCL	Washington State Maximum Contaminant Level

1 INTRODUCTION

This 2024 Phase II Environmental Site Assessment (ESA) has been prepared for Washington Department of Ecology (Ecology) for the Cenex and Harvest States, Inc. (CHS) lease property located at 450 W. Missile Base Road in Rockford, Washington (Facility). This document describes the Phase II ESA activities performed in the vicinity of the Facility on February 20 through 22, 2024 which included collection of soil and groundwaters samples to evaluate the nature and extent of impacts to soil and groundwater related to former operations at the Facility.

2 BACKGROUND

The Facility is located at 450 W. Missile Base Road in Rockford, Washington, and is situated north of West Emma Street and south of W. Missile Base Road. The location of the Facility is shown on **Figure 1**, and current site features and surrounding properties are shown on **Figure 2**. This Phase II ESA was conducted at the request of the Union Pacific Railroad (UPRR) environmental department.

A request under the Freedom of Information Act (FOIA) was submitted to Ecology by UPRR for historical documents associated with the Facility. These documents include the 1995 Environmental Remediation Investigation Report for Rockford Grain Growers Rock Facility (West Central Environmental Consultants (WCEC) 1995a), the 1995 Soil Remediation Report (WCEC 1995b), and the Quarterly Groundwater Monitoring Reports for 1996 (WCEC 1996) and 1997 (WCEC 1997). These investigations concluded that soil immediately around the former bulk plant contained elevated levels of petroleum hydrocarbons from the surface to a depth of 10 feet. Farther away from the former bulk plant, soil contamination was greatest in a relatively narrow band of soil occurring from 8 to 9 feet below grade. Based on review of the reports, the groundwater flows north from the Facility. Petroleum hydrocarbon groundwater impacts existed in a wide area extending northwest from the bulk plant (WCEC 1995a). Remediation activities were completed in September 1995, and approximately 2,500 cubic yards of impacted soil was removed for off-site bioremediation (WCEC 1995b). Groundwater monitoring was conducted between January 1995 and December 1996. Following the December 1996 sampling event, WCEC recommended closure for the site (WCEC 1997).

3 SITE CHARACTERIZATION ACTIVITIES

Based on a review of available data, additional investigation of the Facility was warranted to characterize and delineate the nature and extent of the impacts to soil and groundwater at the Facility, specifically for carbon tetrachloride and associated degradation compounds. The following field activities were completed to provide additional characterization of the Facility.

- Performed a utility investigation (by Utilities Plus, LLC) using ground penetrating radar and electromagnetic methods to locate any unknown utilities.
- Obtained a right-of-way (ROW) permit from the town of Rockford for the drilling locations in the public ROW along W. Missile Base Road in Rockford, Washington. A copy of the ROW permit is found in **Appendix A**.

- Advanced five soil borings to depths of 8.5 to 19.5 feet below ground surface (bgs) using a combination of hand auger and hollow-stem auger drilling methods. Borings were hand-cleared to 5 feet bgs using a hand auger. Split spoon continuous sampling occurred every 18 inches from 5 feet bgs to the total depth. The investigation locations are shown on **Figure 3** and were selected based on review of historical data.
- Collected soil samples to evaluate the vertical and horizontal distribution of impacts in soil. Soil was field screened using a photoionization detector (PID) at 6-inch intervals in the top 5 feet and 1-foot intervals thereafter to total depth. Boring logs are included as **Appendix B**.
- Installed temporary monitoring wells at the soil borings and collected groundwater and soil samples to evaluate presence, magnitude, and distribution of constituents in the soil and groundwater. Groundwater sampling field forms are included as **Appendix C**.
- Decontaminated down-hole equipment, including drill rods, augers, and sampling equipment, between use at each boring using a three-stage decontamination process.

These activities are described in more detail in the sections that follow.

3.1 Utility Clearance

Before beginning intrusive activities, Arcadis marked boring locations and notified the Washington 811 one-call public utility locate. Private utility clearance was conducted by Utilities Plus, LLC in approximately 40-foot by 40-foot grids at each proposed boring location using ground penetrating radar and electromagnetic methods to determine the presence and locations of utilities at the Facility where borings were to be completed. In addition, soft digging methods (hand auger) were used to clear from ground surface to at least 5 feet bgs.

3.2 Soil and Groundwater Investigation

Field activities were conducted by Arcadis on February 21 and 22, 2024. Field activities are summarized in the sections below.

3.2.1 Drilling and Soil Sample Collection

Five soil borings were advanced at the locations presented on **Figure 3**. Each boring was hand-cleared to at least 5 feet bgs or to 6 inches below the invert elevation of the deepest identified utility in the area. Clearance of the first 5 feet was completed using soft digging methods (i.e. shovel, hand auger) and removal intervals were tracked, and soil was segregated as necessary to allow for sample collection.

Following soft dig clearance, the borings were advanced using a hollow-stem auger to a maximum depth of approximately 19.5 feet bgs. The final depth of each boring was identified through field screening methods by the on-site geologist. Drilling activities were completed by Walston Drilling Solutions (WDS) and Arcadis provided oversight for all drilling activities. Soil was logged continuously during the advancement of each boring and screened with a photoionization detector. Copies of the field boring logs are included in **Appendix B**.

During utility clearance at B-2, a utility was identified, and the location was adjusted to avoid the utility. The location of B-5 was adjusted due to multiple utilities at the original location and refusal during soft dig utility clearance. In addition, B-5 required two drilling attempts before groundwater was encountered in the boring. Final soil boring and temporary well locations are presented on **Figure 3**. A total of five boring were completed at the Facility. Three borings were completed near the grain silos (B-1, B-2, and B-3) and were advanced to 19.5, 20.0, and 18.9 ft bgs, respectively. Two borings were completed north of the grain silos along W Missile Base Road (B-4, B-5) and were advanced to 8.5 ft bgs.

Geology observed at the site generally included silty gravel with sands overlying a clay layer with various colors and densities which was observed from 1.5 to 2.0 feet bgs to the bottom of each boring where weathered basalt bedrock was encountered. The weathered basalt bedrock was identified at about 19 ft bgs at B-1, B-2, and B-3; while the bedrock interface was observed at about 8 ft bgs at B-4 to B-5. Perched groundwater was generally observed entering the soil borings from the intervals above the clay; however, one location, B-3, exhibited groundwater infiltration from a layer overlying the bedrock but underlying the clay.

Soil samples were collected in laboratory-provided sampling containers from the following intervals: 6 inches above the soil/water interface to the soil/water interface, 6 inches above the bottom of the boring to the bottom of the boring and an interval centered about the halfway point between the soil/water interface and the bottom of the boring. Prior to homogenizing the intervals, a discrete sample was collected for analysis of volatile organic compounds (VOCs). After collection of the VOC sample, the interval was homogenized, and samples of non-volatile compounds were collected.

After sample collection, the samples were immediately placed on ice in preparation for shipment. Samples were submitted to Pace Analytical National Center for Testing & Innovation in Mount Joliet, Tennessee under standard chain-of-custody protocol.

Field screening at the boring locations did not indicate elevated PID readings. PID readings were generally less than 1 part per million (ppm) at all locations with the exception of the interval from ground surface to 6 inches bgs at B-2 which had a PID reading of 6.3 ppm.

Following completion of soil borings, temporary wells were installed at the boring locations shown on **Figure 3** to facilitate collection of groundwater samples.

A photographic log of soil boring locations is included as **Appendix D**.

3.2.2 Temporary Well Installation and Sampling

Five temporary wells were installed at the soil boring locations identified on **Figure 3** to facilitate collection of groundwater samples. The temporary wells were installed with either a 2-inch prepack filter and 10-foot screen length, or 5-foot of 10-slot (0.010-inch) screen backfilled with 10/20 Colorado silica sand.

Temporary wells installed at B-1 through B-5 were developed by WDS using surging and purging development techniques. The wells were developed until the purge water was visibly free from fine material, where feasible.

Groundwater samples were collected in laboratory-provided sampling containers from each location using low-flow sampling techniques where possible. The temporary wells at B-4 and B-5 did not have a

sufficient recharge rate to support low-flow sampling and grab groundwater samples were collected after the well recharged following a low-flow sampling attempt.

After sample collection, the samples were immediately placed on ice in preparation for shipment. Samples were submitted to Pace Analytical National Center for Testing & Innovation in Mount Joliet, Tennessee under standard chain-of-custody protocol.

Groundwater measurements were collected from each temporary well location following installation. Groundwater measurements at B-1, B-2 and B-3 were collected after allowing the temporary wells to equilibrate overnight. Static groundwater levels were 8.8, 9.5, and 9.55 ft bgs for B-1, B-2 and B-3, respectively. Groundwater measurements at B-4 and B-5 were collected approximately 4 hours after well development. Static groundwater measurements were 3.3 and 3.2 ft bgs at B-4 and B-5, respectively. During well development and groundwater sampling at B-4 and B-5, low groundwater recharge caused the wells to purge dry. Based on the topography of the area, depth to groundwater from gauging and information provided in the reports obtained from the FOIA request, the inferred groundwater flow direction is north from the Facility.

The temporary wells were abandoned by WDS in accordance with Washington Administrative Code (WAC) 173-160-381 after groundwater sampling was completed.

3.2.3 Sample Analytical Methods

Soil and groundwater samples were submitted to Pace Analytical National Center for Testing and Innovation in Mount Joliet, Tennessee for analysis.

Soil samples were analyzed for the following constituents:

- Carbon tetrachloride, chloroform, carbon disulfide, and dichloromethane by United States Environmental Protection Agency (USEPA) Method 8260.

Groundwater samples were analyzed for the following constituents:

- Carbon tetrachloride, chloroform, carbon disulfide and dichloromethane by USEPA Method 8260; and
- Herbicides/pesticides by USEPA Methods 8151A and 8081B (only analyzed at B-1, B-2, and B-3).

3.2.4 Investigation-Derived Waste

Investigation-derived waste (IDW) generated during field activities includes soil cuttings, purge water from wells, decontamination water, and disposable personal protective equipment. Liquid and solid IDW samples were collected and the IDW is temporarily stored at the Facility pending profile approval and disposal. The non-hazardous waste was disposed of at Waste Management's Graham Road Facility near Medical Lake, Washington after profile approval.

4 INVESTIGATION RESULTS

Soil and groundwater results are described in sections below.

4.1 Soil Sampling

Soil sample analytical results were compared to Washington Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method B Direct Contact Cancer cleanup level (CUL). Carbon disulfide was compared to the soil MTCA Method B Direct Contact Noncancer CUL. Soil sample analytical results are presented in **Table 1**.

Analytical detections occurred at B-1, B-3, the duplicate sample, and the equipment blank. Carbon tetrachloride was detected at a concentration greater than the MTCA Method B Direct Contact Cancer CUL. The detected analytes are listed below with the corresponding sampling locations:

- Carbon tetrachloride was detected at concentrations greater than the soil MTCA Method B Direct Contact Cancer CUL of 14 milligram per kilogram (mg/kg) at the duplicate sample collected from B-1 from 2.0 to 2.5 feet bgs (estimated at 54.2 mg/kg).
- Chloroform was not detected at concentrations greater than MTCA Method B Direct Contact Cancer CUL.
- Carbon disulfide was detected at a concentration greater than the method detection limit in one sample collected from boring B-3 at a depth of 3.5 to 4.0 feet. Carbon disulfide was not detected at concentrations greater than the soil MTCA Method B Noncancer CUL of 8,000 mg/kg.
- Dichloromethane (methylene chloride) was not detected at concentrations greater than the method detection limits. Samples collected from B-1(duplicate), B-4 and B-5 present method detection limits for dichloromethane that are greater than the MTCA Method B Cancer CUL (94 mg/kg).

Data validation reports and laboratory analytical reports are included in **Appendix E**.

4.2 Groundwater Sampling

Groundwater sample analytical results were compared to Washington State Maximum Contaminant Levels (WSMCLs) and MTCA Method B Cancer CULs. An MTCA Method B Noncancer CUL was used where an MTCA Method B Cancer CUL is not established. Groundwater sample analytical results are presented in **Table 2**.

Analytical detections occurred at B-1, B-2, B-3, the duplicate sample (B-1), and the equipment blank. Carbon tetrachloride was detected at a concentration exceeding the Ecology MTCA CUL. The detected analytes are listed below with the corresponding sampling locations:

- Carbon tetrachloride was detected at B-1 and the duplicate sample (collected at B-1) at estimated concentrations of 0.265 and 0.278 microgram per liter (µg/L), respectively. Carbon tetrachloride was detected at B-2 at a concentration of 1.41 µg/L, exceeding the groundwater MTCA Method B Cancer CUL of 0.630 µg/L. Carbon tetrachloride concentrations did not exceed the WSMCL of 5.00 µg/L in the groundwater samples collected.
- Chloroform was detected at B-1, B-2, B-3, the duplicate sample (collected at B-1), and the equipment blank. The detections ranged from an estimated 0.427 µg/L (TW-3) to 0.113 µg/L (equipment blank). Chloroform concentrations did not exceed the WSMCL of 80.0 µg/L or the MTCA Method B Cancer CUL of 1.40 µg/L in the groundwater samples collected.

- Dicamba was detected at B-1 and the duplicate sample (collected at B-1) at estimated concentrations of 0.373 and 0.397 µg/L, respectively. The detected dicamba concentrations did not exceed the MTCA Method B Noncancer CUL of 480 µg/L. A WSMCL for dicamba is not established.

Data validation reports and laboratory analytical reports are included in **Appendix E**.

5 SUMMARY

Arcadis performed the Phase II Environmental Site Assessment at the CHS Grain Handling Facility property located at 450 W. Missile Base Road in Rockford, Washington, on February 20 through 22, 2024. This assessment included advancing five borings and collecting representative soil and groundwater samples. Field activities included private and public utility locates, right-of-way permitting for drilling locations, advancing five soil borings, collecting soil samples, installing temporary monitoring wells and groundwater sampling. Soil sample results indicated detections of volatile organic compounds (carbon tetrachloride) at concentrations greater than the MTCA Method B Direct Contact Cancer CUL from one soil boring (B-1) located at the CHS property.

Groundwater analytical results indicated a detection of carbon tetrachloride exceeding the applicable cleanup level, but below the WSMCL for drinking water of 5 ug/l from one temporary well installed at soil boring B-2. The City of Rockford has a municipal water system and there is no known use of groundwater in the area or relevant exposure pathway.

Soil and groundwater analytical results for samples collected downgradient of the grain silos indicate the low-level results observed near the silos are not migrating offsite. As such, the observed concentrations do not pose a risk to human health or the environment.

6 REFERENCES

Washington State Department of Ecology. 2024. Toxics Cleanup Program. Model Toxics Control Act (MTCA) Clarc Master Tables. February.

WCEC. 1995a. Environmental Remedial Investigation Report for Rockford Grain Growers Rock Facility. March 10.

WCEC. 1995b Soil Remediation Report for Contaminated soils at Rockford Grain Growers Facility. Rockford, WA. December 8.

WCEC. 1996. Quarterly Groundwater Report. Rockford Grain Growers Rockford Facility. September 24.

WCEC. 1997, Quarterly Groundwater Report. Rockford Grain Growers Rockford Facility. January 15.

TABLES

Table 1
Soil Sampling Analytical Results
2024 UPRR Phase II Environmental Site Assessment
Cenex Harvest Lease Site
Rockford, Washington

Analyte	Soil - MTCA Method B Direct Contact Cancer CUL (mg/kg)	Location/Sample ID	B-1	B-1	B-1	B-2	B-2	B-2	B-3	B-3	B-3	B-4	B-4	B-5	B-5
		Date	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/20/2024	2/21/2024	2/21/2024	2/21/2024	2/21/2024
		Depth (feet)	2.0-2.5	2.0-2.5	18.5-19.0	1.5-2.0	14.5-15.0	18.5-19.0	3.5-4.0	16.5-17.0	18.0-18.5	1.0-1.5	8.0-8.5	1.0-1.5	8.0-8.5
		Sample ID	B-1-2.0-2.5-20240220	B-DUP-20240220	B-1-18.5-19.0-20240220	B-2-1.5-2.0-20240220	B-2-14.5-15.0-20240220	B-2-18.5-19.0-20240220	B-3-3.5-4.0-20240220	B-3-16.5-17.0-20240220	B-3-18.0-18.5-20240220	B-4-1.0-1.5-20240221	B-4-8.0-8.5-20240221	B-5-1.0-1.5-20240221	B-5-8.0-8.5-20240221
		Units													
Total solids		%	82.9	83.1	83.8	77.4	81.7	76.0	81.2	84.8	80.6	74.7	80.8	79.5	84.8
Volatile Organic Compounds (by USEPA 8260D)															
Carbon tetrachloride	14	mg/kg	**13.5**	**54.2 J**	<1.26	<11.6	<1.37	<2.20	<1.44	<1.23	<1.34	<15.1	<1.36	<14.0	<13.2
Chloroform	32	mg/kg	<1.49	**20.7 J**	<1.44	<13.3	<1.58	<2.54	<1.64	<1.41	<1.54	<17.3	<1.56	<16.0	<15.1
Carbon disulfide	8,000	mg/kg	<1.01	<10.1	<0.982	<9.01	<1.07	<1.72	**6.48 J**	<0.958	<1.04	<11.8	<1.06	<10.9	<10.3
Dichloromethane (methylene chloride)	94	mg/kg	<9.60	<96.2	<9.31	<85.4	<10.2	<16.3	<10.6	<9.09	<9.91	<112	<10.1	<103	<97.4

Notes:

1. Non-detect results reported as "< Method Detection Limit".
2. Bold text indicates a detected concentration.
3. Outlined cells indicate a detected concentration exceeds the soil MTCA Method B Direct Contact Cancer CUL (mg/kg).
4. Carbon disulfide Method B Cancer CUL was not available in CLARC tables. The carbon disulfide CUL presented is MTCA Method B Direct Contact Noncancer.
5. The method detection limit for dichloromethane (methylene chloride) is greater than the MTCA Method B Cancer CUL (94 mg/kg) in some sample results. However, dichloromethane (methylene chloride) was not detected at concentrations greater than the method detection limit in the samples collected.

Acronyms and Abbreviations:

-- = not applicable/not analyzed
< = the analyte was analyzed for but not detected; the associated value is the analyte reporting limit
CUL = cleanup level
ID = identification
J = the analyte was positively identified; however, the associated numerical value is an estimated concentration only
mg/kg = milligram per kilogram
MTCA = Model Toxics Control Act
NE = not established
USEPA = United States Environmental Protection Agency

Table 2
Groundwater Sampling Analytical Results
2024 UPRR Phase II Environmental Site Assessment
Cenex Harvest Lease Site
Rockford, Washington

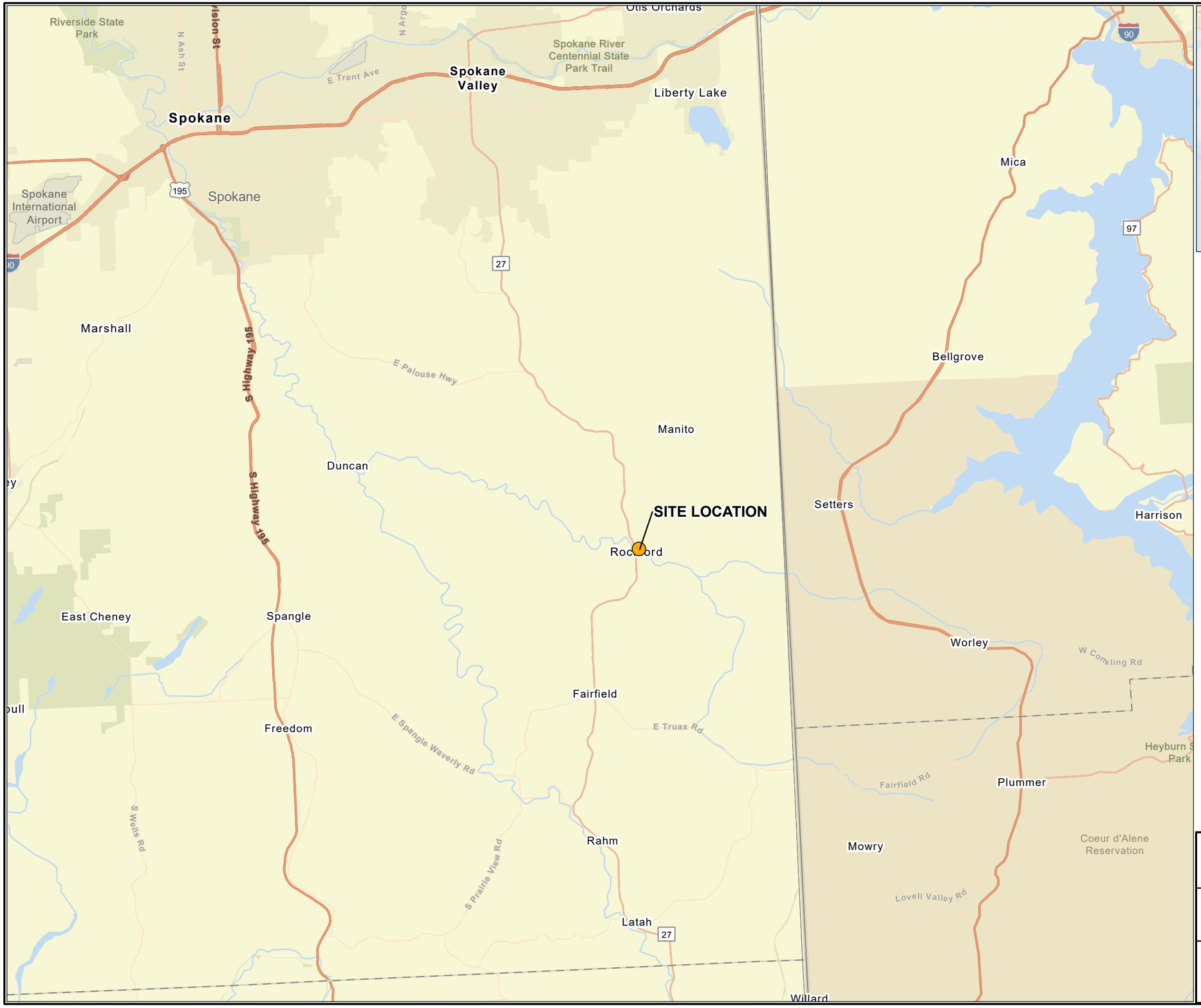
Analyte	cas_rn	Groundwater Washington State Maximum Contaminant Level (µg/L)	Groundwater MTCA Method B Cancer CUL (Eq. 720-1) (µg/L)	Sample ID	TW-B-1-14-20240221	TW-B-2-14-20240221	TW-B-3-14-20240221	TW-B-4-8-20240221	TW-B-5-4.4-20240221	TW-DUP-1-20240221	TW-EB-1-20240222
				Sample Date	2/21/2024	2/21/2024	2/21/2024	2/21/2024	2/21/2024	2/22/2024	2/22/2024
				Unit							
Volatile Organic Compounds (by SW8260)											
Carbon tetrachloride	56-23-5	5.00	0.6300	µg/L	**0.265 J**	**1.41**	<0.128	<0.128	<0.128	**0.278 J**	<0.128
Chloroform	67-66-3	80.0	1.40	µg/L	**0.514 J**	**1.23 J**	**0.427 J**	<0.111	<0.111	**0.527 J**	**0.113**
Carbon disulfide	75-15-0	NE	800[a]	µg/L	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962
Dichloromethane (methylene chloride)	75-09-2	5.00	5.8	µg/L	<0.430	<0.430	<0.430	<0.430	<0.430	<0.430	<0.430
Pesticides (by SW8011)											
4,4-DDD	72-54-8	NE	0.360	µg/L	<0.0177	<0.0177	<0.0177	--	--	<0.0177	--
4,4-DDE	72-55-9	NE	0.130	µg/L	<0.0154	<0.0154	<0.0154	--	--	<0.0154	--
4,4-DDT	50-29-3	NE	0.260	µg/L	<0.0198	<0.0198	<0.0198	--	--	<0.0198	--
Aldrin	309-00-2	NE	0.00260	µg/L	<0.0198	<0.0198	<0.0198	--	--	<0.0198	--
Alpha BHC	319-84-6	NE	0.0140	µg/L	<0.0172	<0.0172	<0.0172	--	--	<0.0172	--
Beta BHC	319-85-7	NE	0.0490	µg/L	<0.0208	<0.0208	<0.0208	--	--	<0.0208	--
Chlordane	12789-03-6	2.00	0.130	µg/L	<0.0198	<0.0198	<0.0198	--	--	<0.0198	--
Delta BHC	319-86-8	NE	NE	µg/L	<0.0150	<0.0150	<0.0150	--	--	<0.0150	--
Dieldrin	60-57-1	NE	0.00550	µg/L	<0.0162	<0.0162	<0.0162	--	--	<0.0162	--
Endosulfan I	959-98-8	NE	NE	µg/L	<0.0160	<0.0160	<0.0160	--	--	<0.0160	--
Endosulfan II	33213-65-9	NE	NE	µg/L	<0.0164	<0.0164	<0.0164	--	--	<0.0164	--
Endosulfan sulfate	1031-07-8	NE	96[a]	µg/L	<0.0217	<0.0217	<0.0217	--	--	<0.0217	--
Endrin	72-20-8	2.00	4.8[a]	µg/L	<0.0161	<0.0161	<0.0161	--	--	<0.0161	--
Endrin aldehyde	7421-93-4	NE	NE	µg/L	<0.0237	<0.0237	<0.0237	--	--	<0.0237	--
Endrin ketone	53494-70-5	NE	NE	µg/L	<0.0219	<0.0219	<0.0219	--	--	<0.0219	--
Gamma BHC	58-89-9	0.200	0.0800	µg/L	<0.0209	<0.0209	<0.0209	--	--	<0.0209	--
Heptachlor	76-44-8	0.400	0.0097	µg/L	<0.0148	<0.0148	<0.0148	--	--	<0.0148	--
Heptachlor epoxide	1024-57-3	0.200	0.00480	µg/L	<0.0183	<0.0183	<0.0183	--	--	<0.0183	--
Hexachlorobenzene	118-74-1	1.00	0.0270	µg/L	<0.0176	<0.0176	<0.0176	--	--	<0.0176	--
Methoxychlor	72-43-5	40.0	80[a]	µg/L	<0.0193	<0.0193	<0.0193	--	--	<0.0193	--
Toxaphene	8001-35-2	3.00	0.080	µg/L	<0.168	<0.168	<0.168	--	--	<0.168	--
Herbicides (by SW8321)											
Dalapon	75-99-0	200	480[a]	µg/L	<0.344	<0.344	<0.344	--	--	<0.344	--
2,4,5-T	93-76-5	NE	160[a]	µg/L	<0.258	<0.258	<0.258	--	--	<0.258	--
2,4,5-TP (Silvex)	93-72-1	50.0	130[a]	µg/L	<0.335	<0.335	<0.335	--	--	<0.335	--
2,4-D	94-75-7	70.0	160[a]	µg/L	<0.547	<0.547	<0.547	--	--	<0.547	--
2,4-DB	94-82-6	NE	NE	µg/L	<0.302	<0.302	<0.302	--	--	<0.302	--
MCPA	94-74-6	NE	8[a]	µg/L	<13.1	<13.1	<13.1	--	--	<13.1	--
MCPP	93-65-2	NE	16[a]	µg/L	<66.0	<66.0	<66.0	--	--	<66.0	--
Dicamba	1918-00-9	NE	480[a]	µg/L	**0.373 J**	<0.245	<0.245	--	--	**0.397 J**	--
Dichloroprop	120-36-5	NE	NE	µg/L	<1.04	<1.04	<1.04	--	--	<1.04	--
Dinoseb	88-85-7	7.00	16[a]	µg/L	<0.250	<0.250	<0.250	--	--	<0.250	--
Pentachlorophenol	87-86-5	1.00	0.2	ug/l	<0.111	<0.111	<0.111	--	--	<0.111	--

Notes:

1. Non-detect results reported as "< Method Detection Limit".
2. Some laboratory reporting limits are greater than the respective groundwater MTCA Method B Cancer CULs.
3. Bold text indicates a detected concentration.
4. Shaded cells indicate a detected concentration exceeds the groundwater Washington State Maximum Contaminant Level (µg/L).
5. Outlined cells indicate a detected concentration exceeds the groundwater MTCA Method B Cancer CUL (mg/kg).

J = the analyte was positively identified; however, the associated numerical value is an estimated concentration only
mg/kg = milligram per kilogram
MTCA = Model Toxics Control Act
NE = not established
-- = not tested

FIGURES



Legend

- Site Location

0 3 6 Miles

Cenex Harvest Lease Site
450 W Missile Base Rd
Rockford, Washington 99030

FACILITY LOCATION

ARCADIS | FIGURE 1

Last Saved By: KGPeters
Project (Project #)
T:_ENV\UPRR\Cenex_Harvets_Lease_Site_ FreemanWA\Cenex.aprx 4/5/2024 2:04 PM

Legend

- Spokane County Parcel (Parcel Number)
- Stream/River
- Union Pacific Railroad Tracks

Note:
CHS = Cenex and Harvest States, Inc

0 200 400
Feet

Cenex Harvest Lease Site
450 W Missile Base Rd
Rockford, Washington 99030

FACILITY AND SURROUNDING PROPERTY LAYOUT

ARCADIS | FIGURE 2

Last Saved By: KGPeters
Project (Project #)
T:_ENV\UPRR\Cenex_Harvets_Lease_Site_ FreemanWA\Cenex.aprx 4/5/2024 2:07 PM

Legend

- Soil Boring and Temporary Monitoring Well Location
- Monitoring Well Decomissioned by Geoengineers on February 2, 2024 (3)
- Spokane County Parcel (Parcel Number)
- Overhead Utilities

Note:
CHS = Cenex and Harvest States, Inc

0 100 200 Feet

Cenex Harvest Lease Site
450 W Missile Base Rd
Rockford, Washington 99030

SOIL BORINGS AND TEMPORARY MONITORING WELL LOCATIONS

ARCADIS | FIGURE 3

Last Saved By: KGPeters
Project (Project #)
T:_ENV\UPRR\Cenex_Harvets_Lease_Site_ FreemanWA\Cenex.aprx 4/5/2024 2:21 PM

APPENDIX A

ROW Permit

Town of Rockford
20 W. Emma St. - P.O. Box 49 - (509)291-4716 - Fax (509)291-5733

RIGHT OF WAY (ROW) PERMIT APPLICATION

APPROACH ☐ **PAVEMENT CUT (SEE BELOW)** ☐ **SIDEWALK** ☐ **CURB & GUTTER** ☐
WORK THROUGH MANHOLE ☐ **OTHER** X
ROAD OBSTRUCTION NO X YES ☐ **(if yes, complete the following)**

- % of street or # lanes that will be obstructed: __0____
- Length of time street will be obstructed: _____0____

► If work closes more than 50% of a local access street, or closes any portion of an arterial street, then a **TRAFFIC PLAN IS REQUIRED** ☐ **Pre-Approved TCP is attached.**

Project Information

PROJECT ADDRESS(ES): _450 W Missile Base Road, Rockford, Washington_____

PARCEL NUMBER(S): __W Missile Base Road ROW near CHS facility_____

LOCATE TICKET#: __TBD - We plan to mark boring locations and call in public locate on 2/12/2024__Ticket 24050070

START DATE: _February 20, 2024_ ANTICIPATED COMPLETION DATE: __February 23, 2024_____

PROJECT DESCRIPTION: __Soil borings for a site investigation. _____

General Information

APPLICANT: _Arcadis on behalf of Union Pacific Railroad_____

MAILING ADDRESS: _8808 E Wellesley Avenue___CITY: __Spokane_____ STATE: _WA_ ZIP: _99212_

PHONE: _406-239-7810_____ EMAIL: _Joshua.Lee@arcadis.com_____POC: _Joshua Lee_____

Contractor Information

NAME: __Walston Drilling Solutions (WDS)___ CONTACT NAME: _Greg Walson_____

MAILING ADDRESS: _2934 W Monticello Pl_____CITY: __Spokane_____ STATE: _WA_ ZIP: _99205__

PHONE: _812-598-5581_____ EMAIL: _greg@wdsnorthwest.com_POC: _Greg Walston____

CONTRACTOR LICENSE #: _WALSTDS778PQ_____ EXPIRES: __12/30/2024_____

WA BUSINESS UBI# : __605235395_____ ☐ Rockford Business License Current

BOND/INSURANCE CERTIFICATE #: __CL23101959934_____

Town of Rockford

20 W. Emma St. - P.O. Box 49 - (509)291-4716 - Fax (509)291-5733

**** IF PAVEMENT CUT, COMPLETE THE FOLLOWING ****

NATURE OF WORK:

Communications ☐ Electric ☐ Water ☐ Sewer ☐ Cable ☐ Other X

TYPE OF CUT/REPAIR:

Asphalt ☐ Gravel ☐ Concrete ☐ Other X

SIZE OF CUT (width, length, and area in sq ft or miles):

DISCLAIMER: By accepting this permit and proceeding with the work, the applicant/permittee and owner acknowledges and agrees that: 1) If this permit is for construction of or on a dwelling, the dwelling is/will be served by potable water. 2) Ownership of this Town of Rockford permit inures to the property owner. 3) The applicant/permittee is the property owner or has full permission and authority to represent the property owner in this project and carry out the work specified in the permit. 4) All construction is to be done in full compliance with the Town of Rockford Ordinances and Design Standards. The applicable codes are available for review at Town Hall. 5) The applicant/permittee further declares that they are either: (A) a contractor currently registered and properly licensed in accordance with Chapter 18.27 RCW; (B) the registered or legal owner or authorized agent of the property for which I am applying for permit and not a licensed contractor; or (C) otherwise exempt from the requirements set forth in RCW 18.27.090 and will abide by all provisions and conditions of the exemption as stated. 6) The Town of Rockford permit is a permit to carry out the work as specified therein and is not a permit or approval for any violation of federal, state or local laws, codes or ordinances. 7) Compliance with all federal, state, and local laws shall be the sole responsibility of the applicant/permittee and property owner. 8) Plans or additional information may be required to be submitted and subsequently approved before this application can be processed. The Town is not responsible for any code violation through the issuance of this permit. 9) Failure to request and obtain the necessary inspections and inspection approvals may necessitate stoppage of work and/or removal of certain parts of the construction at the applicant's/permittee's or property owner's expense.

EXPIRATION: Right-of-way permits issued between April 1st and September 30th are valid for 30 days after the date of issuance, with a one-time 30-day extension available. Right-of-way permits issued between October 1st and March 31st are valid until the following April 30th.

Town of Rockford

20 W. Emma St. - P.O. Box 49 - (509)291-4716 - Fax (509)291-5733

INDEMNIFICATION AND HOLD HARMLESS: By applying for and accepting this permit, Applicant agrees to the following: Applicant shall defend, indemnify, and hold the Town of Rockford, its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or in connection with activities or operations performed by the Applicant or on the Applicant's behalf out of issuance of this Permit, including the procurement of adequate insurance as required by the Town, except for injuries and damages caused by the sole negligence of the Town. Should a court of competent jurisdiction determine that this Permit is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the Applicant and the Town, its officers, officials, employees, and volunteers, the Applicant's liability hereunder shall be only to the extent of the Applicant's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes the Applicant's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this Permit. I have read and by accepting this permit hereby certify and agree that I will comply with the Town's Right of Way requirements and all applicable local regulations.

APPLICANT SIGNATURE: _____ DATE: 2.5.2024

TOWN OF ROCKFORD STAFF REVIEW

PAVEMENT CUT POLICY APPLIES: YES ☐ NO ☒

PUBLIC WORKS REVIEW NOTES:

FEE CALCULATIONS:

FEES PAID ☒ DATE 2/20/24 METHOD Chk 985

APPROVED BY: _____ DATE: 2/20/2024

APPENDIX B

Boring Logs

ARCADIS

Soil Boring and Construction Log

Boring No.: B-1

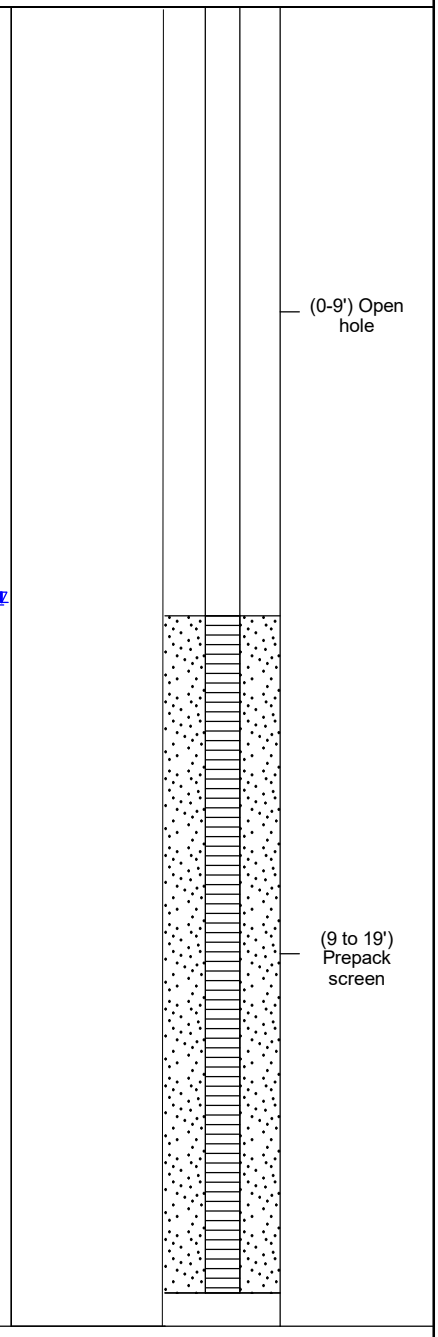
Sheet: 1 of 1

Client Name: UPRR
Project Number: 30210357
Project Name: UPRR Rockford

Date Started: 02-20-2024
Date Completed: 02-22-2024
Logger: Garrett Wilson
Reviewer: Josh Lee
Total Depth: 19.5 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Blow Counts	Graphic	Description	Drilling Fluid and Notes
1			0			(0-2.5 ft) Silty Gravel with sand; dark brown; medium dense; dry to moist	(0-2 ft)
2	B-1-2.0-2.5-20240220	60	0				
3			0			(2.5-9.5 ft) Clay with silt, some silt; light brown; soft; wet	
4			0			@3.5-4.5 ft - medium stiff, moist	
5			0			@4.5 - 5ft - Brown to light brown	
6		18	0	3-5-5		@5.5-8 ft- Medium stiff	
7		18	0.1	2-3-6			
8		14	0.1	9-13-21		@8 -9.5 ft - Very stiff	
9							
10		17	0.1	8-9-12		(9.5-12.5 ft) Clay with silt, little silt; light brown; soft; wet	
11							
12		18	0	5-10-13			
13		18	0	20-25-41		(12.5 - 14') Clay with gravel, gravel is semi-angular, light brown; medium stiff; moist. NOTE: basalt gravel	
14							
15		18	0	20-38-30		(14-17 ft) Clay with silt, little gravel; light brown to grey; trace iron oxide; medium stiff; moist NOTE: gravel is basalt, trace black organics	
16		18	0	20-16-25		@15-15.5 ft - decrease clay, increase silt	(15-15.5 ft) HSA is grinding
17							
18		16	0	16-26-20		(17-18.5 ft) Clay with silt, little gravel; grey; medium stiff; little iron oxide; moist	
19	B-1-18.5-19.0-20240220	14.5	0	69-10		(18.5-19 ft) - Clay with silt; grey; medium stiff; little iron oxide; moist (19- 19.5') Pulverized basalt bedrock 19.5 ft. bgs End of Boring	
20							
21							

Construction Details



Drilling Co.: WDS
Driller: Brent
Drilling Method: SPT and HSA
Drill Rig:
Remarks: Temporary well was installed on 2-20-24. Borehole was abandonded on 2-22-24 by removing PVC and filling with bentonite chips. Static water level was collected after location recharged overnight.

Sampling Method: Split Spoon
Sampling Dimensions:
First Encountered Water (ft bgs): NA
Static Water Level (ft bgs): 8.8
Top of Casing Elev: NA
Surface Elev: 2372.00
North Coor: 47.45
East Coor: -117.14

SOIL BORING AND CONSTRUCTION LOG C:\USERS\BWALTERS\ONEDRIVE - ARCADIS\DESKTOP\GINT ROCKFORD\UPRR ROCKFORD FRESH.GPJ GINT DATA TEMPLATE.GDT 4/5/24

ARCADIS

Soil Boring and Construction Log

Boring No.: B-2

Sheet: 1 of 1

Client Name: UPRR
Project Number: 30210357
Project Name: UPRR Rockford

Date Started: 02-20-2024
Date Completed: 02-22-2024
Total Depth: 20.0 ft bgs

Logger: Garrett Wilson
Reviewer: Josh Lee

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Blow Counts	Graphic	Description	Drilling Fluid and Notes	Construction Details
1			6.3 0.1 0.0			(0-1 ft) Gravel with clay and silt, small pebbles, little clay, little silt; light greyish brown; medium dense; moist		
2	B-2-1.5-2.0-20240220	60	0.0 0.0 0 0.0 0.1 0.2 0.1			(1-5 ft) Clay with silt, some silt; light brown; soft; moist		
3								
4								
5			0.1 0.1			@4-5 ft - medium stiff clay		(0-9') Open hole
6		18	0.1	4-6-11		(5-8.5 ft) Clay and Silt, light brown; soft; moist		
7		16	0.1	4-6-7		@6.5-8.5 ft trace gravel		
8								
9		18	0.1	1-1-1		(8.5-14 ft)- Clay with silt, little silt, light brown, soft; moist		
10		18	0.2	2-3-6				
11								
12		18	0.1					
13		18	0.2	2-5-7		@12.5-14 ft Increase silt; Some silt; medium stiff		
14								(9 to 19') Prepack screen
15	B-2-14.5-15.0-20240220	18	0.4	5-7-10		(14-15.5 ft) Clay with silt; Some silt; little gravel; light brown; stiff; moist; NOTE- gravel is basalt		
16		17	0.3	9-13-24		(15.5-19.8 ft) Clay with gravel and silt; some gravel; pebbles to cobbles; angular; little silt; light brown; moderate stiff; iron oxide staining; moist; NOTE- gravel is basalt		
17								
18		18	0.4	14-29-50				
19	B-2-18.5-19.0-20240220	10	0.1	19-50				
20						(19.8-20 ft) - Pulverized basalt bedrock 20 ft. bgs End of Boring		
21								

Drilling Co.: WDS
Driller: Brent
Drilling Method: SPT and HSA
Drill Rig:
Remarks: Borehole was abandonded on 2-22-24 by removing PVC and filling with bentonite chips. Static water level was collected after location recharged overnight.

Sampling Method: Split Spoon
Sampling Dimensions:
First Encountered Water (ft bgs): NA
Static Water Level (ft bgs): 9.5
Top of Casing Elev: NA
Surface Elev: 2371.00
North Coor: 47.45
East Coor: -117.14

SOIL BORING AND CONSTRUCTION LOG C:\USERS\BWALTER\ONEDRIVE - ARCADIS\DESKTOP\GINT ROCKFORD\UPRR ROCKFORD FRESH.GPJ GINT DATA TEMPLATE.GDT 4/5/24

ARCADIS

Soil Boring and Construction Log

Boring No.: B-3

Sheet: 1 of 1

Client Name: UPRR
Date Started: 02-20-2024
Logger: Garrett Wilson
Project Number: 30210357
Date Completed: 02-22-2024
Reviewer: Josh Lee
Project Name: UPRR Rockford
Total Depth: 18.9 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Blow Counts	Graphic	Description	Drilling Fluid and Notes	Construction Details
1		60	0.3, 0.2, 0.2, 0.2, 0.2, 0.2, 0.2, 0.2, 0.1, 0.1, 0.1, 0.2			(0-2.5 ft) Silt with clay, some gravel; grey; soft; dry to moist		
2								
3						(2.5-5.5 ft) Silty clay; light brown; soft to medium stiff; dry to moist		
4	B-3-3.5-4.0-20240220							(0-9') Open hole
5								
6		14		1-2-1		(5.5-15 ft) Clay with silt, some silt; light brown; soft to medium stiff; moist		
7		12	0.1	1-1-1				
8								
9		18	0.1	3-4-4				
10		18	0.1	3-5-5		@9.5-11 ft - medium sitff		
11								
12		18	0.1	4-10-15		@11-12.5 ft - decrease silt, little silt		
13		17	0.1	6-9-13				
14								(9 to 19') Prepack screen
15		18	0.1	4-7-12		(15-17 ft) - Silty Clay, trace gravel, small pebbles; light brown; medium stiff; moist to wet		
16		16	0.1	14-18-20		@16-17 ft - iron oxide staining		
17	B-3-16.5-17.0-20240220							
18		14	0.1	25-30-50		(17-18 ft) Gravel with clay and silt, pebbles to cobbles; angular; dense; dry to moist		
	B-3-18.0-18.5-20240220					(18-18.9 ft) Silty sand with gravel; dense; moist		
19		6	0.1	31-50				
						18.9 ft. bgs End of Boring		
20								

Drilling Co.: WDS
Driller: Brent
Drilling Method: SPT and HSA
Drill Rig:
Remarks: Borehole was abandonded on 2-22-24 by removing PVC and filling with bentonite chips. Static water level was collected after location recharged overnight.

Sampling Method: Split Spoon
Sampling Dimensions:
First Encountered Water (ft bgs): NA
Static Water Level (ft bgs): 9.55
Top of Casing Elev: NA
Surface Elev: 2370.00
North Coor: 47.45
East Coor: -117.14

SOIL BORING AND CONSTRUCTION LOG C:\USERS\BWALTER\ONEDRIVE - ARCADIS\DESKTOP\GINT ROCKFORD\UPRR ROCKFORD FRESH.GPJ GINT DATA TEMPLATE.GDT 4/5/24

ARCADIS

Soil Boring and Construction Log

Boring No.: B-4

Sheet: 1 of 1

Client Name: UPRR
Project Number: 30210357
Project Name: UPRR Rockford

Date Started: 02-21-2024
Date Completed: 02-22-2024
Total Depth: 8.5 ft bgs

Logger: Garrett Wilson
Reviewer: Josh Lee

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Blow Counts	Graphic	Description	Drilling Fluid and Notes	Construction Details
0			0			(0-0.5 ft) Gravely silt, some clay; brown; loose; moist		
1			0			(0.5-1 ft) Gravel with silt; brown; loose; wet		
	B-4-1.0-1.5-20240221		0			(1-3.5 ft) Clayey silt; soft to medium stiff; light brown; moist		
2			0					
		60	0					
3			0					
			0					
4			0			(3.5- 4 ft) Silt with clay; medium stiff; light brown; moist		(0-9') Slotted Screen and Sand
			0			@4.5-5 ft - gravel increase, some gravel		
5			0			(5-8 ft) Clay with gravel; light brown; medium stiff; wet		
		18		12-25-27				
6								
			0					
7		3		68-11			(7-7.5 ft) Basalt gravel in drill shoe	
8	B-4-8.0-8.5-20240221		0	50		(8-8.5 ft) Clay with silt; light brown; medium stiff; wet		
						8.5 ft. bgs End of Boring		
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Drilling Co.: WDS
Driller: Brent
Drilling Method: SPT and HSA
Drill Rig:
Remarks: Borehole was abandonded on 2-22-24 by removing PVC and filling with bentonite chips. Static Water level was collected after location recharged for about 4 hours.

Sampling Method: Split Spoon
Sampling Dimensions:
First Encountered Water (ft bgs): NA
Static Water Level (ft bgs): 3.3
Top of Casing Elev: NA
Surface Elev: 2365.00
North Coor: 47.45
East Coor: -117.14

ARCADIS

Soil Boring and Construction Log

Boring No.: B-5

Sheet: 1 of 1

Client Name: UPRR
Date Started: 02-21-2024
Logger: Garrett Wilson
Project Number: 30210357
Date Completed: 02-22-2024
Reviewer: Josh Lee
Project Name: UPRR Rockford
Total Depth: 8.5 ft bgs

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Blow Counts	Graphic	Description	Drilling Fluid and Notes	Construction Details
1			0 0 0			(0-1 ft) Gravel with silt, small pebbles, little silt; brown; loose; dry; NOTE: little organic material		
	B-5-1.0-1.5-20240221		0			(1- 4.5 ft) Silt and Clay; trace gravel, small pebble s;brown; medium stiff; dry to moist		
2			0			@1.5-3 ft - moist		
		60	0					
3			0			@3-3.5 ft - wet	▼	
4			0 0					(0-9') Screen and Sand
5						(4.5 - 8 ft) - Clayey silt; soft; moist; light brown; medium stiff; moist		
		18	0	6-8-14		@ 5-5.5 ft - trace organic material		
6								
7		3	0	50-50-50			(6.5-8 ft) Basalt gravel in drill shoe	
8	B-5-8.0-8.5-20240221		0	50-50-50		(8 - 8.5 ft) Silt with gravel, some gravel, cobbles, angular; brown; medium stiff; dry to moist NOTE - gravel is basalt 8.5 ft. bgs End of Boring		
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Drilling Co.: WDS
Driller: Brent
Drilling Method: SPT and HSA
Drill Rig:
Remarks: Borehole was abandonded on 2-22-24 by removing PVC and filling with bentonite chips. Static water level was collected after location recharged for about 4 hours.

Sampling Method: Split Spoon
Sampling Dimensions:
First Encountered Water (ft bgs): NA
Static Water Level (ft bgs): 3.2
Top of Casing Elev: NA
Surface Elev: 2351.00
North Coor: 47.45
East Coor: -117.14

SOIL BORING AND CONSTRUCTION LOG C:\USERS\BWALTERS\ONEDRIVE - ARCADIS\DESKTOP\GINT ROCKFORD\UPRR ROCKFORD FRESH.GPJ GINT DATA TEMPLATE.GDT 4/5/24

APPENDIX C

Field Forms

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER SAMPLING LOG

Project No. 30210357 Well ID B-1 Date 2/22/24

Project Name/Location DDRR Rockford Weather Overcast, 40°F

Measuring Pt. Description High Point Screen Setting (ft-bmp) 9-19 Casing Diameter (in.) 2 Well Material PVC / SS w/2" prepak

Static Water Level (ft-bmp) 6.04 Total Depth (ft-bmp) 19 Water Column/ Gallons in Well 12.96

MP Elevation — Pump Intake (ft-bmp) 14 Purge Method: peristaltic / Centrifugal / Submersible / Other Sample Method low-flow

Pump On/Off 1513 Volumes Purged 5.5

Sample Time: Label 1650 Replicate/ Code No. —
Start 1650
End 1715

Sampled by Garrett Wilson, Josh Lee

200 mL/min+ -0.3 +/- 0.1 +/-3% +/-10% +/-10% +/-3% +/-10mV

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1514	5	150	6.30		6.03		4046	9.10		211.3	turbidity	none
1521	3	150	6.43		6.04		4582	9.05		208.9	Tan	
1525	4	150	6.46		6.05		4417	8.98		208.9		
1529	3	150	6.55		6.06		4226	8.98		208.9		
1534	3	150	6.73		6.27		2930	8.92		210.5		
1537	3	150	6.68		6.15		2973	8.77		210		
1540	3	150	6.65		6.12		4065	8.73		210		
1543	3	150	6.66		6.10		4541	8.62		209.9		
1546	3	150	6.63		6.09		4820	8.48		210.1		
1549	3	150	6.76		6.09		4841	8.47		210.1		
1551	3	150	6.65		6.09		4893	8.45		210.1		
1554	3	150	6.7		6.09		4897	8.42		210.1		
1557	3	150	6.75		6.09		4903	8.4		210.1		
1600	3	150	6.7		6.05		1592	8.18		211		
1603	3	150	6.63		6.04		1122	8.11		211.2		
					6.03		771	7.96		211.4		

Constituents Sampled	Container	Number	Preservative
Sample ID: TW-B-1-14-20240221(1650)			
7 bottles			
DUP collected @ 1200			
TW-DUP-1-20240221			
7 bottles in total			
SW8151	1L Amber	2	none
SW8260	40mL Amber	3	HCl
8081	100mL Amber	2	none

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Note: Conductivity / Temp Probe not working

Well Information

Well Location: E14S / UPRR

Condition of Well: Temp Well

Well Completion: Flush Mount / Stick Up N/A

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: N/A

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER SAMPLING LOG

Project No. 30210357 Well ID B-1 Date 3/22/24

Project Name/Location UPRR Rockford Weather Overcast, 40°F

Measuring Pt. Description High point Screen Setting (ft-bmp) 9-19 Casing Diameter (in.) 2 Well Material ✓ PVC ___ SS

Static Water Level (ft-bmp) 6.04 Total Depth (ft-bmp) 19 Water Column/ Gallons in Well 12.96

MP Elevation ___ Pump Intake (ft-bmp) 14 Purge Method: Peristaltic / Centrifugal / Submersible / Other Sample Method Low-flow

Pump On/Off 1573 Volumes Purged 5.5

Sample Time: Label 1650 Start 1650 End 1715 Replicate/ Code No. ___ Sampled by Garrett Wilson, Josh Lee

Time	Minutes Elapsed	Rate (gpm) (mL/min) 200 mL/min+	Depth to Water (ft) -0.3	Gallons Purged	pH +/- 0.1	Cond. (mMhos) (mS/cm) +/-3%	Turbidity (NTU) +/-10%	Dissolved Oxygen (mg/L) +/-10%	Temp. (°C) (°F) +/-3%	Redox (mV) +/-10mV	Appearance Color	Appearance Odor
1628	3	150			6.03		699	7.94		211.5		
1631	3	150			6.03		696	7.94		211.6		
1634	3	150	6.75		6.03		666	7.95		211.6		
1637	3	150			6.03		601	7.84		211.7		
1640	3	150	6.8		6.02		571	7.82		211.8		
1643	3	150			6.02		567	7.82		211.9		
1646	3	150	6.8		6.02		539	7.79		212		
1649	3	150	6.85	5.5	6.02		465	7.79		212.2		

Constituents Sampled	Container	Number	Preservative
Sample ID: TW-B-1-14-20240221(1650)			
7 bottles			
DUP collected @ 1200 hrs			
TW-DUP-1-20240221			
7 bottles in total			
3M8151	1 L amber	2	none
V8260C	40 mL amber	3	HCL
8081	100mL amber	2	none

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.28; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well Information

Well Location: EHS/UPRR

Condition of Well: Temp well

Well Completion: Flush Mount / Stick Up N/A

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well: N/A

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GROUNDWATER SAMPLING LOG

Page 1 of 2

Project No. 30210357 Well ID B-2 Date 2/22/24

Project Name/Location UPRR Rockford Weather Overcast, 38°F

Measuring Pt. Description High point Screen Setting (ft-bmp) 9-19 Casing Diameter (in.) 2 Well Material ✓ PVC ___ SS

Static Water Level (ft-bmp) 9.15' Total Depth (ft-bmp) 19 Water Column/ Gallons in Well 12.96

MP Elevation ___ Pump Intake (ft-bmp) 14 Purge Method: Peristaltic

Pump On/Off 1025 Volumes Purged 5.5 Centrifugal Submersible Other

Sample Time: Label 1030 Start 1030 End ___ Replicate/ Code No. ___ Sample Method Low-flow

Sampled by Garrett Wilson

Time	Minutes Elapsed	Rate (gpm) (mL/min) 200 mL/min+	Depth to Water (ft) -0.3	Gallons Purged	pH +/- 0.1	Cond. (mMhos) (mS/cm) +/-3%	Turbidity (NTU) +/-10%	Dissolved Oxygen (mg/L) +/-10%	Temp. (°C) (°F) +/-3%	Redox (mV) +/-10mV	Appearance Color	Appearance Odor
1030	5	150	9.23		6.11		64.25	5.05		155.6	Slightly cloudy	none
1033	3	150	9.25		6.10		62.52	5.09		155.8		
1036	3	150			6.10		60.5	5.16		156.0		
1039					6.16		71.30	5.17		156.1		
1042			9.40		6.10		72.02	5.39		156.4		
1045					6.09		78.26	5.45		156.6		
1048			9.43		6.10		81.86	5.59		156.8		
1051					6.09		81.57	5.56		157.0		
1054			9.55		6.09		88.20	5.54		157.2		
1057					6.08		78.10	5.62		157.4		
1100			9.59		6.08		71.08	5.59		157.6		
1103					6.08		69.08	5.52		157.9		
1106			9.60		6.08		74.93	5.55		158.0		
1109					6.07		74.61	5.61		158.3		
1112			9.65		6.07		104.21	5.60		158.5		
1115					6.08		100.32	5.65		158.7		

Constituents Sampled	Container	Number	Preservative
Sample ID: TW-B-2-14-20240222(1030)			
7 bottles			
SW8151	1 L amber	2	none
V8260	40mL amber	3	HCL
8021	100 mL amber	2	none

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well Information

Well Location: EHS

Condition of Well: Temp well

Well Completion: Flush Mount / Stick Up N/A

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well: N/A

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER SAMPLING LOG

Project No. 30210357 | Well ID B-2 | Date 2/22/24

Project Name/Location UPRR Rockford | Weather Overcast, 35°F

Well Material ✓PVC ___SS

Measuring Pt Description High-point | Screen Setting (ft-bmp) 9-19 | Casing Diameter (in.) 2

Static Water Level (ft-bmp) 9.15' | Total Depth (ft-bmp) 19 | Water Column/ Gallons in Well 12.96

MP Elevation ___ | Pump Intake (ft-bmp) 14 | Purge Method: Peristaltic / Centrifugal / Submersible / Other | Sample Method Low-flow

Pump On/Off 1025 | Volumes Purged 5.5

Sample Time: Label 1030 | Start 1030 | End ___ | Replicate/ Code No. ___

Sampled by Garrett Wilson

	200 mL/min+		-0.3		+/- 0.1	+/-3%	+/-10%	+/-10%	+/-3%	+/-10mV		
Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
1114	3	150	9.7		6.07		97.82	5.63		159.9	Slight Cloudy	None
1121	↓	↓			6.07		98.48	5.63		159.0	↓	↓
1124			9.73		6.07		96.32			159.0		

Constituents Sampled	Container	Number	Preservative
Sample ID: TW-B-2-14-20240222(1030			
7 bottles			
SVOC 8151	1 L amber	2	None
VOC 8260	40mL amber	3	HCl
8081	100mL amber	2	None

Well Casing Volumes

Gallons/Foot: 1" = 0.04 | 1.25" = 0.06 | 1.5" = 0.09 | 2" = 0.16 | 2.5" = 0.26 | 3" = 0.37 | 3.5" = 0.50 | 4" = 0.65 | 6" = 1.47

Well Information

Well Location: EHS | Well Locked at Arrival: Yes / No

Condition of Well: Temp Well | Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up N/A | Key Number To Well: N/A

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER SAMPLING LOG

Project No. 30210357 Well ID B-3 Date 2/22/24

Project Name/Location UPRR Rockford Weather Overcast, 40°F

Measuring Pt. Description High point Screen Setting (ft-bmp) 9-19 Casing Diameter (in.) 2 Well Material PVC / SS

Static Water Level (ft-bmp) 8.68 Total Depth (ft-bmp) 19 Water Column/ Gallons in Well 12.96

MP Elevation — Pump Intake (ft-bmp) 14 Purge Method: Peristaltic / Centrifugal / Submersible / Other Sample Method Low-flow

Pump On/Off 0835 Volumes Purged 5.5

Sample Time: Label 0835 Start 0835 End 0885 Replicate/ Code No. —

Sampled by Garrett Wilson

	200 mL/min+	-0.3		+/- 0.1	+/-3%	+/-10%	+/-10%	+/-3%	+/-10mV		
Time 0835	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
0840	5	150	8.68		6.35		41.54	4.98		163.9	Clear	None
0843	3	150	8.72		6.6		46.30	4.73		164.0		
0846	3	150	8.7		6.38		50.44	4.97		164.0		
0849	3	150			6.40		61.17	5.04		164.3		
0852	3	150			6.40		57.57	5.09		164.3		
0855	3	150	8.86		6.41		65.70	5.17		164.4		
0858	3	150			6.42		61.05	5.17		164.5		
0901	3	150			6.43		69.20	5.17		164.5		
0904	3	150	8.92		6.43		65.37	5.21		164.5		
0907	3	150			6.43		63.72	5.19		164.6		
0910	3	150			6.43		66.67	5.20		164.6		
0913	3	150			6.43		62.94	5.22		164.6		
0916	3	150			6.43		60.40	5.18		164.5		
0919	3	150	9.0		6.43		59.90	5.11		164.6		
0922	3	150			6.43		57.26	5.04		164.6		
0925	3	150	9.05		6.43		62.01	5.05		164.6	↓	↓

Constituents Sampled	Container	Number	Preservative
Sample ID: TW-B-3-14-20240222 (0935)			
7 bottles			
DUP collected @ 0935 ~~MS~~			
TW-DUP-3-20240222			
~~7 bottles in total~~ SW8151	1L amber	2	none
8260	40mL amber	3	HCL
8081	100mL amber	2	none

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well Information

Well Location: EHO

Condition of Well: Temp Well

Well Completion: Flush Mount / Stick Up N/A

Well Locked at Arrival: Yes / NO

Well Locked at Departure: Yes / NO

Key Number To Well: N/A

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GROUNDWATER SAMPLING LOG

Project No. 30210357 Well ID B-3 Date 2/22/24

Project Name/Location UPRR Rattler

Weather Overcast, 40°F

Measuring Pt. Description High point Screen Setting (ft-bmp) 9-19 Casing Diameter (in.) 2 Well Material ✓PVC ___SS

Static Water Level (ft-bmp) 8.68 Total Depth (ft-bmp) 19 Water Column/ Gallons in Well 12.96

MP Elevation ___ Pump Intake (ft-bmp) 14 Purge Method: Peristaltic Centrifugal Submersible Other Sample Method Low-flow

Pump On/Off 0835 Volumes Purged 5.5

Sample Time: Label 0835 Start 0835 End 0935 Replicate/ Code No. ___ Sampled by Garrett Wilson

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance Color	Appearance Odor
		200 mL/min+	-0.3		+/- 0.1	+/-3%	+/-10%	+/-10%	+/-3%	+/-10mV		
0928	3	150	9.05		6.42		60.81	5.01		164.6	Clear	None
0931	↓	↓			6.43		74.18	5.12		164.6	↓	↓
0934	↓	↓			6.43		62.4	5.12		164.6	↓	↓
0934												
0940												
0943												
0947												
0950												

Constituents Sampled	Container	Number	Preservative
Sample ID: TW-B-3-M-20240222(0835)			
7 bottles			
SU8151	1L amber	2	none
VB260	40ml amber	3	HCl
8081	100ml amber	2	none

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well Information

Well Location: EHS

Condition of Well: Temp Well

Well Completion: Flush Mount / Stick Up N/A

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: ___

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GROUNDWATER SAMPLING LOG

Page 1 of 1

Project No. 30210357 | Well ID B-4 | Date 8/22/24

Project Name/Location UPRR Rockford | Weather Overcast

Measuring Pt Description: High Point | Screen Setting (ft-bmp): DTG | Casing Diameter (in.): 2 | Well Material: ✓ PVC ___ SS

Static Water Level (ft-bmp): 8.8' | Total Depth (ft-bmp): 8.5' | Water Column/ Gallons in Well:

MP Elevation: ___ | Pump Intake (ft-bmp): 7' | Purge Method: Peristaltic; Centrifugal; Submersible; Other

Pump On/Off: 1330 | Volumes Purged: ___ | Sample Method: Low-flow

Sample Time: Label 1430 | Start 1420 | End ___ | Replicate/ Code No.: ___ | Sampled by: Garrett Wilson

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance: Color	Appearance: Odor
		200 mL/min+	-0.3		+/- 0.1	+/-3%	+/-10%	+/-10%	+/-3%	+/-10mV		
1355	3	150	7'		7.60		3904	8.7		150.6	Cloudy	None
Well ran dry												

Constituents Sampled	Container	Number	Preservative
Sample ID: TW-B-4-8-20240822			
7 bottles			
SV8151	1 L amber	2	none
V8260	40 mL amber	3	HCL
8081	100 mL amber	2	none

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well Information

Well Location: 615

Condition of Well: Temp. Well

Well Completion: Flush Mount / Stick Up N/A

Well Locked at Arrival: Yes / (No)

Well Locked at Departure: Yes / (No)

Key Number To Well: N/A

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GROUNDWATER SAMPLING LOG

Page 1 of 7

Project No. 30210357 Well ID B-5 Date 2/6/24

Project Name/Location UDRF Rockford Weather Overcast

Measuring Pt. Description High-point Screen Setting (ft-bmp) 9-19 Casing Diameter (in.) 2 Well Material ___PVC ___SS

Static Water Level (ft-bmp) 3.2 Total Depth (ft-bmp) 5' Water Column/ Gallons in Well

MP Elevation — Pump Intake (ft-bmp) 4.3' Purge Method: Peristaltic / Centrifugal / Submersible / Other

Pump On/Off 1219 Volumes Purged Sample Method Low-flow

Sample Time: Label 1219 Start 1219 End Replicate/ Code No. —

Sampled by Garrett Wilson

Time	Minutes Elapsed	Rate (gpm) (mL/min) 200 mL/min+	Depth to Water (ft) -0.3	Gallons Purged	pH +/- 0.1	Cond. (mMhos) (mS/cm) +/-3%	Turbidity (NTU) +/-10%	Dissolved Oxygen (mg/L) +/-10%	Temp. (°C) (°F) +/-3%	Redox (mV) +/-10mV	Appearance Color	Appearance Odor
1225	5	150			7.02		86.72	10.89		142.7		
1228	3	150	4.35		7.02		81.34	11.02		142.8		
		Well not dry										

Constituents Sampled	Container	Number	Preservative
Sample ID: MW-B-5-(4)-20240222(1250			
7 bottles			
SVOC 8151	1 L amber	2	none
VOC 8260	40mL vials	3	HCL
PCB 8081	100 mL amber	2	none

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

Well Information

Well Location: EHS

Condition of Well: Temp well

Well Completion: Flush Mount / Stick Up N/A

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: N/A

APPENDIX D

Photographic Log

Photograph Log

UPRR Phase II Environmental Site Assessment – CHS Grain Handling Facility, Rockford, Washington

Photograph/Map ID: 1

Description:
Soil boring B-1 location on CHS property

Location:
Soil boring B-1

Photograph taken by:
Josh Lee

Date: 2/20/2024

Photograph/Map ID: 2

Description:
Soil boring B-2 location on CHS property

Location:
Soil boring B-2

Photograph taken by:
Josh Lee

Date: 2/20/2024

Photograph Log

UPRR Phase II Environmental Site Assessment – CHS Grain Handling Facility, Rockford, Washington

Photograph/Map ID: 3

Description:
Soil boring B-3 location on CHS property

Location:
Soil boring B-3

Photograph taken by:
Josh Lee

Date: 2/20/2024

Photograph/Map ID: 4

Description:
Soil boring B-4 location in W Missile Base Road Right-of-way

Location:
Soil boring B-4

Photograph taken by:
Josh Lee

Date: 6/8/2023

Photograph Log

UPRR Phase II Environmental Site Assessment – CHS Grain Handling Facility, Rockford, Washington

Photograph/Map ID: 5

Description:
Soil boring B-5 location in W Missile Base Road Right-of-wa

Location:
Soil boring B-5

Photograph taken by:
Josh Lee

Date: 2/21/2024

Photograph/Map ID: 6

Description:
Standing water near soil boring B-4 location

Location:
B-4

Photograph taken by:
Josh Lee

Date: 2/21/2024

Photograph Log

UPRR Phase II Environmental Site Assessment – CHS Grain Handling Facility, Rockford, Washington

Photograph/Map ID: 7

Description:
Temporary well installed at soil boring B-4 location

Location:
Temporary well at B-4 location

Photograph taken by:
Josh Lee

Date: 2/21/2024

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Photograph/Map ID: 8

Description:
Temporary well installed at soil boring B-3 location

Location:
Temporary well at B-3 location

Photograph taken by:
Josh Lee

Date: 2/21/2024

APPENDIX E

Data Validation Report and Analytical Reports

UPRR

Data Review Report

Rockford, Washington

Volatile Organic Compounds (VOCs), Organochlorine Pesticides and Herbicides Analyses

SDG #L1708993

Analyses Performed By:
Pace Analytical National
Mt. Juliet, Tennessee

Report #53377R
Review Level: Tier II
Project: 30210357.3

Summary

This Data Review Report summarizes the review of Sample Delivery Group (SDG) #L1708993 for samples collected in association with the UPRR Rockford, Washington Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis						
					VOC	SVOC	GAS	PEST	HERB	MET	MISC
TW-DUP-1-20240221	L1708993-01	Water	2/21/2024	TW-B-1-14-20240221	X			X	X		
TW-B-1-14-20240221	L1708993-02	Water	2/21/2024		X			X	X		
TW-B-2-14-20240222	L1708993-03	Water	2/22/2024		X			X	X		
TW-B-3-14-20240222	L1708993-04	Water	2/22/2024		X			X	X		
TW-B-4-8-202402222	L1708993-05	Water	2/22/2024		X						
TW-B-5-4.4-20240222	L1708993-06	Water	2/22/2024		X						
TW-EB-1-20240222	L1708993-07	Water	2/22/2024		X						
TRIPLANK	L1708993-08	Water	2/22/2024		X						

Notes:

1. A matrix spike (MS)/matrix spike duplicate (MSD) analysis was performed on sample location TW-B-4-8-202402222 for VOCs.

Analytical Data Package Documentation

The table below evaluates the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X[1]	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed chain-of-custody form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data package completeness and compliance		X		X	

Notes:
QA = quality assurance

1 – The Trip Blank was not documented on the COC.

Organic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260B, 8081B and 8151A. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound is considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

The “R” flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. “R” values should not appear on data tables because they cannot be relied upon, even as a last resort. The second

fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Volatile Organic Compound (VOC) Analyses

1. Holding Times

The specified holding times for the following methods are presented in the table below.

Method	Matrix	Holding Time	Preservation
SW-846 8260B	Water	14 days from collection to analysis; 7 days from collection to analysis if unpreserved	Cool to <6 °C; preserved to a pH of less than 2 s.u.

Note:
s.u. = standard units

The analyses that exceeded the holding are presented in the following table.

Sample Locations	Analysis Completed	Criteria
TW-EB-1-20240222	20 days	14 Days

Sample results associated with sample locations analyzed by analytical method SW-846 8260 were qualified, as specified in the table below. All other holding times were met.

Criteria	Qualification	
	Detected Analytes	Non-detect Analytes
Analysis completed less than two times holding time	J	UJ
Analysis completed greater than two times holding time	J	R

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method, rinse, and trip blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks and trip blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were

greater than the BAL resulted in the removal of the laboratory qualifier (B). Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
TW-DUP-1-20240221 TW-B-1-14-20240221 TW-B-3-14-20240222	Chloroform	Detected sample results <RL and <BAL	"UB" at the RL

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The RPDs between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analysis exhibited recoveries and RPDs within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices is applied to the RPD between the parent sample and the field

duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water.

Results for duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
TW-B-1-14-20240221 / TW-DUP-1-20240221	Carbon tetrachloride	0.265 J	0.278 J	AC

Note:
AC = acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for VOCs

VOCs: SW-846 8260B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X	X		
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X	X		
C. Trip blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:
%R = percent recovery
RPD = relative percent difference

Organochlorine Pesticides Analyses

1. Holding Times

The specified holding times for the following methods are presented in the table below.

Method	Matrix	Holding Time	Preservation
Pesticides by SW-846 8081B	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Pesticides were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Pesticide analysis requires that one of the two surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not performed on a sample location within this SDG.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The RPDs between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analysis exhibited recoveries and RPDs within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water.

Results for duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
TW-B-1-14-20240221 / TW-DUP-1-20240221	All Compounds	U	U	AC

Note:
AC = acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for Pesticides

PESTICIDES: SW-846 8081B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/ELECTRON CAPTURE DETECTOR (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:
%R = percent recovery
RPD = relative percent difference

Herbicides Analyses

1. Holding Times

The specified holding times for the following methods are presented in the table below.

Method	Matrix	Holding Time	Preservation
Herbicides by SW-846 8151A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Herbicides were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Herbicide analysis requires that surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not performed on a sample location within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water.

Results for duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
TW-B-1-14-20240221 / TW-DUP-1-20240221	Dicamba	0.373 J	0.397 J	AC

Note:
AC = acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for Herbicides

HERBICIDES: SW-846 8151A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/ELECTRON CAPTURE DETECTOR (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:
%R = percent recovery
RPD = relative percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: March 24, 2024

PEER REVIEW: Andrew Korycinski

DATE: March 27, 2024

Chain of Custody and Corrected Sample Analysis Data Sheets

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 20:20	WG2236962
Carbon tetrachloride	0.278	J	0.128	1.00	1	02/29/2024 20:20	WG2236962
Chloroform 5.0	~~0.527~~ UB ~~J~~		0.111	5.00	1	02/29/2024 20:20	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 20:20	WG2236962
(S) Toluene-d8	*115*			*80.0-120*		*02/29/2024 20:20*	WG2236962
(S) 4-Bromofluorobenzene	*105*			*77.0-126*		*02/29/2024 20:20*	WG2236962
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*		*02/29/2024 20:20*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
2,4-D	U		0.547	2.00	1	02/28/2024 03:34	WG2232068
Dalapon	U		0.344	2.00	1	02/28/2024 03:34	WG2232068
2,4-DB	U		0.302	2.00	1	02/28/2024 03:34	WG2232068
Dicamba	0.397	J	0.245	2.00	1	02/28/2024 03:34	WG2232068
Dichloroprop	U		1.04	2.00	1	02/28/2024 03:34	WG2232068
Dinoseb	U		0.250	2.00	1	02/28/2024 03:34	WG2232068
MCPA	U		13.1	100	1	02/28/2024 03:34	WG2232068
MCPP	U		66.0	100	1	02/28/2024 03:34	WG2232068
2,4,5-T	U		0.258	2.00	1	02/28/2024 03:34	WG2232068
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 03:34	WG2232068
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 03:34	WG2232068
(S) 2,4-Dichlorophenyl Acetic Acid	*66.2*			*14.0-158*		*02/28/2024 03:34*	WG2232068

Pesticides (GC) by Method 8081

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aldrin	U		0.0198	0.0500	1	02/28/2024 01:25	WG2233888
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 01:25	WG2233888
Beta BHC	U		0.0208	0.0500	1	02/28/2024 01:25	WG2233888
Delta BHC	U		0.0150	0.0500	1	02/28/2024 01:25	WG2233888
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 01:25	WG2233888
Chlordane	U		0.0198	5.00	1	02/28/2024 01:25	WG2233888
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 01:25	WG2233888
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 01:25	WG2233888
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 01:25	WG2233888
Dieldrin	U		0.0162	0.0500	1	02/28/2024 01:25	WG2233888
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 01:25	WG2233888
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 01:25	WG2233888
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 01:25	WG2233888
Endrin	U		0.0161	0.0500	1	02/28/2024 01:25	WG2233888
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 01:25	WG2233888
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 01:25	WG2233888
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 01:25	WG2233888
Heptachlor	U		0.0148	0.0500	1	02/28/2024 01:25	WG2233888
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 01:25	WG2233888
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 01:25	WG2233888
Toxaphene	U		0.168	0.500	1	02/28/2024 01:25	WG2233888
(S) Decachlorobiphenyl	*28.7*			*10.0-128*		*02/28/2024 01:25*	WG2233888
(S) Tetrachloro-m-xylene	*56.0*			*10.0-127*		*02/28/2024 01:25*	WG2233888

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 20:41	WG2236962
Carbon tetrachloride	0.265	J	0.128	1.00	1	02/29/2024 20:41	WG2236962
Chloroform	5.0 ~~0.514~~	UB ~~J~~	0.111	5.00	1	02/29/2024 20:41	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 20:41	WG2236962
(S) Toluene-d8	*115*			*80.0-120*		*02/29/2024 20:41*	WG2236962
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*02/29/2024 20:41*	WG2236962
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*02/29/2024 20:41*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
2,4-D	U		0.547	2.00	1	02/28/2024 03:44	WG2232068
Dalapon	U		0.344	2.00	1	02/28/2024 03:44	WG2232068
2,4-DB	U		0.302	2.00	1	02/28/2024 03:44	WG2232068
Dicamba	0.373	J	0.245	2.00	1	02/28/2024 03:44	WG2232068
Dichloroprop	U		1.04	2.00	1	02/28/2024 03:44	WG2232068
Dinoseb	U		0.250	2.00	1	02/28/2024 03:44	WG2232068
MCPA	U		13.1	100	1	02/28/2024 03:44	WG2232068
MCPP	U		66.0	100	1	02/28/2024 03:44	WG2232068
2,4,5-T	U		0.258	2.00	1	02/28/2024 03:44	WG2232068
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 03:44	WG2232068
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 03:44	WG2232068
(S) 2,4-Dichlorophenyl Acetic Acid	*48.5*			*14.0-158*		*02/28/2024 03:44*	WG2232068

Pesticides (GC) by Method 8081

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Aldrin	U		0.0198	0.0500	1	02/28/2024 01:35	WG2233888
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 01:35	WG2233888
Beta BHC	U		0.0208	0.0500	1	02/28/2024 01:35	WG2233888
Delta BHC	U		0.0150	0.0500	1	02/28/2024 01:35	WG2233888
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 01:35	WG2233888
Chlordane	U		0.0198	5.00	1	02/28/2024 01:35	WG2233888
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 01:35	WG2233888
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 01:35	WG2233888
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 01:35	WG2233888
Dieldrin	U		0.0162	0.0500	1	02/28/2024 01:35	WG2233888
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 01:35	WG2233888
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 01:35	WG2233888
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 01:35	WG2233888
Endrin	U		0.0161	0.0500	1	02/28/2024 01:35	WG2233888
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 01:35	WG2233888
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 01:35	WG2233888
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 01:35	WG2233888
Heptachlor	U		0.0148	0.0500	1	02/28/2024 01:35	WG2233888
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 01:35	WG2233888
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 01:35	WG2233888
Toxaphene	U		0.168	0.500	1	02/28/2024 01:35	WG2233888
(S) Decachlorobiphenyl	*13.9*			*10.0-128*		*02/28/2024 01:35*	WG2233888
(S) Tetrachloro-m-xylene	*41.9*			*10.0-127*		*02/28/2024 01:35*	WG2233888

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 21:02	WG2236962
Carbon tetrachloride	1.41		0.128	1.00	1	02/29/2024 21:02	WG2236962
Chloroform	1.23	J	0.111	5.00	1	02/29/2024 21:02	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 21:02	WG2236962
(S) Toluene-d8	*116*			*80.0-120*		*02/29/2024 21:02*	WG2236962
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*02/29/2024 21:02*	WG2236962
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*		*02/29/2024 21:02*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
2,4-D	U		0.547	2.00	1	02/28/2024 07:48	WG2233607
Dalapon	U		0.344	2.00	1	02/28/2024 07:48	WG2233607
2,4-DB	U		0.302	2.00	1	02/28/2024 07:48	WG2233607
Dicamba	U		0.245	2.00	1	02/28/2024 07:48	WG2233607
Dichloroprop	U		1.04	2.00	1	02/28/2024 07:48	WG2233607
Dinoseb	U		0.250	2.00	1	02/28/2024 07:48	WG2233607
MCPA	U		13.1	100	1	02/28/2024 19:35	WG2233607
MCPP	U		66.0	100	1	02/28/2024 19:35	WG2233607
2,4,5-T	U		0.258	2.00	1	02/28/2024 07:48	WG2233607
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 07:48	WG2233607
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 07:48	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*95.0*			*14.0-158*		*02/28/2024 19:35*	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*97.6*			*14.0-158*		*02/28/2024 07:48*	WG2233607

Pesticides (GC) by Method 8081

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aldrin	U		0.0198	0.0500	1	02/28/2024 01:45	WG2233888
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 01:45	WG2233888
Beta BHC	U		0.0208	0.0500	1	02/28/2024 01:45	WG2233888
Delta BHC	U		0.0150	0.0500	1	02/28/2024 01:45	WG2233888
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 01:45	WG2233888
Chlordane	U		0.0198	5.00	1	02/28/2024 01:45	WG2233888
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 01:45	WG2233888
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 01:45	WG2233888
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 01:45	WG2233888
Dieldrin	U		0.0162	0.0500	1	02/28/2024 01:45	WG2233888
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 01:45	WG2233888
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 01:45	WG2233888
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 01:45	WG2233888
Endrin	U		0.0161	0.0500	1	02/28/2024 01:45	WG2233888
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 01:45	WG2233888
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 01:45	WG2233888
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 01:45	WG2233888
Heptachlor	U		0.0148	0.0500	1	02/28/2024 01:45	WG2233888
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 01:45	WG2233888
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 01:45	WG2233888
Toxaphene	U		0.168	0.500	1	02/28/2024 01:45	WG2233888
(S) Decachlorobiphenyl	*36.2*			*10.0-128*		*02/28/2024 01:45*	WG2233888
(S) Tetrachloro-m-xylene	*64.6*			*10.0-127*		*02/28/2024 01:45*	WG2233888

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 21:23	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 21:23	WG2236962
Chloroform	5.0 ~~0.427~~	UB ~~J~~	0.111	5.00	1	02/29/2024 21:23	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 21:23	WG2236962
(S) Toluene-d8	*119*			*80.0-120*		*02/29/2024 21:23*	WG2236962
(S) 4-Bromofluorobenzene	*107*			*77.0-126*		*02/29/2024 21:23*	WG2236962
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*		*02/29/2024 21:23*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
2,4-D	U		0.547	2.00	1	02/28/2024 07:58	WG2233607
Dalapon	U		0.344	2.00	1	02/28/2024 07:58	WG2233607
2,4-DB	U		0.302	2.00	1	02/28/2024 07:58	WG2233607
Dicamba	U		0.245	2.00	1	02/28/2024 07:58	WG2233607
Dichloroprop	U		1.04	2.00	1	02/28/2024 07:58	WG2233607
Dinoseb	U		0.250	2.00	1	02/28/2024 07:58	WG2233607
MCPA	U		13.1	100	1	02/28/2024 19:45	WG2233607
MCPP	U		66.0	100	1	02/28/2024 19:45	WG2233607
2,4,5-T	U		0.258	2.00	1	02/28/2024 07:58	WG2233607
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 07:58	WG2233607
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 07:58	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*68.0*			*14.0-158*		*02/28/2024 19:45*	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*65.8*			*14.0-158*		*02/28/2024 07:58*	WG2233607

Pesticides (GC) by Method 8081

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aldrin	U		0.0198	0.0500	1	02/28/2024 00:10	WG2233913
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 00:10	WG2233913
Beta BHC	U		0.0208	0.0500	1	02/28/2024 00:10	WG2233913
Delta BHC	U		0.0150	0.0500	1	02/28/2024 00:10	WG2233913
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 00:10	WG2233913
Chlordane	U		0.0198	5.00	1	02/28/2024 00:10	WG2233913
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 00:10	WG2233913
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 00:10	WG2233913
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 00:10	WG2233913
Dieldrin	U		0.0162	0.0500	1	02/28/2024 00:10	WG2233913
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 00:10	WG2233913
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 00:10	WG2233913
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 00:10	WG2233913
Endrin	U		0.0161	0.0500	1	02/28/2024 00:10	WG2233913
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 00:10	WG2233913
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 00:10	WG2233913
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 00:10	WG2233913
Heptachlor	U		0.0148	0.0500	1	02/28/2024 00:10	WG2233913
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 00:10	WG2233913
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 00:10	WG2233913
Toxaphene	U		0.168	0.500	1	02/28/2024 00:10	WG2233913
(S) Decachlorobiphenyl	*54.2*			*10.0-128*		*02/28/2024 00:10*	WG2233913
(S) Tetrachloro-m-xylene	*79.7*			*10.0-127*		*02/28/2024 00:10*	WG2233913

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 21:44	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 21:44	WG2236962
Chloroform	U		0.111	5.00	1	02/29/2024 21:44	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 21:44	WG2236962
(S) Toluene-d8	*115*			*80.0-120*		*02/29/2024 21:44*	WG2236962
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*02/29/2024 21:44*	WG2236962
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*		*02/29/2024 21:44*	WG2236962

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 22:05	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 22:05	WG2236962
Chloroform	U		0.111	5.00	1	02/29/2024 22:05	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 22:05	WG2236962
(S) Toluene-d8	*117*			*80.0-120*		*02/29/2024 22:05*	WG2236962
(S) 4-Bromofluorobenzene	*106*			*77.0-126*		*02/29/2024 22:05*	WG2236962
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*02/29/2024 22:05*	WG2236962

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U	UJ ~~T8~~	0.0962	1.00	1	03/13/2024 21:41	WG2245978
Carbon tetrachloride	U	UJ ~~T8~~	0.128	1.00	1	03/13/2024 21:41	WG2245978
Chloroform	0.113	J ~~J T8~~	0.111	5.00	1	03/13/2024 21:41	WG2245978
Methylene Chloride	U	UJ ~~T8~~	0.430	5.00	1	03/13/2024 21:41	WG2245978
(S) Toluene-d8	*107*			*80.0-120*		*03/13/2024 21:41*	WG2245978
(S) 4-Bromofluorobenzene	*88.8*			*77.0-126*		*03/13/2024 21:41*	WG2245978
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*03/13/2024 21:41*	WG2245978

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 16:08	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 16:08	WG2236962
Chloroform	U		0.111	5.00	1	02/29/2024 16:08	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 16:08	WG2236962
(S) Toluene-d8	*116*			*80.0-120*		*02/29/2024 16:08*	WG2236962
(S) 4-Bromofluorobenzene	*107*			*77.0-126*		*02/29/2024 16:08*	WG2236962
(S) 1,2-Dichloroethane-d4	*108*			*70.0-130*		*02/29/2024 16:08*	WG2236962

Company Name/Address:
UPRR - Arcadis

8808 E Wellesley Ave
Spokane, WA 99212

Billing Information:
UPRR Project Manager
4315 E Sprague Ave
Spokane Valley, WA 99212

Pres Chk

Report to: **Josh Lee**

Email To: **Joshua.Lee@arcadis.com;janette.wilson@arcadi**

Project Description: **UPRR - Rockford, WA**

City/State Collected: Rockford, WA

Please Circle: PT MT CT ET

Phone: **406-239-7810**

Client Project # 30210357

Lab Project # **UPRRARCA-ROCKFORD**

Collected by (print): Garrett Wilson

Site/Facility ID #

P.O. #

Collected by (signature): Garrett B. Wilson

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Std.

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8081 100ml Amb-NoPres	SV8151 1L-Amb-No Pres	V8260 40mlAmb-HCl								Remarks	Sample # (lab only)
TW-DUP-1-20240221	G	GW		2/21/2024	1200	7	X	X	X									-01
TW-B-1-14-20240221	G	GW	14	2/21/2024		7	X	X	X									-02
TW-B-2-14-20240222	G	GW	14	2/22/2024	1125	7	X	X	X									-03
TW-B-3-14-20240222	G	GW	14	2/22/2024	0435	7	X	X	X									-04
TW-B-4-8-20240222	G	GW	8	2/22/2024	1355	10			X								TW/MS/MSD Required Volume on IL	-05
TW-B-5-9.4-20240222	G	GW	9.4	2/22/2024	1250	7	H	H	X									-06
TW-EB-1-20240222	G	GW	- - -	2/22/2024	1548	7			X									-07
		GW																
		GW																
		GW																

Chain of Custody Page 1 of 1

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1705947

H133

Acctnum: **UPRRARCA**
Template: **T246113**
Prelogin: **P1052529**
PM: **829 - Brittnie L Boyd**
PB: CS 2/10/24

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: WR# 017187
TW-B-4-8-20240222 has MS/MSD

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS ✓ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Garrett B. Wilson	2/23/24			2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 52	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Alexa Mitchell	Date: 2/24/24 Time: 0900	Hold: Condition: NCF / OK

UPRR

Data Review Report

Rockford, Washington

Volatile Organic Compounds (VOCs), Organochlorine Pesticides and Herbicides Analyses

SDG #L1709164

Analyses Performed By:
Pace Analytical National
Mt. Juliet, Tennessee

Report #53378R
Review Level: Tier II
Project: 30210357.3

Summary

This Data Review Report summarizes the review of Sample Delivery Group (SDG) #L1709164 for samples collected in association with the UPRR Rockford, Washington Site. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis						
					VOC	SVOC	GAS	PEST	HERB	MET	MISC
B-1-2.0-2.5-20240220	L1709164-01	Soil	2/20/2024		X						
B-1-18.5-19.0-20240220	L1709164-02	Soil	2/20/2024		X						
B-2-1.5-2.0-20240220	L1709164-03	Soil	2/20/2024		X						
B-2-14.5-15.0-20240220	L1709164-04	Soil	2/20/2024		X						
B-2-18.5-19.0-20240220	L1709164-05	Soil	2/20/2024		X						
B-3-3.5-4.0-20240220	L1709164-06	Soil	2/20/2024		X						
B-3-16.5-17.0-20240220	L1709164-07	Soil	2/20/2024		X						
B-3-18.0-18.5-20240220	L1709164-08	Soil	2/20/2024		X						
B-4-1.0-1.5-20240221	L1709164-09	Soil	2/21/2024		X						
B-4-8.0-8.5-20240221	L1709164-10	Soil	2/21/2024		X						
B-5-1.0-1.5-20240221	L1709164-11	Soil	2/21/2024		X						
B-5-8.0-8.5-20240221	L1709164-12	Soil	2/21/2024		X						
B-DUP-20240220	L1709164-13	Soil	2/20/2024	B-1-2.0-2.5-20240220	X						
TRIPLANK	L1709164-14	Water	2/20/2024		X						

Notes:

1. A matrix spike (MS)/matrix spike duplicate (MSD) analysis was performed on sample location B-4-8.0-8.5-20240221 for VOCs.

Analytical Data Package Documentation

The table below evaluates the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X[1]	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed chain-of-custody form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data package completeness and compliance		X		X	

Notes:
QA = quality assurance

1 – The Trip Blank was not documented on the COC.

Organic Analysis Introduction

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260B. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
  - UB Compound is considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

The “R” flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. “R” values should not appear on data tables because they cannot be relied upon, even as a last resort. The second

fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Volatile Organic Compound (VOC) Analyses

1. Holding Times

The specified holding times for the following methods are presented in the table below.

Method	Matrix	Holding Time	Preservation
SW-846 8260B	Water	14 days from collection to analysis; 7 days from collection to analysis if unpreserved	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	14 days from collection to analysis	Cool to <6 °C

Note:
s.u. = standard units

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method, rinse, and trip blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks and trip blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The RPDs between the LCS and LCSD results must be within the laboratory-established acceptance limits.

The LCS/LCSD analysis exhibited recoveries and RPDs within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water.

Results for duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
B-1-2.0-2.5-20240220 / B-DUP-20240220	Carbon tetrachloride	13.5	54.2 J	NC
	Chloroform	3.61 U	20.7 J	NC

Note:
AC = acceptable
NC = not compliant

The compounds Carbon tetrachloride and Chloroform associated with sample locations B-1-2.0-2.5-20240220 and B-DUP-20240220 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. System Performance and Overall Assessment

The laboratory noted that sample location B-DUP-20240220 had a foamy matrix that resulted in elevated reporting limits.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

Data Validation Checklist for VOCs

VOCs: SW-846 8260B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:
%R = percent recovery
RPD = relative percent difference

VALIDATION PERFORMED BY: Joseph C. Houser

SIGNATURE: 

DATE: March 24, 2024

PEER REVIEW: Andrew Korycinski

DATE: March 27, 2024

Chain of Custody and Corrected Sample Analysis Data Sheets

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.9		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.01	18.1	1	03/04/2024 23:09	WG2239349
Carbon tetrachloride	13.5	J	1.30	7.23	1	03/04/2024 23:09	WG2239349
Chloroform	U	UJ	1.49	3.61	1	03/04/2024 23:09	WG2239349
Methylene Chloride	U		9.60	36.1	1	03/04/2024 23:09	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/04/2024 23:09*	WG2239349
(S) 4-Bromofluorobenzene	*97.2*			*67.0-138*		*03/04/2024 23:09*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.7*			*70.0-130*		*03/04/2024 23:09*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.8		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		0.982	17.5	1	03/04/2024 23:27	WG2239349
Carbon tetrachloride	U		1.26	7.01	1	03/04/2024 23:27	WG2239349
Chloroform	U		1.44	3.51	1	03/04/2024 23:27	WG2239349
Methylene Chloride	U		9.31	35.1	1	03/04/2024 23:27	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/04/2024 23:27*	WG2239349
(S) 4-Bromofluorobenzene	*95.6*			*67.0-138*		*03/04/2024 23:27*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.6*			*70.0-130*		*03/04/2024 23:27*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.4		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		9.01	161	8	03/05/2024 02:18	WG2239349
Carbon tetrachloride	U		11.6	64.4	8	03/05/2024 02:18	WG2239349
Chloroform	U		13.3	32.2	8	03/05/2024 02:18	WG2239349
Methylene Chloride	U		85.4	322	8	03/05/2024 02:18	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 02:18*	WG2239349
(S) 4-Bromofluorobenzene	*96.3*			*67.0-138*		*03/05/2024 02:18*	WG2239349
(S) 1,2-Dichloroethane-d4	*96.1*			*70.0-130*		*03/05/2024 02:18*	WG2239349

Sample Narrative:

L1709164-03 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.7		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.07	19.1	1	03/04/2024 23:46	WG2239349
Carbon tetrachloride	U		1.37	7.65	1	03/04/2024 23:46	WG2239349
Chloroform	U		1.58	3.82	1	03/04/2024 23:46	WG2239349
Methylene Chloride	U		10.2	38.2	1	03/04/2024 23:46	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/04/2024 23:46*	WG2239349
(S) 4-Bromofluorobenzene	*95.6*			*67.0-138*		*03/04/2024 23:46*	WG2239349
(S) 1,2-Dichloroethane-d4	*92.4*			*70.0-130*		*03/04/2024 23:46*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	76.0		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.72	30.8	1.63	03/05/2024 00:05	WG2239349
Carbon tetrachloride	U		2.20	12.3	1.63	03/05/2024 00:05	WG2239349
Chloroform	U		2.54	6.16	1.63	03/05/2024 00:05	WG2239349
Methylene Chloride	U		16.3	61.6	1.63	03/05/2024 00:05	WG2239349
(S) Toluene-d8	*105*			*75.0-131*		*03/05/2024 00:05*	WG2239349
(S) 4-Bromofluorobenzene	*96.6*			*67.0-138*		*03/05/2024 00:05*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.5*			*70.0-130*		*03/05/2024 00:05*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.2		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	6.48	J	1.12	20.0	1.11	03/05/2024 00:24	WG2239349
Carbon tetrachloride	U		1.44	8.00	1.11	03/05/2024 00:24	WG2239349
Chloroform	U		1.64	4.01	1.11	03/05/2024 00:24	WG2239349
Methylene Chloride	U		10.6	40.1	1.11	03/05/2024 00:24	WG2239349
(S) Toluene-d8	*106*			*75.0-131*		*03/05/2024 00:24*	WG2239349
(S) 4-Bromofluorobenzene	*99.1*			*67.0-138*		*03/05/2024 00:24*	WG2239349
(S) 1,2-Dichloroethane-d4	*92.8*			*70.0-130*		*03/05/2024 00:24*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.8		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		0.958	17.1	1	03/05/2024 00:43	WG2239349
Carbon tetrachloride	U		1.23	6.84	1	03/05/2024 00:43	WG2239349
Chloroform	U		1.41	3.42	1	03/05/2024 00:43	WG2239349
Methylene Chloride	U		9.09	34.2	1	03/05/2024 00:43	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 00:43*	WG2239349
(S) 4-Bromofluorobenzene	*97.3*			*67.0-138*		*03/05/2024 00:43*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.3*			*70.0-130*		*03/05/2024 00:43*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.6		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.04	18.7	1	03/05/2024 01:02	WG2239349
Carbon tetrachloride	U		1.34	7.46	1	03/05/2024 01:02	WG2239349
Chloroform	U		1.54	3.73	1	03/05/2024 01:02	WG2239349
Methylene Chloride	U		9.91	37.3	1	03/05/2024 01:02	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 01:02*	WG2239349
(S) 4-Bromofluorobenzene	*96.9*			*67.0-138*		*03/05/2024 01:02*	WG2239349
(S) 1,2-Dichloroethane-d4	*94.1*			*70.0-130*		*03/05/2024 01:02*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	74.7		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		11.8	210	10	03/05/2024 02:37	WG2239349
Carbon tetrachloride	U		15.1	84.1	10	03/05/2024 02:37	WG2239349
Chloroform	U		17.3	42.0	10	03/05/2024 02:37	WG2239349
Methylene Chloride	U		112	420	10	03/05/2024 02:37	WG2239349
(S) Toluene-d8	*102*			*75.0-131*		*03/05/2024 02:37*	WG2239349
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*03/05/2024 02:37*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*		*03/05/2024 02:37*	WG2239349

Sample Narrative:

L1709164-09 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.8		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.06	18.9	1	03/05/2024 01:21	WG2239349
Carbon tetrachloride	U		1.36	7.57	1	03/05/2024 01:21	WG2239349
Chloroform	U		1.56	3.79	1	03/05/2024 01:21	WG2239349
Methylene Chloride	U		10.1	37.9	1	03/05/2024 01:21	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 01:21*	WG2239349
(S) 4-Bromofluorobenzene	*96.0*			*67.0-138*		*03/05/2024 01:21*	WG2239349
(S) 1,2-Dichloroethane-d4	*94.8*			*70.0-130*		*03/05/2024 01:21*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.6		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		10.9	195	10	03/05/2024 02:56	WG2239349
Carbon tetrachloride	U		14.0	77.9	10	03/05/2024 02:56	WG2239349
Chloroform	U		16.0	38.9	10	03/05/2024 02:56	WG2239349
Methylene Chloride	U		103	389	10	03/05/2024 02:56	WG2239349
(S) Toluene-d8	*105*			*75.0-131*		*03/05/2024 02:56*	WG2239349
(S) 4-Bromofluorobenzene	*97.0*			*67.0-138*		*03/05/2024 02:56*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.1*			*70.0-130*		*03/05/2024 02:56*	WG2239349

Sample Narrative:

L1709164-11 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.8		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		10.3	183	10.9	03/05/2024 03:15	WG2239349
Carbon tetrachloride	U		13.2	73.3	10.9	03/05/2024 03:15	WG2239349
Chloroform	U		15.1	36.7	10.9	03/05/2024 03:15	WG2239349
Methylene Chloride	U		97.4	367	10.9	03/05/2024 03:15	WG2239349
(S) Toluene-d8	*102*			*75.0-131*		*03/05/2024 03:15*	WG2239349
(S) 4-Bromofluorobenzene	*99.2*			*67.0-138*		*03/05/2024 03:15*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*		*03/05/2024 03:15*	WG2239349

Sample Narrative:

L1709164-12 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.1		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		10.1	181	10	03/05/2024 03:34	WG2239349
Carbon tetrachloride	54.2	J	13.0	72.5	10	03/05/2024 03:34	WG2239349
Chloroform	20.7	J	14.9	36.2	10	03/05/2024 03:34	WG2239349
Methylene Chloride	U		96.2	362	10	03/05/2024 03:34	WG2239349
(S) Toluene-d8	*102*			*75.0-131*		*03/05/2024 03:34*	WG2239349
(S) 4-Bromofluorobenzene	*95.9*			*67.0-138*		*03/05/2024 03:34*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*		*03/05/2024 03:34*	WG2239349

Sample Narrative:

L1709164-13 WG2239349: Elevated RL due to foamy matrix.

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 22:12	WG2237224
Chloroform	U		0.111	5.00	1	02/29/2024 22:12	WG2237224
Methylene Chloride	U		0.430	5.00	1	02/29/2024 22:12	WG2237224
(S) Toluene-d8	*95.8*			*80.0-120*		*02/29/2024 22:12*	WG2237224
(S) 4-Bromofluorobenzene	*96.4*			*77.0-126*		*02/29/2024 22:12*	WG2237224
(S) 1,2-Dichloroethane-d4	*121*			*70.0-130*		*02/29/2024 22:12*	WG2237224

Company Name/Address:
UPRR - Arcadis
8808 E Wellesley Ave
Spokane, WA 99212

Soil

Billing Information:
UPRR Project Manager
4315 E Sprague Ave
Spokane Valley, WA 99212

Pres Chk

Report to: **Josh Lee**

Email To: Joshua.Lee@arcadis.com;janette.wilson@arcadi

Project Description: **UPRR - Rockford, WA**

City/State Collected: Rockford WA

Please Circle: (PT) MT CT ET

Phone: **406-239-7810**

Client Project # 30210357

Lab Project # **UPRRARCA-ROCKFORD**

Collected by (print): Garrett W. Ison

Site/Facility ID #

P.O. #

Collected by (signature): Garrett B. Wilson

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Std.

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 2ozClr-NoPres	SV8081 4ozClr-NoPres	SV8151 4ozClr-NoPres	V8260 40mlAmb/MeOH10ml/Syr	Remarks	Sample # (lab only)
B-1-20-25-20240220	G	SS	20-25	2/20/24	0840	3				X		-01
B-1-18.5-19.0-20240220	G	SS	18.5-19.0	2/20/24	1025	3				X		-02
B-2-1.5-2.0-20240220	G	SS	1.5-2.0	2/20/24	1149	3				X		-03
B-2-14.5-15.0-20240220	G	SS	14.5-15.0	2/20/24	1410	3				X		-04
B-2-18.5-19.0-20240220	G	SS	18.5-19.0	2/20/24	1415	3				X		-05
B-3-3.5-4.0-20240220	G	SS	3.5-4.0	2/20/24	1500	3				X		-06
B-3-16.5-17.0-20240220	G	SS	16.5-17.0	2/20/24	1630	3				X		-07
B-3-18.0-18.5-20240220	G	SS	18.0-18.5	2/20/24	1645	3				X		-08
B-4-1.0-1.5-20240221	G	SS	1.0-1.5	2/21/24	0930	3				X		-09
B-4-8.0-8.5-20240221	G	SS	8.0-8.5	2/21/24	1030	3				X	MS/MSD	-10

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 1709164
C204

Acctnum: **UPRRARCA**
Template: **T246108**
Prelogin: **P1052528**
PM: 829 - Brittnie L Boyd
PB: bl 2/10/24

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: WR# 017187
Hold additional sample volume for potential analysis

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 7155 0315 5070

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No, HCL / MeoH, TBR	
Garrett B. Wilson	2/21/24	1200			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 11.9°C Bottles Received: 1.1 TO=61 41	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2/24/24 Time: 0900	Hold: / Condition: NCF / OK
			Alexa Mitchell		

Company Name/Address:	Billing Information:	Pres Chk
UPRR - Arcadis 8808 E Wellesley Ave Spokane, WA 99212 Soil	UPRR Project Manager 4315 E Sprague Ave Spokane Valley, WA 99212	

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

Report to: Josh Lee	Email To: Joshua.Lee@arcadis.com;janette.wilson@arcadi
Project Description: UPRR - Rockford, WA	City/State Collected: Rockford, WA — Please Circle: (PT) MT CT ET
Phone: 406-239-7810	Client Project # 30210357 — Lab Project # UPRRARCA-ROCKFORD
Collected by (print): Garrett Wilson	Site/Facility ID # — P.O. #
Collected by (signature): [signature]	Rush? (Lab MUST Be Notified): ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day — Quote #
Immediately Packed on Ice N ___ Y X	Date Results Needed: Std.

SDG # 1709164

Table #

Acctnum: UPRRARCA
Template: T246108
Prelogin: P1052528
PM: 829 - Brittnie L Boyd
PB: CD 2/10/24
Shipped Via: FedEX Ground

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 2ozClr-NoPres	SV8081 4ozClr-NoPres	SV8151 4ozClr-NoPres	V8260 40mlAmb/MeOH10ml/Syr	Remarks	Sample # (lab only)
B-5-1.0-1.5-20240221	G	SS	1.0-1.5	2/21/2024	1130	3				X		-11
B-5-3.0-3.5-20240221	G	SS	3.0-3.5	2/21/2024	1300	3				X		-12
B-DUP-20240220	G	SS	2.0-2.5	2/20/2024	0800	3				X		-13
		SS										
		SS										
		SS										
		SS										
		SS										
		SS										
		SS										

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ______

Remarks: WR# 017187
Hold additional sample volume for potential analysis

pH ______ Temp ______
Flow ______ Other ______

Samples returned via: ___ UPS ✓ FedEx ___ Courier ______

Tracking # 7155 0315 5070

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
[signature]	2/23/24	1200			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: T1 4°C 1.1+0=1.1 — Bottles Received: 41	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) allxa mitchell	Date: 2/24/24 — Time: 0900	Hold: — Condition: NCF / (OK)

ANALYTICAL REPORT

March 14, 2024

Revised Report

UPRR - Arcadis

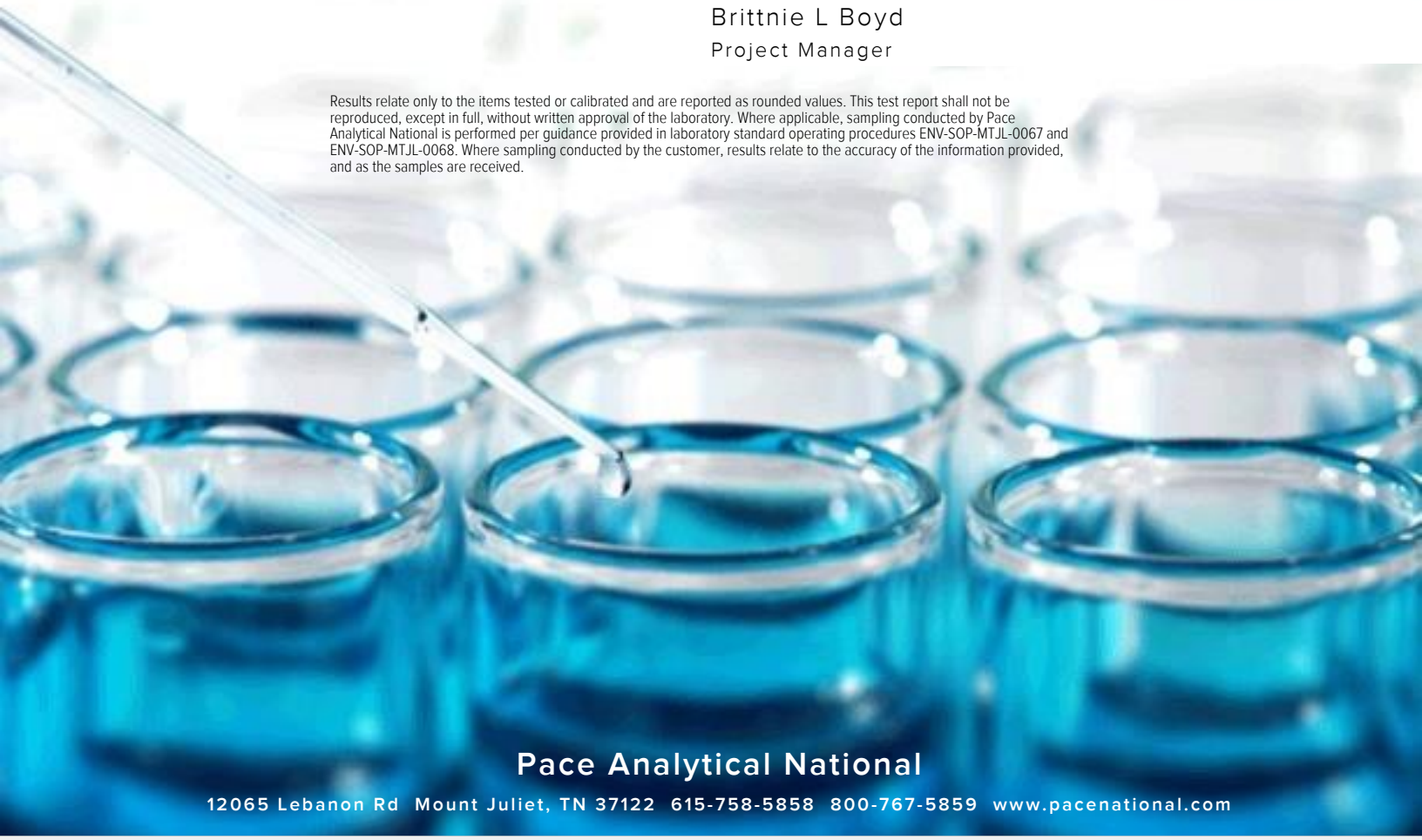
Sample Delivery Group:	L1708993
Samples Received:	02/24/2024
Project Number:	
Description:	UPRR - Rockford, WA

Report To:

Josh Lee
8808 E Wellesley Ave
Spokane, WA 99212

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

TW-DUP-1-20240221 L1708993-01 GW

Collected by	Collected date/time	Received date/time
	02/21/24 12:00	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2236962	1	02/29/24 20:20	02/29/24 20:20	GLN	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG2232068	1	02/25/24 09:10	02/28/24 03:34	LTB	Mt. Juliet, TN
Pesticides (GC) by Method 8081	WG2233888	1	02/26/24 05:36	02/28/24 01:25	NWH	Mt. Juliet, TN

TW-B-1-14-20240221 L1708993-02 GW

Collected by	Collected date/time	Received date/time
	02/21/24 00:00	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2236962	1	02/29/24 20:41	02/29/24 20:41	GLN	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG2232068	1	02/25/24 09:10	02/28/24 03:44	LTB	Mt. Juliet, TN
Pesticides (GC) by Method 8081	WG2233888	1	02/26/24 05:36	02/28/24 01:35	NWH	Mt. Juliet, TN

TW-B-2-14-20240222 L1708993-03 GW

Collected by	Collected date/time	Received date/time
	02/22/24 11:25	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2236962	1	02/29/24 21:02	02/29/24 21:02	GLN	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG2233607	1	02/26/24 15:17	02/28/24 07:48	LTB	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG2233607	1	02/26/24 15:17	02/28/24 19:35	MEW	Mt. Juliet, TN
Pesticides (GC) by Method 8081	WG2233888	1	02/26/24 05:36	02/28/24 01:45	NWH	Mt. Juliet, TN

TW-B-3-14-20240222 L1708993-04 GW

Collected by	Collected date/time	Received date/time
	02/22/24 09:35	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2236962	1	02/29/24 21:23	02/29/24 21:23	GLN	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG2233607	1	02/26/24 15:17	02/28/24 07:58	LTB	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151	WG2233607	1	02/26/24 15:17	02/28/24 19:45	MEW	Mt. Juliet, TN
Pesticides (GC) by Method 8081	WG2233913	1	02/27/24 08:01	02/28/24 00:10	MEW	Mt. Juliet, TN

TW-B-4-8-202402222 L1708993-05 GW

Collected by	Collected date/time	Received date/time
	02/22/24 13:55	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2236962	1	02/29/24 21:44	02/29/24 21:44	GLN	Mt. Juliet, TN

TW-B-5-4.4-20240222 L1708993-06 GW

Collected by	Collected date/time	Received date/time
	02/22/24 12:50	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2236962	1	02/29/24 22:05	02/29/24 22:05	GLN	Mt. Juliet, TN

TW-EB-1-20240222 L1708993-07 GW

Collected by	Collected date/time	Received date/time
	02/22/24 15:48	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2245978	1	03/13/24 21:41	03/13/24 21:41	ACG	Mt. Juliet, TN

TRIPLANK L1708993-08 GW

Collected by	Collected date/time	Received date/time
	02/22/24 00:00	02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2236962	1	02/29/24 16:08	02/29/24 16:08	GLN	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brittnie L Boyd
Project Manager

Report Revision History

Level II Report - Version 1: 03/12/24 12:55

Project Narrative

Reprint for EB and reduced compound list

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 20:20	WG2236962
Carbon tetrachloride	0.278	J	0.128	1.00	1	02/29/2024 20:20	WG2236962
Chloroform	0.527	J	0.111	5.00	1	02/29/2024 20:20	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 20:20	WG2236962
(S) Toluene-d8	*115*			*80.0-120*		*02/29/2024 20:20*	WG2236962
(S) 4-Bromofluorobenzene	*105*			*77.0-126*		*02/29/2024 20:20*	WG2236962
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*		*02/29/2024 20:20*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
2,4-D	U		0.547	2.00	1	02/28/2024 03:34	WG2232068
Dalapon	U		0.344	2.00	1	02/28/2024 03:34	WG2232068
2,4-DB	U		0.302	2.00	1	02/28/2024 03:34	WG2232068
Dicamba	0.397	J	0.245	2.00	1	02/28/2024 03:34	WG2232068
Dichloroprop	U		1.04	2.00	1	02/28/2024 03:34	WG2232068
Dinoseb	U		0.250	2.00	1	02/28/2024 03:34	WG2232068
MCPA	U		13.1	100	1	02/28/2024 03:34	WG2232068
MCPP	U		66.0	100	1	02/28/2024 03:34	WG2232068
2,4,5-T	U		0.258	2.00	1	02/28/2024 03:34	WG2232068
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 03:34	WG2232068
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 03:34	WG2232068
(S) 2,4-Dichlorophenyl Acetic Acid	*66.2*			*14.0-158*		*02/28/2024 03:34*	WG2232068

Pesticides (GC) by Method 8081

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aldrin	U		0.0198	0.0500	1	02/28/2024 01:25	WG2233888
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 01:25	WG2233888
Beta BHC	U		0.0208	0.0500	1	02/28/2024 01:25	WG2233888
Delta BHC	U		0.0150	0.0500	1	02/28/2024 01:25	WG2233888
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 01:25	WG2233888
Chlordane	U		0.0198	5.00	1	02/28/2024 01:25	WG2233888
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 01:25	WG2233888
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 01:25	WG2233888
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 01:25	WG2233888
Dieldrin	U		0.0162	0.0500	1	02/28/2024 01:25	WG2233888
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 01:25	WG2233888
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 01:25	WG2233888
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 01:25	WG2233888
Endrin	U		0.0161	0.0500	1	02/28/2024 01:25	WG2233888
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 01:25	WG2233888
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 01:25	WG2233888
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 01:25	WG2233888
Heptachlor	U		0.0148	0.0500	1	02/28/2024 01:25	WG2233888
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 01:25	WG2233888
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 01:25	WG2233888
Toxaphene	U		0.168	0.500	1	02/28/2024 01:25	WG2233888
(S) Decachlorobiphenyl	*28.7*			*10.0-128*		*02/28/2024 01:25*	WG2233888
(S) Tetrachloro-m-xylene	*56.0*			*10.0-127*		*02/28/2024 01:25*	WG2233888

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 20:41	WG2236962
Carbon tetrachloride	0.265	J	0.128	1.00	1	02/29/2024 20:41	WG2236962
Chloroform	0.514	J	0.111	5.00	1	02/29/2024 20:41	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 20:41	WG2236962
(S) Toluene-d8	*115*			*80.0-120*		*02/29/2024 20:41*	WG2236962
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*02/29/2024 20:41*	WG2236962
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*02/29/2024 20:41*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
2,4-D	U		0.547	2.00	1	02/28/2024 03:44	WG2232068
Dalapon	U		0.344	2.00	1	02/28/2024 03:44	WG2232068
2,4-DB	U		0.302	2.00	1	02/28/2024 03:44	WG2232068
Dicamba	0.373	J	0.245	2.00	1	02/28/2024 03:44	WG2232068
Dichloroprop	U		1.04	2.00	1	02/28/2024 03:44	WG2232068
Dinoseb	U		0.250	2.00	1	02/28/2024 03:44	WG2232068
MCPA	U		13.1	100	1	02/28/2024 03:44	WG2232068
MCPP	U		66.0	100	1	02/28/2024 03:44	WG2232068
2,4,5-T	U		0.258	2.00	1	02/28/2024 03:44	WG2232068
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 03:44	WG2232068
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 03:44	WG2232068
(S) 2,4-Dichlorophenyl Acetic Acid	*48.5*			*14.0-158*		*02/28/2024 03:44*	WG2232068

Pesticides (GC) by Method 8081

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aldrin	U		0.0198	0.0500	1	02/28/2024 01:35	WG2233888
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 01:35	WG2233888
Beta BHC	U		0.0208	0.0500	1	02/28/2024 01:35	WG2233888
Delta BHC	U		0.0150	0.0500	1	02/28/2024 01:35	WG2233888
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 01:35	WG2233888
Chlordane	U		0.0198	5.00	1	02/28/2024 01:35	WG2233888
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 01:35	WG2233888
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 01:35	WG2233888
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 01:35	WG2233888
Dieldrin	U		0.0162	0.0500	1	02/28/2024 01:35	WG2233888
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 01:35	WG2233888
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 01:35	WG2233888
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 01:35	WG2233888
Endrin	U		0.0161	0.0500	1	02/28/2024 01:35	WG2233888
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 01:35	WG2233888
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 01:35	WG2233888
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 01:35	WG2233888
Heptachlor	U		0.0148	0.0500	1	02/28/2024 01:35	WG2233888
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 01:35	WG2233888
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 01:35	WG2233888
Toxaphene	U		0.168	0.500	1	02/28/2024 01:35	WG2233888
(S) Decachlorobiphenyl	*13.9*			*10.0-128*		*02/28/2024 01:35*	WG2233888
(S) Tetrachloro-m-xylene	*41.9*			*10.0-127*		*02/28/2024 01:35*	WG2233888

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 21:02	WG2236962
Carbon tetrachloride	1.41		0.128	1.00	1	02/29/2024 21:02	WG2236962
Chloroform	1.23	J	0.111	5.00	1	02/29/2024 21:02	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 21:02	WG2236962
(S) Toluene-d8	*116*			*80.0-120*		*02/29/2024 21:02*	WG2236962
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*02/29/2024 21:02*	WG2236962
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*		*02/29/2024 21:02*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
2,4-D	U		0.547	2.00	1	02/28/2024 07:48	WG2233607
Dalapon	U		0.344	2.00	1	02/28/2024 07:48	WG2233607
2,4-DB	U		0.302	2.00	1	02/28/2024 07:48	WG2233607
Dicamba	U		0.245	2.00	1	02/28/2024 07:48	WG2233607
Dichloroprop	U		1.04	2.00	1	02/28/2024 07:48	WG2233607
Dinoseb	U		0.250	2.00	1	02/28/2024 07:48	WG2233607
MCPA	U		13.1	100	1	02/28/2024 19:35	WG2233607
MCPP	U		66.0	100	1	02/28/2024 19:35	WG2233607
2,4,5-T	U		0.258	2.00	1	02/28/2024 07:48	WG2233607
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 07:48	WG2233607
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 07:48	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*95.0*			*14.0-158*		*02/28/2024 19:35*	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*97.6*			*14.0-158*		*02/28/2024 07:48*	WG2233607

Pesticides (GC) by Method 8081

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aldrin	U		0.0198	0.0500	1	02/28/2024 01:45	WG2233888
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 01:45	WG2233888
Beta BHC	U		0.0208	0.0500	1	02/28/2024 01:45	WG2233888
Delta BHC	U		0.0150	0.0500	1	02/28/2024 01:45	WG2233888
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 01:45	WG2233888
Chlordane	U		0.0198	5.00	1	02/28/2024 01:45	WG2233888
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 01:45	WG2233888
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 01:45	WG2233888
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 01:45	WG2233888
Dieldrin	U		0.0162	0.0500	1	02/28/2024 01:45	WG2233888
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 01:45	WG2233888
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 01:45	WG2233888
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 01:45	WG2233888
Endrin	U		0.0161	0.0500	1	02/28/2024 01:45	WG2233888
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 01:45	WG2233888
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 01:45	WG2233888
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 01:45	WG2233888
Heptachlor	U		0.0148	0.0500	1	02/28/2024 01:45	WG2233888
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 01:45	WG2233888
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 01:45	WG2233888
Toxaphene	U		0.168	0.500	1	02/28/2024 01:45	WG2233888
(S) Decachlorobiphenyl	*36.2*			*10.0-128*		*02/28/2024 01:45*	WG2233888
(S) Tetrachloro-m-xylene	*64.6*			*10.0-127*		*02/28/2024 01:45*	WG2233888

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 21:23	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 21:23	WG2236962
Chloroform	0.427	J	0.111	5.00	1	02/29/2024 21:23	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 21:23	WG2236962
(S) Toluene-d8	*119*			*80.0-120*		*02/29/2024 21:23*	WG2236962
(S) 4-Bromofluorobenzene	*107*			*77.0-126*		*02/29/2024 21:23*	WG2236962
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*		*02/29/2024 21:23*	WG2236962

Chlorinated Acid Herbicides (GC) by Method 8151

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
2,4-D	U		0.547	2.00	1	02/28/2024 07:58	WG2233607
Dalapon	U		0.344	2.00	1	02/28/2024 07:58	WG2233607
2,4-DB	U		0.302	2.00	1	02/28/2024 07:58	WG2233607
Dicamba	U		0.245	2.00	1	02/28/2024 07:58	WG2233607
Dichloroprop	U		1.04	2.00	1	02/28/2024 07:58	WG2233607
Dinoseb	U		0.250	2.00	1	02/28/2024 07:58	WG2233607
MCPA	U		13.1	100	1	02/28/2024 19:45	WG2233607
MCPP	U		66.0	100	1	02/28/2024 19:45	WG2233607
2,4,5-T	U		0.258	2.00	1	02/28/2024 07:58	WG2233607
2,4,5-TP (Silvex)	U		0.335	2.00	1	02/28/2024 07:58	WG2233607
Pentachlorophenol	U		0.111	1.00	1	02/28/2024 07:58	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*68.0*			*14.0-158*		*02/28/2024 19:45*	WG2233607
(S) 2,4-Dichlorophenyl Acetic Acid	*65.8*			*14.0-158*		*02/28/2024 07:58*	WG2233607

Pesticides (GC) by Method 8081

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Aldrin	U		0.0198	0.0500	1	02/28/2024 00:10	WG2233913
Alpha BHC	U		0.0172	0.0500	1	02/28/2024 00:10	WG2233913
Beta BHC	U		0.0208	0.0500	1	02/28/2024 00:10	WG2233913
Delta BHC	U		0.0150	0.0500	1	02/28/2024 00:10	WG2233913
Gamma BHC	U		0.0209	0.0500	1	02/28/2024 00:10	WG2233913
Chlordane	U		0.0198	5.00	1	02/28/2024 00:10	WG2233913
4,4-DDD	U		0.0177	0.0500	1	02/28/2024 00:10	WG2233913
4,4-DDE	U		0.0154	0.0500	1	02/28/2024 00:10	WG2233913
4,4-DDT	U		0.0198	0.0500	1	02/28/2024 00:10	WG2233913
Dieldrin	U		0.0162	0.0500	1	02/28/2024 00:10	WG2233913
Endosulfan I	U		0.0160	0.0500	1	02/28/2024 00:10	WG2233913
Endosulfan II	U		0.0164	0.0500	1	02/28/2024 00:10	WG2233913
Endosulfan sulfate	U		0.0217	0.0500	1	02/28/2024 00:10	WG2233913
Endrin	U		0.0161	0.0500	1	02/28/2024 00:10	WG2233913
Endrin aldehyde	U		0.0237	0.0500	1	02/28/2024 00:10	WG2233913
Endrin ketone	U		0.0219	0.0500	1	02/28/2024 00:10	WG2233913
Hexachlorobenzene	U		0.0176	0.0500	1	02/28/2024 00:10	WG2233913
Heptachlor	U		0.0148	0.0500	1	02/28/2024 00:10	WG2233913
Heptachlor epoxide	U		0.0183	0.0500	1	02/28/2024 00:10	WG2233913
Methoxychlor	U		0.0193	0.0500	1	02/28/2024 00:10	WG2233913
Toxaphene	U		0.168	0.500	1	02/28/2024 00:10	WG2233913
(S) Decachlorobiphenyl	*54.2*			*10.0-128*		*02/28/2024 00:10*	WG2233913
(S) Tetrachloro-m-xylene	*79.7*			*10.0-127*		*02/28/2024 00:10*	WG2233913

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 21:44	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 21:44	WG2236962
Chloroform	U		0.111	5.00	1	02/29/2024 21:44	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 21:44	WG2236962
(S) Toluene-d8	*115*			*80.0-120*		*02/29/2024 21:44*	WG2236962
(S) 4-Bromofluorobenzene	*108*			*77.0-126*		*02/29/2024 21:44*	WG2236962
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*		*02/29/2024 21:44*	WG2236962

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 22:05	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 22:05	WG2236962
Chloroform	U		0.111	5.00	1	02/29/2024 22:05	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 22:05	WG2236962
(S) Toluene-d8	*117*			*80.0-120*		*02/29/2024 22:05*	WG2236962
(S) 4-Bromofluorobenzene	*106*			*77.0-126*		*02/29/2024 22:05*	WG2236962
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*02/29/2024 22:05*	WG2236962

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U	T8	0.0962	1.00	1	03/13/2024 21:41	WG2245978
Carbon tetrachloride	U	T8	0.128	1.00	1	03/13/2024 21:41	WG2245978
Chloroform	0.113	J T8	0.111	5.00	1	03/13/2024 21:41	WG2245978
Methylene Chloride	U	T8	0.430	5.00	1	03/13/2024 21:41	WG2245978
(S) Toluene-d8	*107*			*80.0-120*		*03/13/2024 21:41*	WG2245978
(S) 4-Bromofluorobenzene	*88.8*			*77.0-126*		*03/13/2024 21:41*	WG2245978
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*03/13/2024 21:41*	WG2245978

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 16:08	WG2236962
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 16:08	WG2236962
Chloroform	U		0.111	5.00	1	02/29/2024 16:08	WG2236962
Methylene Chloride	U		0.430	5.00	1	02/29/2024 16:08	WG2236962
(S) Toluene-d8	*116*			*80.0-120*		*02/29/2024 16:08*	WG2236962
(S) 4-Bromofluorobenzene	*107*			*77.0-126*		*02/29/2024 16:08*	WG2236962
(S) 1,2-Dichloroethane-d4	*108*			*70.0-130*		*02/29/2024 16:08*	WG2236962

Method Blank (MB)

(MB) R4039976-2 02/29/24 12:50

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chloroform	U		0.111	5.00
Methylene Chloride	U		0.430	5.00
(S) Toluene-d8	*117*			*80.0-120*
(S) 4-Bromofluorobenzene	*106*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R4039976-1 02/29/24 12:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Carbon disulfide	5.00	3.74	74.8	61.0-128	
Carbon tetrachloride	5.00	4.76	95.2	68.0-126	
Chloroform	5.00	4.39	87.8	73.0-120	
Methylene Chloride	5.00	4.26	85.2	67.0-120	
(S) Toluene-d8			*118*	*80.0-120*	
(S) 4-Bromofluorobenzene			*106*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*112*	*70.0-130*	

L1708993-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708993-05 02/29/24 21:44 • (MS) R4039976-3 02/29/24 23:28 • (MSD) R4039976-4 02/29/24 23:49

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	5.00	U	4.03	4.59	80.6	91.8	1	10.0-156			13.0	28
Carbon tetrachloride	5.00	U	5.34	5.97	107	119	1	23.0-159			11.1	28
Chloroform	5.00	U	4.58	5.35	91.6	107	1	29.0-154			15.5	28
Methylene Chloride	5.00	U	4.29	4.99	85.8	99.8	1	23.0-144			15.1	28
(S) Toluene-d8					*115*	*115*		*80.0-120*				
(S) 4-Bromofluorobenzene					*105*	*109*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*110*	*111*		*70.0-130*				

Method Blank (MB)

(MB) R4045389-3 03/13/24 17:34

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chloroform	U		0.111	5.00
Methylene Chloride	U		0.430	5.00
(S) Toluene-d8	*106*			*80.0-120*
(S) 4-Bromofluorobenzene	*84.7*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*113*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4045389-1 03/13/24 16:37 • (LCSD) R4045389-2 03/13/24 16:56

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	5.00	4.90	5.34	98.0	107	61.0-128			8.59	20
Carbon tetrachloride	5.00	5.33	5.65	107	113	68.0-126			5.83	20
Chloroform	5.00	4.53	4.63	90.6	92.6	73.0-120			2.18	20
Methylene Chloride	5.00	4.66	4.93	93.2	98.6	67.0-120			5.63	20
(S) Toluene-d8				*103*	*104*	*80.0-120*				
(S) 4-Bromofluorobenzene				*86.7*	*87.0*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*113*	*111*	*70.0-130*				

Method Blank (MB)

(MB) R4039384-1 02/27/24 22:30

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
2,4-D	U		0.547	2.00
Dalapon	U		0.344	2.00
2,4-DB	U		0.302	2.00
Dicamba	U		0.245	2.00
Dichloroprop	U		1.04	2.00
Dinoseb	U		0.250	2.00
MCPA	U		13.1	100
MCPP	U		66.0	100
2,4,5-T	U		0.258	2.00
2,4,5-TP (Silvex)	U		0.335	2.00
Pentachlorophenol	U		0.111	1.00
(S) 2,4-Dichlorophenyl Acetic Acid	*89.0*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R4039384-2 02/27/24 22:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4-D	5.00	5.33	107	50.0-120	E
Dalapon	5.00	4.68	93.6	32.0-120	
2,4-DB	5.00	5.15	103	53.0-140	E
Dicamba	5.00	4.98	99.6	51.0-120	
Dichloroprop	5.00	5.28	106	55.0-127	E
Dinoseb	5.00	5.70	114	36.0-134	E
MCPA	500	504	101	10.0-160	E
MCPP	500	445	89.0	10.0-160	
2,4,5-T	5.00	5.06	101	54.0-120	E
2,4,5-TP (Silvex)	5.00	5.51	110	50.0-125	E
Pentachlorophenol	1.00	0.888	88.8	41.0-120	
(S) 2,4-Dichlorophenyl Acetic Acid			*84.4*	*14.0-158*	

L1708692-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708692-02 02/28/24 00:32 • (MS) R4039384-3 02/28/24 00:42 • (MSD) R4039384-4 02/28/24 00:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4-D	5.00	U	9.73	13.3	195	279	1	50.0-120	E J5 P	E J3 J5 P	31.0	20
Dalapon	5.00	U	4.19	4.04	83.8	84.9	1	32.0-120			3.65	20

L1708692-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708692-02 02/28/24 00:32 • (MS) R4039384-3 02/28/24 00:42 • (MSD) R4039384-4 02/28/24 00:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4-DB	5.00	U	11.3	22.0	226	462	1	53.0-140	E J5	E J3 J5 P	64.3	20
Dicamba	5.00	U	5.10	4.66	102	97.9	1	51.0-120	E		9.02	20
Dichloroprop	5.00	U	5.36	5.22	107	110	1	55.0-127	E	E	2.65	20
Dinoseb	5.00	U	8.60	17.4	172	366	1	36.0-134	E J5	E J3 J5 P	67.7	20
MCPA	500	U	564	593	113	125	1	10.0-160	E	E	5.01	40
MCPP	500	U	550	535	110	112	1	10.0-160	E	E	2.76	23
2,4,5-T	5.00	U	5.12	4.66	102	97.9	1	54.0-120	E		9.41	20
2,4,5-TP (Silvex)	5.00	U	6.09	6.41	122	135	1	50.0-125	E	E J5	5.12	20
Pentachlorophenol	1.00	U	0.989	1.05	98.9	110	1	41.0-120			5.98	20
(S) 2,4-Dichlorophenyl Acetic Acid					*92.6*	*86.1*		*14.0-158*				

Method Blank (MB)

(MB) R4039385-1 02/27/24 22:40

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
2,4-D	U		0.547	2.00
Dalapon	U		0.344	2.00
2,4-DB	U		0.302	2.00
Dicamba	U		0.245	2.00
Dichloroprop	U		1.04	2.00
Dinoseb	U		0.250	2.00
MCPA	U		13.1	100
MCPP	U		66.0	100
2,4,5-T	U		0.258	2.00
2,4,5-TP (Silvex)	U		0.335	2.00
Pentachlorophenol	U		0.111	1.00
(S) 2,4-Dichlorophenyl Acetic Acid	*94.8*			*14.0-158*

Laboratory Control Sample (LCS)

(LCS) R4039385-2 02/27/24 23:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4-D	5.00	5.69	114	50.0-120	E
Dalapon	5.00	5.11	102	32.0-120	E
2,4-DB	5.00	5.61	112	53.0-140	E
Dicamba	5.00	5.44	109	51.0-120	E
Dichloroprop	5.00	5.44	109	55.0-127	E
Dinoseb	5.00	6.16	123	36.0-134	E
MCPA	500	534	107	10.0-160	E
MCPP	500	487	97.4	10.0-160	
2,4,5-T	5.00	5.53	111	54.0-120	E
2,4,5-TP (Silvex)	5.00	6.00	120	50.0-125	E
Pentachlorophenol	1.00	0.977	97.7	41.0-120	
(S) 2,4-Dichlorophenyl Acetic Acid			*98.8*	*14.0-158*	

L1709016-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709016-04 02/28/24 05:05 • (MS) R4039385-3 02/28/24 05:16 • (MSD) R4039385-4 02/28/24 05:26

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4-D	4.76	U	5.38	5.79	113	122	1	50.0-120	E	E J5	7.34	20
Dalapon	4.76	U	4.14	4.63	87.0	97.3	1	32.0-120			11.2	20

L1709016-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709016-04 02/28/24 05:05 • (MS) R4039385-3 02/28/24 05:16 • (MSD) R4039385-4 02/28/24 05:26

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4-DB	4.76	U	5.43	5.76	114	121	1	53.0-140	E	E	5.90	20
Dicamba	4.76	U	5.05	5.43	106	114	1	51.0-120	E	E	7.25	20
Dichloroprop	4.76	U	5.40	5.82	113	122	1	55.0-127	E	E	7.49	20
Dinoseb	4.76	U	5.99	6.41	126	135	1	36.0-134	E	E J5	6.77	20
MCPA	476	U	503	543	106	114	1	10.0-160	E	E	7.65	40
MCPP	476	U	468	490	98.3	103	1	10.0-160		E	4.59	23
2,4,5-T	4.76	U	5.19	5.55	109	117	1	54.0-120	E	E	6.70	20
2,4,5-TP (Silvex)	4.76	U	5.64	6.00	118	126	1	50.0-125	E	E J5	6.19	20
Pentachlorophenol	0.952	U	0.904	0.973	95.0	102	1	41.0-120			7.35	20
(S) 2,4-Dichlorophenyl Acetic Acid					*89.7*	*97.5*		*14.0-158*				

QUALITY CONTROL SUMMARY

L1708993-01,02,03

Method Blank (MB)

(MB) R4039017-1 02/26/24 19:44

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Aldrin	U		0.0198	0.0500
Alpha BHC	U		0.0172	0.0500
Beta BHC	U		0.0208	0.0500
Delta BHC	U		0.0150	0.0500
Gamma BHC	U		0.0209	0.0500
Chlordane	U		0.0198	5.00
4,4-DDD	U		0.0177	0.0500
4,4-DDE	U		0.0154	0.0500
4,4-DDT	U		0.0198	0.0500
Dieldrin	U		0.0162	0.0500
Endosulfan I	U		0.0160	0.0500
Endosulfan II	U		0.0164	0.0500
Endosulfan sulfate	U		0.0217	0.0500
Endrin	U		0.0161	0.0500
Endrin aldehyde	U		0.0237	0.0500
Endrin ketone	U		0.0219	0.0500
Hexachlorobenzene	U		0.0176	0.0500
Heptachlor	U		0.0148	0.0500
Heptachlor epoxide	U		0.0183	0.0500
Methoxychlor	U		0.0193	0.0500
Toxaphene	U		0.168	0.500
(S) Decachlorobiphenyl	*68.8*			*10.0-128*
(S) Tetrachloro-m-xylene	*79.0*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4039017-2 02/26/24 19:54 • (LCSD) R4039017-3 02/26/24 20:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Aldrin	1.00	0.746	0.838	74.6	83.8	22.0-124			11.6	34
Alpha BHC	1.00	0.839	0.894	83.9	89.4	54.0-130			6.35	23
Beta BHC	1.00	0.838	0.883	83.8	88.3	53.0-136			5.23	20
Delta BHC	1.00	0.843	0.886	84.3	88.6	54.0-133			4.97	20
Gamma BHC	1.00	0.825	0.878	82.5	87.8	55.0-129			6.22	20
4,4-DDD	1.00	0.842	0.946	84.2	94.6	56.0-140			11.6	22
4,4-DDE	1.00	0.866	1.01	86.6	101	52.0-128			15.4	22
4,4-DDT	1.00	0.802	0.935	80.2	93.5	50.0-141			15.3	23
Dieldrin	1.00	0.800	0.873	80.0	87.3	59.0-133			8.73	20
Endosulfan I	1.00	0.797	0.867	79.7	86.7	57.0-131			8.41	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4039017-2 02/26/24 19:54 • (LCSD) R4039017-3 02/26/24 20:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Endosulfan II	1.00	0.843	0.918	84.3	91.8	58.0-133			8.52	20
Endosulfan sulfate	1.00	0.839	0.893	83.9	89.3	58.0-133			6.24	21
Endrin	1.00	0.833	0.912	83.3	91.2	57.0-134			9.05	21
Endrin aldehyde	1.00	0.863	0.922	86.3	92.2	53.0-129			6.61	20
Endrin ketone	1.00	0.854	0.908	85.4	90.8	60.0-145			6.13	20
Hexachlorobenzene	1.00	0.877	0.944	87.7	94.4	30.0-114			7.36	30
Heptachlor	1.00	0.802	0.890	80.2	89.0	27.0-132			10.4	31
Heptachlor epoxide	1.00	0.832	0.903	83.2	90.3	57.0-130			8.18	20
Methoxychlor	1.00	0.840	0.946	84.0	94.6	54.0-155			11.9	24
(S) Decachlorobiphenyl				*11.8*	*65.1*	*10.0-128*				
(S) Tetrachloro-m-xylene				*75.2*	*81.1*	*10.0-127*				

Method Blank (MB)

(MB) R4040783-1 02/27/24 21:37

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Aldrin	U		0.0198	0.0500
Alpha BHC	U		0.0172	0.0500
Beta BHC	U		0.0208	0.0500
Delta BHC	U		0.0150	0.0500
Gamma BHC	U		0.0209	0.0500
Chlordane	U		0.0198	5.00
4,4-DDD	U		0.0177	0.0500
4,4-DDE	U		0.0154	0.0500
4,4-DDT	U		0.0198	0.0500
Dieldrin	U		0.0162	0.0500
Endosulfan I	U		0.0160	0.0500
Endosulfan II	U		0.0164	0.0500
Endosulfan sulfate	U		0.0217	0.0500
Endrin	U		0.0161	0.0500
Endrin aldehyde	U		0.0237	0.0500
Endrin ketone	U		0.0219	0.0500
Hexachlorobenzene	U		0.0176	0.0500
Heptachlor	U		0.0148	0.0500
Heptachlor epoxide	U		0.0183	0.0500
Methoxychlor	U		0.0193	0.0500
Toxaphene	U		0.168	0.500
(S) Decachlorobiphenyl	*5.65*	J2		*10.0-128*
(S) Tetrachloro-m-xylene	*54.3*			*10.0-127*

Laboratory Control Sample (LCS)

(LCS) R4040783-5 02/27/24 21:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aldrin	1.00	0.757	75.7	22.0-124	
Alpha BHC	1.00	0.829	82.9	54.0-130	
Beta BHC	1.00	0.840	84.0	53.0-136	
Delta BHC	1.00	0.874	87.4	54.0-133	
Gamma BHC	1.00	0.837	83.7	55.0-129	
4,4-DDD	1.00	0.942	94.2	56.0-140	
4,4-DDE	1.00	0.873	87.3	52.0-128	
4,4-DDT	1.00	1.24	124	50.0-141	
Dieldrin	1.00	0.745	74.5	59.0-133	
Endosulfan I	1.00	0.776	77.6	57.0-131	

Laboratory Control Sample (LCS)

(LCS) R4040783-5 02/27/24 21:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Endosulfan II	1.00	0.821	82.1	58.0-133	
Endosulfan sulfate	1.00	0.803	80.3	58.0-133	
Endrin	1.00	0.829	82.9	57.0-134	
Endrin aldehyde	1.00	0.722	72.2	53.0-129	
Endrin ketone	1.00	0.849	84.9	60.0-145	
Hexachlorobenzene	1.00	0.980	98.0	30.0-114	
Heptachlor	1.00	1.12	112	27.0-132	
Heptachlor epoxide	1.00	0.811	81.1	57.0-130	
Methoxychlor	1.00	1.24	124	54.0-155	
(S) Decachlorobiphenyl			*47.4*	*10.0-128*	
(S) Tetrachloro-m-xylene			*60.7*	*10.0-127*	

L1708982-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1708982-07 02/27/24 22:08 • (MS) R4040783-6 02/27/24 22:18 • (MSD) R4040783-7 02/27/24 22:28

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aldrin	0.952	U	0.848	0.757	89.1	79.5	1	10.0-141			11.3	40
Alpha BHC	0.952	U	0.911	0.778	95.7	81.7	1	10.0-145			15.7	40
Beta BHC	0.952	U	0.984	0.893	103	93.8	1	14.0-146			9.70	35
Delta BHC	0.952	U	0.923	0.841	97.0	88.3	1	17.0-143			9.30	38
Gamma BHC	0.952	U	0.890	0.783	93.5	82.2	1	14.0-141			12.8	40
4,4-DDD	0.952	U	0.935	0.862	98.2	90.5	1	10.0-160			8.12	38
4,4-DDE	0.952	U	0.892	0.864	93.7	90.8	1	10.0-159			3.19	35
4,4-DDT	0.952	U	0.952	0.888	100	93.3	1	10.0-160			6.96	38
Dieldrin	0.952	U	0.964	0.899	101	94.4	1	10.0-158			6.98	38
Endosulfan I	0.952	U	0.919	0.843	96.5	88.6	1	10.0-153			8.63	36
Endosulfan II	0.952	U	0.953	0.860	100	90.3	1	10.0-159			10.3	39
Endosulfan sulfate	0.952	U	0.881	0.827	92.5	86.9	1	23.0-147			6.32	35
Endrin	0.952	U	0.936	0.855	98.3	89.8	1	10.0-160			9.05	39
Endrin aldehyde	0.952	U	0.871	0.798	91.5	83.8	1	10.0-148			8.75	38
Endrin ketone	0.952	U	0.977	0.881	103	92.5	1	10.0-160			10.3	40
Hexachlorobenzene	0.952	U	0.857	0.745	90.0	78.3	1	10.0-130			14.0	40
Heptachlor	0.952	U	0.937	0.831	98.4	87.3	1	16.0-136			12.0	40
Heptachlor epoxide	0.952	U	0.873	0.819	91.7	86.0	1	10.0-160			6.38	36
Methoxychlor	0.952	U	0.923	0.874	97.0	91.8	1	10.0-160			5.45	34
(S) Decachlorobiphenyl					*80.3*	*84.9*		*10.0-128*				
(S) Tetrachloro-m-xylene					*83.9*	*70.6*		*10.0-127*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
P	RPD between the primary and confirmatory analysis exceeded 40%.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Arcadis

8808 E Wellesley Ave
Spokane, WA 99212

Billing Information:
UPRR Project Manager
4315 E Sprague Ave
Spokane Valley, WA 99212

Pres Chk

Report to: **Josh Lee**

Email To: **Joshua.Lee@arcadis.com;janette.wilson@arcadi**

Project Description: **UPRR - Rockford, WA**

City/State Collected: Rockford, WA

Please Circle: PT MT CT ET

Phone: **406-239-7810**

Client Project # 30210357

Lab Project # **UPRRARCA-ROCKFORD**

Collected by (print): Garrett Wilson

Site/Facility ID #

P.O. #

Collected by (signature): Garrett B. Wilson

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Std.

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	8081 100ml Amb-NoPres	SV8151 1L-Amb-No Pres	V8260 40mlAmb-HCl								Remarks	Sample # (lab only)
TW-DUP-1-20240221	G	GW		2/21/2024	1200	7	X	X	X									-01
TW-B-1-14-20240221	G	GW	14	2/21/2024		7	X	X	X									-02
TW-B-2-14-20240222	G	GW	14	2/22/2024	1125	7	X	X	X									-03
TW-B-3-14-20240222	G	GW	14	2/22/2024	0435	7	X	X	X									-04
TW-B-4-8-20240222	G	GW	8	2/22/2024	1355	10			X								TW/MS/MSD Required Volume on IL	-05
TW-B-5-9.4-20240222	G	GW	9.4	2/22/2024	1250	7	H	H	X									-06
TW-EB-1-20240222	G	GW	- - -	2/22/2024	1548	7			X									-07
		GW																
		GW																
		GW																

Chain of Custody Page 1 of 1

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1705947

H133

Acctnum: **UPRRARCA**
Template: **T246113**
Prelogin: **P1052529**
PM: **829 - Brittnie L Boyd**
PB: CS 2/10/24

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: WR# 017187
TW-B-4-8-20240222 has MS/MSD

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS ✓ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Garrett B. Wilson	2/23/24			2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 52	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Alexa Mitchell	Date: 2/24/24 Time: 0900	Hold: Condition: NCF / OK

Tracking Numbers	Temperature
7155 0315 5081	2.3 TD=2.3
7155 0315 5107	1.8 TD=1.8
7155 0315 5092	4.4 TD=4.4

Alexa Mitchell
Name

2/24/24
Date

ANALYTICAL REPORT

March 28, 2024

Revised Report

UPRR - Arcadis

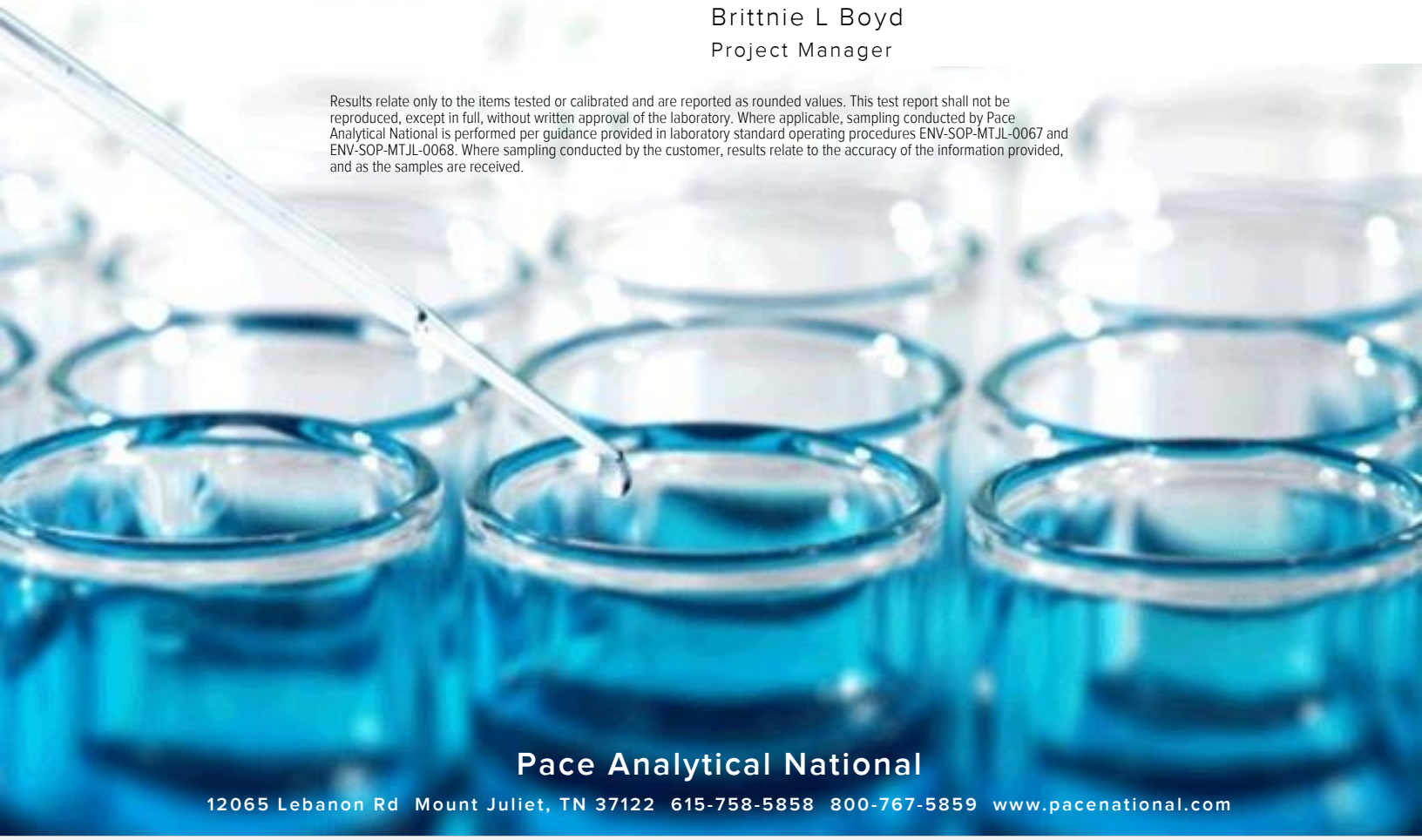
Sample Delivery Group:	L1709164
Samples Received:	02/24/2024
Project Number:	30210357
Description:	UPRR - Rockford, WA

Report To:

Josh Lee
8808 E Wellesley Ave
Spokane, WA 99212

Entire Report Reviewed By:

Brittnie L Boyd
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

B-1-2.0-2.5-20240220 L1709164-01 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 08:40 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	1	02/20/24 08:40	03/04/24 23:09	GLN	Mt. Juliet, TN

B-1-18.5-19.0-20240220 L1709164-02 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 10:25 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	1	02/20/24 10:25	03/04/24 23:27	GLN	Mt. Juliet, TN

B-2-1.5-2.0-20240220 L1709164-03 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 11:49 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	8	02/20/24 11:49	03/05/24 02:18	GLN	Mt. Juliet, TN

B-2-14.5-15.0-20240220 L1709164-04 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 14:10 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN

B-2-18.5-19.0-20240220 L1709164-05 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 14:15 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	1.63	02/20/24 14:15	03/05/24 00:05	GLN	Mt. Juliet, TN

B-3-3.5-4.0-20240220 L1709164-06 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 15:00 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	1.11	02/20/24 15:00	03/05/24 00:24	GLN	Mt. Juliet, TN

B-3-16.5-17.0-20240220 L1709164-07 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 16:30 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	1	02/20/24 16:30	03/05/24 00:43	GLN	Mt. Juliet, TN

B-3-18.0-18.5-20240220 L1709164-08 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 16:45 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	1	02/20/24 16:45	03/05/24 01:02	GLN	Mt. Juliet, TN

B-4-1.0-1.5-20240221 L1709164-09 Solid

Collected by: Garrett Wilson | Collected date/time: 02/21/24 09:30 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234574	1	02/27/24 09:50	02/27/24 10:08	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	10	02/21/24 09:30	03/05/24 02:37	GLN	Mt. Juliet, TN

B-4-8.0-8.5-20240221 L1709164-10 Solid

Collected by: Garrett Wilson | Collected date/time: 02/21/24 10:30 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234576	1	02/27/24 09:35	02/27/24 09:48	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	1	02/21/24 10:30	03/05/24 01:21	GLN	Mt. Juliet, TN

B-5-1.0-1.5-20240221 L1709164-11 Solid

Collected by: Garrett Wilson | Collected date/time: 02/21/24 11:30 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234576	1	02/27/24 09:35	02/27/24 09:48	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	10	02/21/24 11:30	03/05/24 02:56	GLN	Mt. Juliet, TN

B-5-8.0-8.5-20240221 L1709164-12 Solid

Collected by: Garrett Wilson | Collected date/time: 02/21/24 13:00 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234576	1	02/27/24 09:35	02/27/24 09:48	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	10.9	02/21/24 13:00	03/05/24 03:15	GLN	Mt. Juliet, TN

B-DUP-20240220 L1709164-13 Solid

Collected by: Garrett Wilson | Collected date/time: 02/20/24 08:00 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG2234576	1	02/27/24 09:35	02/27/24 09:48	CMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2239349	10	02/20/24 08:00	03/05/24 03:34	GLN	Mt. Juliet, TN

TRIPBLANK L1709164-14 GW

Collected by: Garrett Wilson | Collected date/time: 02/20/24 00:00 | Received date/time: 02/24/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG2237224	1	02/29/24 22:12	02/29/24 22:12	GLN	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brittnie L Boyd
Project Manager

Report Revision History

Level II Report - Version 1: 03/12/24 13:06
Level II Report - Version 2: 03/15/24 12:19

Project Narrative

Recaptured to specified compounds per client -SC

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.9		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.01	18.1	1	03/04/2024 23:09	WG2239349
Carbon tetrachloride	13.5		1.30	7.23	1	03/04/2024 23:09	WG2239349
Chloroform	U		1.49	3.61	1	03/04/2024 23:09	WG2239349
Methylene Chloride	U		9.60	36.1	1	03/04/2024 23:09	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/04/2024 23:09*	WG2239349
(S) 4-Bromofluorobenzene	*97.2*			*67.0-138*		*03/04/2024 23:09*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.7*			*70.0-130*		*03/04/2024 23:09*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.8		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		0.982	17.5	1	03/04/2024 23:27	WG2239349
Carbon tetrachloride	U		1.26	7.01	1	03/04/2024 23:27	WG2239349
Chloroform	U		1.44	3.51	1	03/04/2024 23:27	WG2239349
Methylene Chloride	U		9.31	35.1	1	03/04/2024 23:27	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/04/2024 23:27*	WG2239349
(S) 4-Bromofluorobenzene	*95.6*			*67.0-138*		*03/04/2024 23:27*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.6*			*70.0-130*		*03/04/2024 23:27*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.4		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		9.01	161	8	03/05/2024 02:18	WG2239349
Carbon tetrachloride	U		11.6	64.4	8	03/05/2024 02:18	WG2239349
Chloroform	U		13.3	32.2	8	03/05/2024 02:18	WG2239349
Methylene Chloride	U		85.4	322	8	03/05/2024 02:18	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 02:18*	WG2239349
(S) 4-Bromofluorobenzene	*96.3*			*67.0-138*		*03/05/2024 02:18*	WG2239349
(S) 1,2-Dichloroethane-d4	*96.1*			*70.0-130*		*03/05/2024 02:18*	WG2239349

Sample Narrative:

L1709164-03 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.7		1	02/27/2024 10:08	WG2234574

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	76.0		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.72	30.8	1.63	03/05/2024 00:05	WG2239349
Carbon tetrachloride	U		2.20	12.3	1.63	03/05/2024 00:05	WG2239349
Chloroform	U		2.54	6.16	1.63	03/05/2024 00:05	WG2239349
Methylene Chloride	U		16.3	61.6	1.63	03/05/2024 00:05	WG2239349
(S) Toluene-d8	*105*			*75.0-131*		*03/05/2024 00:05*	WG2239349
(S) 4-Bromofluorobenzene	*96.6*			*67.0-138*		*03/05/2024 00:05*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.5*			*70.0-130*		*03/05/2024 00:05*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.2		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	6.48	J	1.12	20.0	1.11	03/05/2024 00:24	WG2239349
Carbon tetrachloride	U		1.44	8.00	1.11	03/05/2024 00:24	WG2239349
Chloroform	U		1.64	4.01	1.11	03/05/2024 00:24	WG2239349
Methylene Chloride	U		10.6	40.1	1.11	03/05/2024 00:24	WG2239349
(S) Toluene-d8	*106*			*75.0-131*		*03/05/2024 00:24*	WG2239349
(S) 4-Bromofluorobenzene	*99.1*			*67.0-138*		*03/05/2024 00:24*	WG2239349
(S) 1,2-Dichloroethane-d4	*92.8*			*70.0-130*		*03/05/2024 00:24*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.8		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		0.958	17.1	1	03/05/2024 00:43	WG2239349
Carbon tetrachloride	U		1.23	6.84	1	03/05/2024 00:43	WG2239349
Chloroform	U		1.41	3.42	1	03/05/2024 00:43	WG2239349
Methylene Chloride	U		9.09	34.2	1	03/05/2024 00:43	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 00:43*	WG2239349
(S) 4-Bromofluorobenzene	*97.3*			*67.0-138*		*03/05/2024 00:43*	WG2239349
(S) 1,2-Dichloroethane-d4	*93.3*			*70.0-130*		*03/05/2024 00:43*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.6		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.04	18.7	1	03/05/2024 01:02	WG2239349
Carbon tetrachloride	U		1.34	7.46	1	03/05/2024 01:02	WG2239349
Chloroform	U		1.54	3.73	1	03/05/2024 01:02	WG2239349
Methylene Chloride	U		9.91	37.3	1	03/05/2024 01:02	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 01:02*	WG2239349
(S) 4-Bromofluorobenzene	*96.9*			*67.0-138*		*03/05/2024 01:02*	WG2239349
(S) 1,2-Dichloroethane-d4	*94.1*			*70.0-130*		*03/05/2024 01:02*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	74.7		1	02/27/2024 10:08	WG2234574

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		11.8	210	10	03/05/2024 02:37	WG2239349
Carbon tetrachloride	U		15.1	84.1	10	03/05/2024 02:37	WG2239349
Chloroform	U		17.3	42.0	10	03/05/2024 02:37	WG2239349
Methylene Chloride	U		112	420	10	03/05/2024 02:37	WG2239349
(S) Toluene-d8	*102*			*75.0-131*		*03/05/2024 02:37*	WG2239349
(S) 4-Bromofluorobenzene	*101*			*67.0-138*		*03/05/2024 02:37*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*		*03/05/2024 02:37*	WG2239349

Sample Narrative:

L1709164-09 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.8		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		1.06	18.9	1	03/05/2024 01:21	WG2239349
Carbon tetrachloride	U		1.36	7.57	1	03/05/2024 01:21	WG2239349
Chloroform	U		1.56	3.79	1	03/05/2024 01:21	WG2239349
Methylene Chloride	U		10.1	37.9	1	03/05/2024 01:21	WG2239349
(S) Toluene-d8	*103*			*75.0-131*		*03/05/2024 01:21*	WG2239349
(S) 4-Bromofluorobenzene	*96.0*			*67.0-138*		*03/05/2024 01:21*	WG2239349
(S) 1,2-Dichloroethane-d4	*94.8*			*70.0-130*		*03/05/2024 01:21*	WG2239349

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.6		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		10.9	195	10	03/05/2024 02:56	WG2239349
Carbon tetrachloride	U		14.0	77.9	10	03/05/2024 02:56	WG2239349
Chloroform	U		16.0	38.9	10	03/05/2024 02:56	WG2239349
Methylene Chloride	U		103	389	10	03/05/2024 02:56	WG2239349
(S) Toluene-d8	*105*			*75.0-131*		*03/05/2024 02:56*	WG2239349
(S) 4-Bromofluorobenzene	*97.0*			*67.0-138*		*03/05/2024 02:56*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.1*			*70.0-130*		*03/05/2024 02:56*	WG2239349

Sample Narrative:

L1709164-11 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.8		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		10.3	183	10.9	03/05/2024 03:15	WG2239349
Carbon tetrachloride	U		13.2	73.3	10.9	03/05/2024 03:15	WG2239349
Chloroform	U		15.1	36.7	10.9	03/05/2024 03:15	WG2239349
Methylene Chloride	U		97.4	367	10.9	03/05/2024 03:15	WG2239349
(S) Toluene-d8	*102*			*75.0-131*		*03/05/2024 03:15*	WG2239349
(S) 4-Bromofluorobenzene	*99.2*			*67.0-138*		*03/05/2024 03:15*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*		*03/05/2024 03:15*	WG2239349

Sample Narrative:

L1709164-12 WG2239349: Elevated RL due to foamy matrix.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.1		1	02/27/2024 09:48	WG2234576

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	ug/kg		ug/kg	ug/kg		date / time	
Carbon disulfide	U		10.1	181	10	03/05/2024 03:34	WG2239349
Carbon tetrachloride	54.2	J	13.0	72.5	10	03/05/2024 03:34	WG2239349
Chloroform	20.7	J	14.9	36.2	10	03/05/2024 03:34	WG2239349
Methylene Chloride	U		96.2	362	10	03/05/2024 03:34	WG2239349
(S) Toluene-d8	*102*			*75.0-131*		*03/05/2024 03:34*	WG2239349
(S) 4-Bromofluorobenzene	*95.9*			*67.0-138*		*03/05/2024 03:34*	WG2239349
(S) 1,2-Dichloroethane-d4	*95.3*			*70.0-130*		*03/05/2024 03:34*	WG2239349

Sample Narrative:

L1709164-13 WG2239349: Elevated RL due to foamy matrix.

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Carbon disulfide	U		0.0962	1.00	1	02/29/2024 22:12	WG2237224
Carbon tetrachloride	U		0.128	1.00	1	02/29/2024 22:12	WG2237224
Chloroform	U		0.111	5.00	1	02/29/2024 22:12	WG2237224
Methylene Chloride	U		0.430	5.00	1	02/29/2024 22:12	WG2237224
(S) Toluene-d8	*95.8*			*80.0-120*		*02/29/2024 22:12*	WG2237224
(S) 4-Bromofluorobenzene	*96.4*			*77.0-126*		*02/29/2024 22:12*	WG2237224
(S) 1,2-Dichloroethane-d4	*121*			*70.0-130*		*02/29/2024 22:12*	WG2237224

Method Blank (MB)

(MB) R4039117-1 02/27/24 10:08

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1709164-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1709164-01 02/27/24 10:08 • (DUP) R4039117-3 02/27/24 10:08

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	82.9	83.0	1	0.142		10

Laboratory Control Sample (LCS)

(LCS) R4039117-2 02/27/24 10:08

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	90.0-110	

QUALITY CONTROL SUMMARY

L1709164-10,11,12,13

Method Blank (MB)

(MB) R4039116-1 02/27/24 09:48

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1709164-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1709164-10 02/27/24 09:48 • (DUP) R4039116-3 02/27/24 09:48

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	80.8	80.4	1	0.526		10

Laboratory Control Sample (LCS)

(LCS) R4039116-2 02/27/24 09:48

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	90.0-110	

Method Blank (MB)

(MB) R4040230-3 02/29/24 17:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chloroform	U		0.111	5.00
Methylene Chloride	U		0.430	5.00
(S) Toluene-d8	*99.3*			*80.0-120*
(S) 4-Bromofluorobenzene	*96.8*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*121*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4040230-1 02/29/24 16:21 • (LCSD) R4040230-2 02/29/24 16:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	5.00	5.23	5.57	105	111	61.0-128			6.30	20
Carbon tetrachloride	5.00	5.57	5.68	111	114	68.0-126			1.96	20
Chloroform	5.00	5.53	5.62	111	112	73.0-120			1.61	20
Methylene Chloride	5.00	5.36	5.60	107	112	67.0-120			4.38	20
(S) Toluene-d8				*95.4*	*96.1*	*80.0-120*				
(S) 4-Bromofluorobenzene				*95.9*	*96.3*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*122*	*125*	*70.0-130*				

Method Blank (MB)

(MB) R4041666-3 03/04/24 21:02

Analyte	MB Result ug/kg	MB Qualifier	MB MDL ug/kg	MB RDL ug/kg
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chloroform	U		1.03	2.50
Methylene Chloride	U		6.64	25.0
(S) Toluene-d8	*106*			*75.0-131*
(S) 4-Bromofluorobenzene	*96.9*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*95.9*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4041666-1 03/04/24 19:46 • (LCSD) R4041666-2 03/04/24 20:05

Analyte	Spike Amount ug/kg	LCS Result ug/kg	LCSD Result ug/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	125	116	116	92.8	92.8	56.0-133			0.000	20
Carbon tetrachloride	125	134	130	107	104	66.0-128			3.03	20
Chloroform	125	122	115	97.6	92.0	72.0-123			5.91	20
Methylene Chloride	125	115	113	92.0	90.4	68.0-123			1.75	20
(S) Toluene-d8				*100*	*101*	*75.0-131*				
(S) 4-Bromofluorobenzene				*96.8*	*99.9*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*101*	*99.5*	*70.0-130*				

L1709164-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1709164-10 03/05/24 01:21 • (MS) R4041666-4 03/05/24 03:52 • (MSD) R4041666-5 03/05/24 04:11

Analyte	Spike Amount (dry) ug/kg	Original Result (dry) ug/kg	MS Result (dry) ug/kg	MSD Result (dry) ug/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	162	U	144	131	88.8	81.1	1	10.0-145			9.02	39
Carbon tetrachloride	162	U	209	183	129	113	1	10.0-145			13.1	37
Chloroform	162	U	174	156	107	96.3	1	10.0-146			11.0	37
Methylene Chloride	162	U	173	154	107	95.3	1	10.0-141			11.1	37
(S) Toluene-d8					*101*	*101*		*75.0-131*				
(S) 4-Bromofluorobenzene					*94.4*	*97.4*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*96.3*	*94.6*		*70.0-130*				

L1711433-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1711433-04 03/04/24 22:31 • (MS) R4041666-6 03/05/24 04:30 • (MSD) R4041666-7 03/05/24 04:49

Analyte	Spike Amount ug/kg	Original Result	MS Result ug/kg	MSD Result ug/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon disulfide	985		817	720	85.8	75.5	8	10.0-145			12.7	39
Carbon tetrachloride	985	U	1170	1050	123	110	8	10.0-145			11.2	37
Chloroform	985	U	1000	891	105	93.5	8	10.0-146			11.7	37
Methylene Chloride	985	U	955	864	100	90.7	8	10.0-141			10.0	37
(S) Toluene-d8					*101*	*101*		*75.0-131*				
(S) 4-Bromofluorobenzene					*96.9*	*97.6*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*95.6*	*93.8*		*70.0-130*				

Sample Narrative:

OS: Lowest possible dilution due to sample foaming.

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
UPRR - Arcadis
8808 E Wellesley Ave
Spokane, WA 99212

Soil

Billing Information:
UPRR Project Manager
4315 E Sprague Ave
Spokane Valley, WA 99212

Pres Chk

Report to: **Josh Lee**

Email To: Joshua.Lee@arcadis.com;janette.wilson@arcadi

Project Description: **UPRR - Rockford, WA**

City/State Collected: Rockford WA

Please Circle: (PT) MT CT ET

Phone: **406-239-7810**

Client Project # 30210357

Lab Project # **UPRRARCA-ROCKFORD**

Collected by (print): Garrett W. Ison

Site/Facility ID #

P.O. #

Collected by (signature): Garrett B. Wilson

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Std.

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 2ozClr-NoPres	SV8081 4ozClr-NoPres	SV8151 4ozClr-NoPres	V8260 40mlAmb/MeOH10ml/Syr	Remarks	Sample # (lab only)
B-1-20-25-20240220	G	SS	20-25	2/20/24	0840	3				X		-01
B-1-18.5-19.0-20240220	G	SS	18.5-19.0	2/20/24	1025	3				X		-02
B-2-1.5-2.0-20240220	G	SS	1.5-2.0	2/20/24	1149	3				X		-03
B-2-14.5-15.0-20240220	G	SS	14.5-15.0	2/20/24	1410	3				X		-04
B-2-18.5-19.0-20240220	G	SS	18.5-19.0	2/20/24	1415	3				X		-05
B-3-3.5-4.0-20240220	G	SS	3.5-4.0	2/20/24	1500	3				X		-06
B-3-16.5-17.0-20240220	G	SS	16.5-17.0	2/20/24	1630	3				X		-07
B-3-18.0-18.5-20240220	G	SS	18.0-18.5	2/20/24	1645	3				X		-08
B-4-1.0-1.5-20240221	G	SS	1.0-1.5	2/21/24	0930	3				X		-09
B-4-8.0-8.5-20240221	G	SS	8.0-8.5	2/21/24	1030	3				X	MS/MSD	-10

Analysis / Container / Preservative

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 1709164
C204

Acctnum: **UPRRARCA**
Template: **T246108**
Prelogin: **P1052528**
PM: 829 - Brittnie L Boyd
PB: bl 2/10/24

Shipped Via: **FedEX Ground**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: WR# 017187
Hold additional sample volume for potential analysis

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 7155 0315 5070

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No, HCL / MeoH, TBR	
Garrett B. Wilson	2/21/24	1200			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 11.9°C Bottles Received: 1.1 TO=61 41	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 2/24/24 Time: 0900	Hold: / Condition: NCF / OK
			Alexa Mitchell		

Company Name/Address:
UPRR - Arcadis
8808 E Wellesley Ave
Spokane, WA 99212

Soil

Billing Information:
UPRR Project Manager
4315 E Sprague Ave
Spokane Valley, WA 99212

Pres Chk

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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Report to: Josh Lee

Email To: Joshua.Lee@arcadis.com;janette.wilson@arcadi

Project Description: UPRR - Rockford, WA

City/State Collected: Rockford, WA

Please Circle: PT MT CT ET

Phone: 406-239-7810

Client Project # 30210357

Lab Project # UPRRARCA-ROCKFORD

SDG # L1709164

Table #

Acctnum: UPRRARCA
Template: T246108
Prelogin: P1052528
PM: 829 - Brittnie L Boyd
PB: CD 2/10/24

Shipped Via: FedEX Ground

Collected by (print): Garrett Wilson

Site/Facility ID #

P.O. #

Collected by (signature): [signature]

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
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___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Std.

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRCRA8 2ozClr-NoPres	SV8081 4ozClr-NoPres	SV8151 4ozClr-NoPres	V8260 40mlAmb/MeOH10ml/Syr	Remarks	Sample # (lab only)
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B-5-3.0-3.5-20240221	G	SS	3.0-3.5	2/21/2024	1300	3				X		-12
B-DUP-20240220	G	SS	2.0-2.5	2/20/2024	0800	3				X		-13
		SS										
		SS										
		SS										
		SS										
		SS										
		SS										
		SS										

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other________

Remarks: WR# 017187
Hold additional sample volume for potential analysis

pH ______ Temp ______
Flow ______ Other ______

Samples returned via: ___ UPS ✓ FedEx ___ Courier ________

Tracking # 7155 0315 5070

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)		
[signature]	2/23/24	1200		Trip Blank Received: Yes / No HCL / MeoH TBR	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: T1 4°C 1.1+0=1.1	Bottles Received: 41
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) allxa mitchell	Date: 2/24/24	Time: 0900

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Arcadis U.S., Inc.

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Fax 206 325 8218

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