Phase II
Environmental Site Assessment

840 and 945 Dollar Street
West Linn, Oregon 97068

Prepared for:
West Linn-Wilsonville School District
2755 SW Borland Road
Tualatin, Oregon 97062

August 2020
PBS Project 24106.001, Phase 0002

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1 INTRODUCTION

PBS Engineering and Environmental Inc. (PBS) completed a Phase II Environmental Site Assessment (ESA) at 840 and 945 Dollar Street in West Linn, Oregon. This report summarizes previous work performed at the Site and presents PBS' investigation results and conclusions.

1.1 Site Description and Topography

The property is listed as Tax Lots 600, 900, and 1001 in the southeast and southwest one-quarter of the southeast one-quarter and the southwest one-quarter of Section 34, Township 2 South, Range 1 East, of the Willamette Base and Meridian (Site; Figure 1). The property is bounded to the north and east by residential neighborhoods, to the south and west by Willamette Falls Drive, the Tualatin River, and Highland Park. The Site is forested and currently used for bike and walking trails.

The property has a gentle downward slope to the southwest, until the boundary approaches the Tualatin River, at which point the topography slopes steeply in this direction. The middle of the northern border of the Site, which borders Dollar Street, is the relative high point. The subject property elevation is approximately 120 to 200 feet above mean sea level. A tree farm was present in the 21E34DC 00900 tax lot, so there are distinct vegetative patterns on that portion of the Site. The rest of the Site contains walking and biking trails.

1.2 Site Ownership and History

The property is currently owned by West Linn-Wilsonville School District. Historical uses of the Site were rural residential and agriculture. Orchards were present in the west-central and northern portions of the property as early as the 1930s, with the remainder of the property mostly used for row crops. By 1964, the eastern portion of the property was converted to a tree farm. Tree cover and low brush eventually took over the western portion of the property when agricultural production ceased in approximately the 1970s.

2 PREVIOUS ENVIRONMENTAL ASSESSMENTS

2.1 Phase I Environmental Site Assessment; PBS, June 2020

In June 2020, PBS completed a Phase I ESA of the property for West Linn-Wilsonville School District and identified the following:

- The Site's prior agricultural use, particularly orchards, identified the potential for pesticides containing heavy metals such as arsenic and lead, as well as dichloro-diphenyl-trichloroethane (DDT). Pesticides such as these pose a risk for potential future receptors.
- A heating oil underground storage tank (HOT) located adjacent to a shop building along the central northern property portion of the Site was decommissioned by removal at the Site in 2009. Because of the lack of regulatory status for the HOT, this HOT decommissioning was not of significant concern. It is possible that one or more heating oil tanks are present associated with other residential structures located on the western corner of the Site. If encountered during future site development, they should be decommissioned by a suitably licensed contractor.
- Two 55-gallon drums were observed in the western section of the subject property with no labels to indicate their original purpose. Both drums were rusted away, and no staining was observed. Care should be taken during construction around the location of these drums for potential soil impacts (staining, odors, discoloration). Based in the absence of these conditions this poses a low environmental concern.

PBS recommended additional investigation to determine if residual concentrations of pesticides and agricultural metals were present in former orchard areas (the first bulleted item above).

3 REGIONAL GEOLOGY AND HYDROGEOLOGY

The Site lies within the Portland Basin, a structural feature formed through faulting and folding of the Tualatin Mountains to the west and the western edge of the Cascade Mountains to the east. The Portland Basin was subsequently filled with basalt as well as fluvial and lacustrine deposits during Eocene to Miocene times. Catastrophic flood events during the Pleistocene scoured the basin and deposited flood-transported material.[1] In the vicinity of the Site, surface soil consists of Quaternary-age very fine sand, silt, and deposits.[2] The Troutdale Formation (sandstone and conglomerate) underlies the unconsolidated deposits, with Columbia River Basalt found at depth. Depth to groundwater at the Site should be approximately 90 to 100 feet below ground surface (bgs), but static groundwater levels in the area range from 45 to 56 feet bgs, with regional groundwater flowing generally to the south and west toward the Tualatin River.

4 PURPOSE AND SCOPE

The purpose of the current investigation was to determine if previous agricultural use negatively impacted shallow soil conditions that may pose a risk to future receptors.

The proposed scope of work for the investigation consisted of the following:

- Collecting soil samples in the former agricultural areas using incremental sampling methodology (ISM) for organochlorine pesticides, chlorinated herbicides, and common agricultural metals.
- Interpreting the findings with respect to Oregon risk-based cleanup levels for contaminated sites (Oregon Administrative Rule [OAR] 340-122).

5 SOIL SAMPLING

Prior to beginning the investigation, PBS generated a sampling grid made to fit 30 evenly distributed discrete sampling locations for each of the three decision units, and uploaded the discrete locations into a Trimble GPS unit. A site-specific health and safety plan (HASP) was prepared and reviewed with all field personnel prior to beginning work.

PBS was on site on August 5 and 6, 2020, to conduct the soil sampling investigation. Photo documentation of field activities is provided in Appendix A.

PBS navigated to the 30 discrete sample points located inside each DU using a Trimble GPS unit (see Figure 3). Thick understory vegetation consisting of holly, vines, and blackberries was encountered throughout the Site. PBS used a machete and pruning shears to gain access to some of the sample locations. In locations where the brush was too thick, the discrete point was moved to the nearest accessible location, typically within 10 feet of the marked location.

At each discrete point, PBS excavated soil from depths of 0 to 12 inches bgs using a handheld push probe. A 1-ounce stainless steel scoop was then used to accurately measure soil from across the depth interval and was placed inside a large 1-gallon glass sample jar provided by the laboratory.

All samples were collected in laboratory-supplied containers, placed on ice in a cooler, and transported to Pace Analytical National Center for Testing and Innovation in Mt. Juliet, Tennessee, with chain-of-custody

[1] United States Geological Survey (USGS). (1996). *Description of the Ground-Water Flow System in the Portland Basin, Oregon and Washington.* United States Geological Survey Water-Supply Paper 2470-A.
[2] USGS. (1963). *Geology of Portland, Oregon and Adjacent Areas*. United States Geological Survey Bulletin 1119.

documentation. Analyses were conducted under normal turnaround time. Copies of the laboratory report are included in Appendix B.

Samples were analyzed for the following:

- Organochlorine pesticides by US Environmental Protection Agency (EPA) Method 8081
- Chlorinated herbicides by EPA Method 8151A
- Common agricultural metals (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc) by EPA Method 6020/7471

Sampling equipment was decontaminated between decision units using a detergent wash and tap water rinse. PBS personnel wore new disposable nitrile gloves when collecting samples. Upon completion of sampling, temporary boreholes were backfilled, and the surface restored to match the surrounding area.

6 INVESTIGATION-DERIVED WASTES

Gloves and other disposable field supplies were disposed of as solid waste. No other investigation-derived waste was generated.

7 FINDINGS

7.1 Soil Field Observations

The surface of most of the Site was covered by dense brush consisting of blackberries, holly, and other understory vegetation, with tree canopy ranging from dense in the former tree farm area to some clearings in the former agricultural field areas. Soil consisted of brown silt containing varying amounts of organic debris to the total depth explored of 1 foot bgs. Groundwater was not encountered in any of the boreholes.

No field evidence of contamination was observed. Specifically, no olfactory or visual indications such as staining or chemical odor were encountered.

7.2 Soil Analytical Results

Laboratory testing revealed no detectable concentrations of pesticides or herbicides in the samples. Concentrations of metals appeared to be within range of naturally occurring background concentrations except for lead in sample DU-3, which indicated a concentration of 74.3 milligrams per kilogram (mg/kg). This was elevated in comparison to the concentrations detected from DU-1 and DU-2 which indicated concentrations of 16.5 mg/kg, and 12.7 mg/kg, respectively.

Table 1 summarizes the analytical results; the laboratory report is provided in Appendix B.

8 RISK-BASED EVALUATION

Results of the testing indicated no detectable concentrations of pesticides or herbicides, and concentrations for metals meet applicable Oregon Department of Environmental Quality (DEQ) Clean Fill Criteria except for lead in area DU-3. The concentration of lead in DU-3, at 74.3 mg/kg, is indicative of the historical use of lead-based pesticides in this former orchard area. PBS noted that the concentration is below the background concentration for lead for the Portland Basin of 79 mg/kg. This background concentration is elevated with regard to other areas of the state due to the abundant number of anthropogenic sources of lead, such as air deposition from factories, car exhaust, and other means in the Portland Basin province. The lead result is well below the applicable DEQ risk-based concentrations (RBCs) for direct contact by residential receptors of 400

mg/kg, the most sensitive human receptor, and the land appears suitable for use for residential or school applications. The lead concentration in DU-3 exceeds the leaching to groundwater RBC for residential receptors of 30 mg/kg; but no groundwater wells identified on the property. If future groundwater use is planned, it should be tested for lead prior to beneficial use.

Although arsenic was detected above RBCs for residential and occupational receptors, the concentrations, ranging from 3.93 to 5.50 mg/kg are within the range of naturally occurring concentrations for the Portland Basin province and are not indicative of a historical release. These arsenic concentrations appear to meet Clean Fill Criteria for unrestricted use.

Because soil exceeds the Clean Fill Criteria for lead of 28 mg/kg, soil within the boundary of DU-3 is not suitable for unrestricted use if it is transported off site, but is suitable to remain at the property and does not pose a risk to current or future receptors. If off-site disposal is necessary, proper handling and disposal will be required. Additional sampling may be warranted if excavation and offsite disposal of soil in this area is planned for depths greater than one foot bgs. Soil from DU-1 and DU-2 appear to meet Clean Fill Criteria for unrestricted use.

9 CONCLUSIONS AND RECOMMENDATIONS

The assessment identified elevated concentrations of lead in a sample collected from DU-3, representing the location of a historical orchard. There were no detections of pesticides or herbicides, and metal concentrations meet Clean Fill Criteria in areas DU-1 and DU-2. Metal concentrations in DU-3 indicated a concentration of lead above Clean Fill Criteria, but below applicable RBCs for direct contact. The soil is suitable for unrestricted use on site, but if transported off site will require proper handling and disposal. If future groundwater use is planned, it should be tested for lead prior to beneficial use.

In the absence of any encountered evidence of contamination, no additional assessment is warranted.

10 LIMITATIONS

PBS has prepared this report for use by West Linn-Wilsonville School District. This report is for the exclusive use of the client and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced in total or in part without the express written consent of the client and PBS.

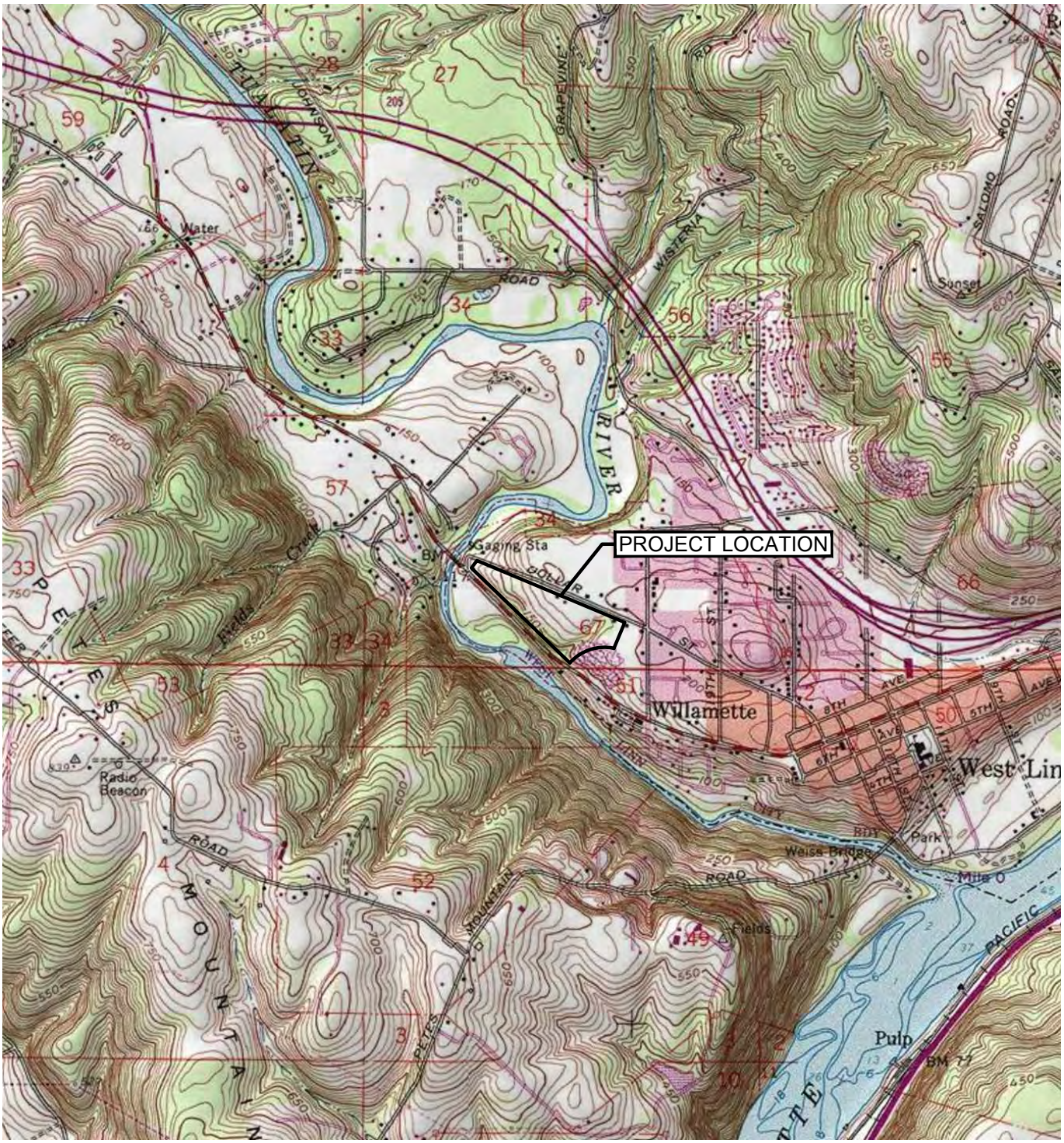
This study was limited to the tests, locations, and depths as indicated to determine the absence or presence of certain contaminants. The Site as a whole may have other contamination that was not characterized by this study. The findings and conclusions of this report are not scientific certainties but probabilities based on professional judgment concerning the significance of the data gathered during the course of this investigation. PBS is not able to represent that the Site or adjoining land contain no hazardous waste, oil, or other latent conditions beyond that detected or observed by PBS. Groundwater data collected from temporary borings is considered preliminary; detections may need confirmation by installation of permanent wells.

PBS Engineering and Environmental Inc.

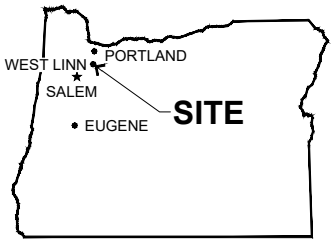
Digitally signed by Bret Waldron
Date: 2020.08.25 16:24:44 -07'00'

Bret Waldron, RG Date
Senior Project Manager

Figures



SOURCE: USGS CANBY, OR QUADRANGLE 1981, PHOTO REVISED 1985.



OREGON

Scale 1" = 2000'

0' 1000' 2000' 4000'

PREPARED FOR: WEST LINN WILSONVILLE SCHOOL DISTRICT

PBS

VICINITY MAP

840 AND 945 DOLLAR STREET
WEST LINN, OREGON

AUG 2020
24106.001

FIGURE
1

SOURCE: © 2019 GOOGLE EARTH PRO

Scale 1" = 500'

0' 250' 500' 1000'

PREPARED FOR: WEST LINN WILSONVILLE SCHOOL DISTRICT

PBS

SITE PLAN

840 AND 945 DOLLAR STREET
WEST LINN, OREGON

AUG 2020
24106.001

FIGURE
2

DU-3 DETAIL

SCALE: 1" = 150'-0"

SOURCE: © 2019 GOOGLE EARTH PRO

LEGEND

● A1 DISCRETE SAMPLE POINT

Scale 1" = 250'

0' 125' 250' 500'

PREPARED FOR: WEST LINN WILSONVILLE SCHOOL DISTRICT

ISM SAMPLE LOCATION MAP

840 AND 945 DOLLAR STREET
WEST LINN, OREGON

AUG 2020
24106.001

FIGURE
3

Tables

Table 1. Summary of Detected Soil Sample Analytical Results
840 and 945 Dollar Street
West Linn, Oregon

Sample ID	Sample Date	Sample Type	Sample Depth (ft. bgs)	Metals										Chlorinated Pesticides	Chlorinated Herbicides
				Arsenic	Barium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Vanadium	Zinc		
				mg/kg dry											
DU-1	8/6/2020	ISM	0-1	5.50	217	13.7	12.1	12.5	16.5	< 0.0419	17.1	61.9	60.9	ND	ND
DU-2	8/5/2020	ISM	0-1	3.93	203	13.0	11.0	12.9	12.7	0.0469	13.2	54.7	59.5	ND	ND
DU-3	8/5/2020	ISM	0-1	4.24	204	18.5	10.6	19.2	**74.3**	0.0629	13.2	53.5	115	ND	ND
Oregon RBC - Ingestion, Dermal Contact, Inhalation[1]		Residential		0.43	15,000	120,000	NS	3,100	400	23	1,500	NS	NS	Varies	Varies
		Occupational		1.9	220,000	>Max	NS	47,000	800	350	22,000	NS	NS	Varies	Varies
		Construction Worker		15	69,000	530,000	NS	14,000	800	110	7,000	NS	NS	Varies	Varies
		Excavation Worker		420	>Max	>Max	NS	390,000	800	2,900	190,000	NS	NS	Varies	Varies
Oregon RBC - Leaching to Groundwater[1]		Residential		NS	NS	NS	NS	NS	**30**	NS	NS	NS	NS	Varies	Varies
		Occupational		NS	NS	NS	NS	NS	**30**	NS	NS	NS	NS	Varies	Varies
Oregon DEQ Clean Fill Criteria[2]				8.8	790	76	43	34	**28**	0.23	47	180	180	Varies	Varies

Notes:

See laboratory report for full list of analytes and method reporting limits.

[1]Oregon Risk-Based Decision-Making for the Remediation of Petroleum-Contaminated Sites, Oregon DEQ Sept. 2003, Revised RBCs May 2018.

[2]Clean Fill Table for the Portland Basin, Oregon DEQ, Revised June 17, 2019
(except cobalt, which is a statewide clean fill value).

Bold: Indicates an exeedance of an RBC or Oregon DEQ Clean Fill Criteria. Concentrations that exceed RBCs are not bolded if they are below Clean Fill values.

>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg. Therefore, this substance is deemed not to pose a risk in this scenario.

bgs: below ground surface

ISM: incremental sampling methodology

mg/kg: milligrams per kilogram

ND: compound not detected

NS: no set value

RBCs: risk-based concentration

Appendix A
Photo Documentation

Photo 1. The north property boundary as seen in DU-3, looking west.

Photo 2. Navigating the site using a Trimble handheld GPS unit. Dense undergrowth consisting of blackberries and holly was encountered. Staff used gardening shears and a machete to navigate to sample points.

Photo 3. PBS staff collecting a soil sample using the push probe.

Photo 4. Soil core obtained from the push probe.

Photo 5. Some of the dense vegetation encountered across the Site.

Photo 6. Some of the trails encountered across the Site helped provide access to sampling locations.

Appendix B
Laboratory Report

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

August 18, 2020

PBS Engineering & Env.- POR

Sample Delivery Group:	L1247902
Samples Received:	08/07/2020
Project Number:	24106.001 Phase 0002
Description:	Dollar Street Phase II

Report To: Bret Waldron
4412 SW Corbett Ave
Portland, OR 97239

Entire Report Reviewed By:

Brian Ford
Project Manager

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DU-3 L1247902-01 Solid

Collected by: SE / JE
Collected date/time: 08/05/20 13:30
Received date/time: 08/07/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1526056	1	08/14/20 23:59	08/15/20 00:06	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1525133	1	08/13/20 07:02	08/13/20 18:20	TCT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1525123	20	08/13/20 17:20	08/13/20 23:51	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1525123	5	08/13/20 17:20	08/13/20 23:04	LD	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1525114	1	08/13/20 05:54	08/14/20 22:20	RP	Mt. Juliet, TN
Pesticides (GC) by Method 8081B	WG1526375	1	08/15/20 07:06	08/15/20 16:10	RP	Mt. Juliet, TN

DU-2 L1247902-02 Solid

Collected by: SE / JE
Collected date/time: 08/05/20 08:20
Received date/time: 08/07/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1526056	1	08/14/20 23:59	08/15/20 00:06	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1525133	1	08/13/20 07:02	08/13/20 18:23	TCT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1525123	20	08/13/20 17:20	08/13/20 23:54	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1525123	5	08/13/20 17:20	08/13/20 23:07	LD	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1525114	1	08/13/20 05:54	08/14/20 22:35	RP	Mt. Juliet, TN
Pesticides (GC) by Method 8081B	WG1526375	1	08/15/20 07:06	08/15/20 16:22	RP	Mt. Juliet, TN

DU-1 L1247902-03 Solid

Collected by: SE / JE
Collected date/time: 08/06/20 12:00
Received date/time: 08/07/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1526057	1	08/14/20 23:47	08/14/20 23:56	KDW	Mt. Juliet, TN
Mercury by Method 7471B	WG1525133	1	08/13/20 07:02	08/13/20 18:25	TCT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1525123	20	08/13/20 17:20	08/13/20 23:57	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1525123	5	08/13/20 17:20	08/13/20 23:10	LD	Mt. Juliet, TN
Chlorinated Acid Herbicides (GC) by Method 8151A	WG1525114	1	08/13/20 05:54	08/14/20 22:49	RP	Mt. Juliet, TN
Pesticides (GC) by Method 8081B	WG1526375	1	08/15/20 07:06	08/15/20 16:34	RP	Mt. Juliet, TN

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.

Brian Ford
Project Manager

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.6		1	08/15/2020 00:06	WG1526056

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0629		0.0419	1	08/13/2020 18:20	WG1525133

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Antimony	ND		3.14	5	08/13/2020 23:04	WG1525123
Arsenic	4.24		1.05	5	08/13/2020 23:04	WG1525123
Barium	204		10.5	20	08/13/2020 23:51	WG1525123
Beryllium	ND		2.62	5	08/13/2020 23:04	WG1525123
Cadmium	ND		1.05	5	08/13/2020 23:04	WG1525123
Chromium	18.5		5.23	5	08/13/2020 23:04	WG1525123
Cobalt	10.6		1.05	5	08/13/2020 23:04	WG1525123
Copper	19.2		5.23	5	08/13/2020 23:04	WG1525123
Lead	74.3		2.09	5	08/13/2020 23:04	WG1525123
Molybdenum	ND		2.62	5	08/13/2020 23:04	WG1525123
Nickel	13.2		2.62	5	08/13/2020 23:04	WG1525123
Selenium	ND		2.62	5	08/13/2020 23:04	WG1525123
Silver	ND		0.523	5	08/13/2020 23:04	WG1525123
Thallium	ND		2.09	5	08/13/2020 23:04	WG1525123
Vanadium	53.5		2.62	5	08/13/2020 23:04	WG1525123
Zinc	115		105	20	08/13/2020 23:51	WG1525123

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
2,4-D	ND		0.0732	1	08/14/2020 22:20	WG1525114
Dalapon	ND		0.0732	1	08/14/2020 22:20	WG1525114
2,4-DB	ND		0.0732	1	08/14/2020 22:20	WG1525114
Dicamba	ND		0.0732	1	08/14/2020 22:20	WG1525114
Dichloroprop	ND		0.0732	1	08/14/2020 22:20	WG1525114
Dinoseb	ND		0.0732	1	08/14/2020 22:20	WG1525114
MCPA	ND		6.80	1	08/14/2020 22:20	WG1525114
MCPP	ND		6.80	1	08/14/2020 22:20	WG1525114
2,4,5-T	ND		0.0732	1	08/14/2020 22:20	WG1525114
2,4,5-TP (Silvex)	ND		0.0732	1	08/14/2020 22:20	WG1525114
(S) 2,4-Dichlorophenyl Acetic Acid	*44.4*		*22.0-132*		*08/14/2020 22:20*	WG1525114

Pesticides (GC) by Method 8081B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Aldrin	ND		0.0209	1	08/15/2020 16:10	WG1526375
Alpha BHC	ND		0.0209	1	08/15/2020 16:10	WG1526375
Beta BHC	ND		0.0209	1	08/15/2020 16:10	WG1526375
Delta BHC	ND		0.0209	1	08/15/2020 16:10	WG1526375
Gamma BHC	ND		0.0209	1	08/15/2020 16:10	WG1526375
Chlordane	ND		0.314	1	08/15/2020 16:10	WG1526375
4,4-DDD	ND		0.0209	1	08/15/2020 16:10	WG1526375
4,4-DDE	ND		0.0209	1	08/15/2020 16:10	WG1526375
4,4-DDT	ND		0.0209	1	08/15/2020 16:10	WG1526375

Pesticides (GC) by Method 8081B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Dieldrin	ND		0.0209	1	08/15/2020 16:10	WG1526375
Endosulfan I	ND		0.0209	1	08/15/2020 16:10	WG1526375
Endosulfan II	ND		0.0209	1	08/15/2020 16:10	WG1526375
Endosulfan sulfate	ND		0.0209	1	08/15/2020 16:10	WG1526375
Endrin	ND		0.0209	1	08/15/2020 16:10	WG1526375
Endrin aldehyde	ND		0.0209	1	08/15/2020 16:10	WG1526375
Endrin ketone	ND		0.0209	1	08/15/2020 16:10	WG1526375
Hexachlorobenzene	ND		0.0209	1	08/15/2020 16:10	WG1526375
Heptachlor	ND		0.0209	1	08/15/2020 16:10	WG1526375
Heptachlor epoxide	ND		0.0209	1	08/15/2020 16:10	WG1526375
Methoxychlor	ND		0.0209	1	08/15/2020 16:10	WG1526375
Toxaphene	ND		0.419	1	08/15/2020 16:10	WG1526375
(S) Decachlorobiphenyl	*73.6*		*10.0-135*		*08/15/2020 16:10*	WG1526375
(S) Tetrachloro-m-xylene	*62.2*		*10.0-139*		*08/15/2020 16:10*	WG1526375

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.1		1	08/15/2020 00:06	WG1526056

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	0.0469		0.0416	1	08/13/2020 18:23	WG1525133

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Antimony	ND		3.12	5	08/13/2020 23:07	WG1525123
Arsenic	3.93		1.04	5	08/13/2020 23:07	WG1525123
Barium	203		10.4	20	08/13/2020 23:54	WG1525123
Beryllium	ND		2.60	5	08/13/2020 23:07	WG1525123
Cadmium	ND		1.04	5	08/13/2020 23:07	WG1525123
Chromium	13.0		5.20	5	08/13/2020 23:07	WG1525123
Cobalt	11.0		1.04	5	08/13/2020 23:07	WG1525123
Copper	12.9		5.20	5	08/13/2020 23:07	WG1525123
Lead	12.7		2.08	5	08/13/2020 23:07	WG1525123
Molybdenum	ND		2.60	5	08/13/2020 23:07	WG1525123
Nickel	13.2		2.60	5	08/13/2020 23:07	WG1525123
Selenium	ND		2.60	5	08/13/2020 23:07	WG1525123
Silver	ND		0.520	5	08/13/2020 23:07	WG1525123
Thallium	ND		2.08	5	08/13/2020 23:07	WG1525123
Vanadium	54.7		2.60	5	08/13/2020 23:07	WG1525123
Zinc	59.5		26.0	5	08/13/2020 23:07	WG1525123

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
2,4-D	ND		0.0728	1	08/14/2020 22:35	WG1525114
Dalapon	ND		0.0728	1	08/14/2020 22:35	WG1525114
2,4-DB	ND		0.0728	1	08/14/2020 22:35	WG1525114
Dicamba	ND		0.0728	1	08/14/2020 22:35	WG1525114
Dichloroprop	ND		0.0728	1	08/14/2020 22:35	WG1525114
Dinoseb	ND		0.0728	1	08/14/2020 22:35	WG1525114
MCPA	ND		6.76	1	08/14/2020 22:35	WG1525114
MCPP	ND		6.76	1	08/14/2020 22:35	WG1525114
2,4,5-T	ND		0.0728	1	08/14/2020 22:35	WG1525114
2,4,5-TP (Silvex)	ND		0.0728	1	08/14/2020 22:35	WG1525114
(S) 2,4-Dichlorophenyl Acetic Acid	*49.2*		*22.0-132*		*08/14/2020 22:35*	WG1525114

Pesticides (GC) by Method 8081B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Aldrin	ND		0.0208	1	08/15/2020 16:22	WG1526375
Alpha BHC	ND		0.0208	1	08/15/2020 16:22	WG1526375
Beta BHC	ND		0.0208	1	08/15/2020 16:22	WG1526375
Delta BHC	ND		0.0208	1	08/15/2020 16:22	WG1526375
Gamma BHC	ND		0.0208	1	08/15/2020 16:22	WG1526375
Chlordane	ND		0.312	1	08/15/2020 16:22	WG1526375
4,4-DDD	ND		0.0208	1	08/15/2020 16:22	WG1526375
4,4-DDE	ND		0.0208	1	08/15/2020 16:22	WG1526375
4,4-DDT	ND		0.0208	1	08/15/2020 16:22	WG1526375

Pesticides (GC) by Method 8081B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Dieldrin	ND		0.0208	1	08/15/2020 16:22	WG1526375
Endosulfan I	ND		0.0208	1	08/15/2020 16:22	WG1526375
Endosulfan II	ND		0.0208	1	08/15/2020 16:22	WG1526375
Endosulfan sulfate	ND		0.0208	1	08/15/2020 16:22	WG1526375
Endrin	ND		0.0208	1	08/15/2020 16:22	WG1526375
Endrin aldehyde	ND		0.0208	1	08/15/2020 16:22	WG1526375
Endrin ketone	ND		0.0208	1	08/15/2020 16:22	WG1526375
Hexachlorobenzene	ND		0.0208	1	08/15/2020 16:22	WG1526375
Heptachlor	ND		0.0208	1	08/15/2020 16:22	WG1526375
Heptachlor epoxide	ND		0.0208	1	08/15/2020 16:22	WG1526375
Methoxychlor	ND		0.0208	1	08/15/2020 16:22	WG1526375
Toxaphene	ND		0.416	1	08/15/2020 16:22	WG1526375
(S) Decachlorobiphenyl	*54.7*		*10.0-135*		*08/15/2020 16:22*	WG1526375
(S) Tetrachloro-m-xylene	*44.5*		*10.0-139*		*08/15/2020 16:22*	WG1526375

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.5		1	08/14/2020 23:56	WG1526057

Mercury by Method 7471B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Mercury	ND		0.0419	1	08/13/2020 18:25	WG1525133

Metals (ICPMS) by Method 6020B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Antimony	ND		3.14	5	08/13/2020 23:10	WG1525123
Arsenic	5.50		1.05	5	08/13/2020 23:10	WG1525123
Barium	217		10.5	20	08/13/2020 23:57	WG1525123
Beryllium	ND		2.62	5	08/13/2020 23:10	WG1525123
Cadmium	ND		1.05	5	08/13/2020 23:10	WG1525123
Chromium	13.7		5.24	5	08/13/2020 23:10	WG1525123
Cobalt	12.1		1.05	5	08/13/2020 23:10	WG1525123
Copper	12.5		5.24	5	08/13/2020 23:10	WG1525123
Lead	16.5		2.09	5	08/13/2020 23:10	WG1525123
Molybdenum	ND		2.62	5	08/13/2020 23:10	WG1525123
Nickel	17.1		2.62	5	08/13/2020 23:10	WG1525123
Selenium	ND		2.62	5	08/13/2020 23:10	WG1525123
Silver	ND		0.524	5	08/13/2020 23:10	WG1525123
Thallium	ND		2.09	5	08/13/2020 23:10	WG1525123
Vanadium	61.9		2.62	5	08/13/2020 23:10	WG1525123
Zinc	60.9		26.2	5	08/13/2020 23:10	WG1525123

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
2,4-D	ND		0.0733	1	08/14/2020 22:49	WG1525114
Dalapon	ND		0.0733	1	08/14/2020 22:49	WG1525114
2,4-DB	ND		0.0733	1	08/14/2020 22:49	WG1525114
Dicamba	ND		0.0733	1	08/14/2020 22:49	WG1525114
Dichloroprop	ND		0.0733	1	08/14/2020 22:49	WG1525114
Dinoseb	ND		0.0733	1	08/14/2020 22:49	WG1525114
MCPA	ND		6.81	1	08/14/2020 22:49	WG1525114
MCPP	ND		6.81	1	08/14/2020 22:49	WG1525114
2,4,5-T	ND		0.0733	1	08/14/2020 22:49	WG1525114
2,4,5-TP (Silvex)	ND		0.0733	1	08/14/2020 22:49	WG1525114
(S) 2,4-Dichlorophenyl Acetic Acid	*47.5*		*22.0-132*		*08/14/2020 22:49*	WG1525114

Pesticides (GC) by Method 8081B

Analyte	Result (dry)	Qualifier	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Aldrin	ND		0.0209	1	08/15/2020 16:34	WG1526375
Alpha BHC	ND		0.0209	1	08/15/2020 16:34	WG1526375
Beta BHC	ND		0.0209	1	08/15/2020 16:34	WG1526375
Delta BHC	ND		0.0209	1	08/15/2020 16:34	WG1526375
Gamma BHC	ND		0.0209	1	08/15/2020 16:34	WG1526375
Chlordane	ND		0.314	1	08/15/2020 16:34	WG1526375
4,4-DDD	ND		0.0209	1	08/15/2020 16:34	WG1526375
4,4-DDE	ND		0.0209	1	08/15/2020 16:34	WG1526375
4,4-DDT	ND		0.0209	1	08/15/2020 16:34	WG1526375

Pesticides (GC) by Method 8081B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Dieldrin	ND		0.0209	1	08/15/2020 16:34	WG1526375
Endosulfan I	ND		0.0209	1	08/15/2020 16:34	WG1526375
Endosulfan II	ND		0.0209	1	08/15/2020 16:34	WG1526375
Endosulfan sulfate	ND		0.0209	1	08/15/2020 16:34	WG1526375
Endrin	ND		0.0209	1	08/15/2020 16:34	WG1526375
Endrin aldehyde	ND		0.0209	1	08/15/2020 16:34	WG1526375
Endrin ketone	ND		0.0209	1	08/15/2020 16:34	WG1526375
Hexachlorobenzene	ND		0.0209	1	08/15/2020 16:34	WG1526375
Heptachlor	ND		0.0209	1	08/15/2020 16:34	WG1526375
Heptachlor epoxide	ND		0.0209	1	08/15/2020 16:34	WG1526375
Methoxychlor	ND		0.0209	1	08/15/2020 16:34	WG1526375
Toxaphene	ND		0.419	1	08/15/2020 16:34	WG1526375
(S) Decachlorobiphenyl	*59.6*		*10.0-135*		*08/15/2020 16:34*	WG1526375
(S) Tetrachloro-m-xylene	*48.3*		*10.0-139*		*08/15/2020 16:34*	WG1526375

Method Blank (MB)

(MB) R3560069-1 08/15/20 00:06

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

L1247902-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1247902-01 08/15/20 00:06 • (DUP) R3560069-3 08/15/20 00:06

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	95.6	95.4	1	0.191		10

Laboratory Control Sample (LCS)

(LCS) R3560069-2 08/15/20 00:06

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3560068-1 08/14/20 23:56

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00300			

L1248839-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1248839-02 08/14/20 23:56 • (DUP) R3560068-3 08/14/20 23:56

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	94.5	95.8	1	1.31		10

Laboratory Control Sample (LCS)

(LCS) R3560068-2 08/14/20 23:56

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	99.9	85.0-115	

Method Blank (MB)

(MB) R3559648-1 08/13/20 18:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.0180	0.0400

Laboratory Control Sample (LCS)

(LCS) R3559648-2 08/13/20 18:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.500	0.484	96.9	80.0-120	

L1248625-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1248625-02 08/13/20 18:05 • (MS) R3559648-3 08/13/20 18:07 • (MSD) R3559648-4 08/13/20 18:10

Analyte	Spike Amount (dry) mg/kg	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.500	ND	0.539	0.472	85.2	74.6	1	75.0-125		J6	13.2	20

Method Blank (MB)

(MB) R3559653-1 08/13/20 22:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Antimony	U		1.55	3.00
Arsenic	U		0.422	1.00
Barium	U		1.25	2.50
Beryllium	U		0.735	2.50
Cadmium	U		0.406	1.00
Chromium	U		2.24	5.00
Cobalt	U		0.500	1.00
Copper	U		2.50	5.00
Lead	U		1.00	2.00
Molybdenum	U		1.00	2.50
Nickel	U		1.21	2.50
Selenium	U		1.01	2.50
Silver	U		0.213	0.500
Thallium	U		0.815	2.00
Vanadium	U		0.805	2.50
Zinc	U		8.15	25.0

Laboratory Control Sample (LCS)

(LCS) R3559653-2 08/13/20 22:44

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	100	103	103	80.0-120	
Arsenic	100	96.2	96.2	80.0-120	
Barium	100	99.2	99.2	80.0-120	
Beryllium	100	94.3	94.3	80.0-120	
Cadmium	100	97.5	97.5	80.0-120	
Chromium	100	97.9	97.9	80.0-120	
Cobalt	100	99.4	99.4	80.0-120	
Copper	100	95.5	95.5	80.0-120	
Lead	100	98.0	98.0	80.0-120	
Molybdenum	100	97.2	97.2	80.0-120	
Nickel	100	99.7	99.7	80.0-120	
Selenium	100	95.5	95.5	80.0-120	
Silver	20.0	19.4	97.0	80.0-120	
Thallium	100	96.5	96.5	80.0-120	
Vanadium	100	96.6	96.6	80.0-120	
Zinc	100	97.5	97.5	80.0-120	

L1248588-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1248588-02 08/13/20 22:48 • (MS) R3559653-5 08/13/20 22:57 • (MSD) R3559653-6 08/13/20 23:01

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	20.0	ND	80.8	80.0	80.8	80.0	5	75.0-125			1.01	20
Arsenic	20.0	15.8	98.8	105	83.0	89.2	5	75.0-125			6.13	20
Barium	20.0	268	399	366	130	97.4	5	75.0-125	J5		8.63	20
Beryllium	20.0	ND	86.4	86.2	86.4	86.2	5	75.0-125			0.251	20
Cadmium	20.0	ND	90.5	89.9	90.5	89.9	5	75.0-125			0.706	20
Chromium	20.0	15.5	101	102	85.8	86.1	5	75.0-125			0.263	20
Cobalt	20.0	6.10	92.0	91.1	85.9	85.0	5	75.0-125			1.02	20
Copper	20.0	18.4	103	106	84.3	87.7	5	75.0-125			3.23	20
Lead	20.0	15.0	103	105	88.3	89.5	5	75.0-125			1.16	20
Molybdenum	20.0	4.20	91.0	94.1	86.8	89.9	5	75.0-125			3.32	20
Nickel	20.0	14.0	99.8	101	85.7	86.5	5	75.0-125			0.824	20
Selenium	20.0	ND	88.9	90.1	88.9	90.1	5	75.0-125			1.35	20
Silver	4.00	ND	18.2	18.1	90.9	90.6	5	75.0-125			0.275	20
Thallium	20.0	ND	82.4	84.0	82.4	84.0	5	75.0-125			1.90	20
Vanadium	20.0	38.4	123	128	85.1	89.9	5	75.0-125			3.80	20
Zinc	20.0	45.5	136	135	90.9	89.6	5	75.0-125			0.925	20

Method Blank (MB)

(MB) R3560182-1 08/14/20 13:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
2,4-D	U		0.00702	0.0700
Dalapon	U		0.0113	0.0700
2,4-DB	U		0.0297	0.0700
Dicamba	U		0.0157	0.0700
Dichloroprop	U		0.0245	0.0700
Dinoseb	U		0.00697	0.0700
MCPA	U		0.443	6.50
MCPP	U		0.367	6.50
2,4,5-T	U		0.00852	0.0700
2,4,5-TP (Silvex)	U		0.0107	0.0700
(S) 2,4-Dichlorophenyl Acetic Acid	*70.7*			*22.0-132*

Laboratory Control Sample (LCS)

(LCS) R3560182-2 08/14/20 13:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
2,4-D	0.167	0.121	72.5	40.0-120	
Dalapon	0.167	0.158	94.6	15.0-120	
2,4-DB	0.167	0.106	63.5	25.0-143	
Dicamba	0.167	0.125	74.9	43.0-120	
Dichloroprop	0.167	0.121	72.5	32.0-129	
Dinoseb	0.167	0.0203	12.2	10.0-120	
MCPA	1.67	1.04	62.3	31.0-121	
MCPP	1.67	1.83	110	28.0-133	
2,4,5-T	0.167	0.116	69.5	41.0-120	
2,4,5-TP (Silvex)	0.167	0.113	67.7	42.0-120	
(S) 2,4-Dichlorophenyl Acetic Acid			*70.1*	*22.0-132*	

L1248365-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1248365-01 08/14/20 21:36 • (MS) R3560182-3 08/14/20 21:51 • (MSD) R3560182-4 08/14/20 22:05

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
2,4-D	0.333	ND	0.382	0.343	115	103	2	10.0-160	P	P	10.8	24
Dalapon	0.333	ND	0.317	0.308	95.2	92.5	2	10.0-121			2.88	27
2,4-DB	0.333	ND	0.190	0.188	57.1	56.5	2	10.0-160	P	P	1.06	22
Dicamba	0.333	ND	0.231	0.222	69.4	66.7	2	10.0-154			3.97	21

L1248365-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1248365-01 08/14/20 21:36 • (MS) R3560182-3 08/14/20 21:51 • (MSD) R3560182-4 08/14/20 22:05

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Dichloroprop	0.333	ND	0.214	0.205	64.3	61.6	2	10.0-158			4.30	20
Dinoseb	0.333	ND	ND	ND	17.9	17.0	2	10.0-120			5.16	40
MCPA	3.33	ND	ND	ND	39.9	53.5	2	10.0-160			28.9	40
MCPP	3.33	ND	ND	13.4	294	402	2	10.0-160	E J5	E J5 P	31.2	40
2,4,5-T	0.333	ND	0.215	0.212	64.6	63.7	2	10.0-157			1.41	20
2,4,5-TP (Silvex)	0.333	ND	0.227	0.223	68.2	67.0	2	10.0-156			1.78	20
(S) 2,4-Dichlorophenyl Acetic Acid					*63.4*	*62.8*		*22.0-132*				

Sample Narrative:

OS: Dilution due to sample volume.

Method Blank (MB)

(MB) R3560439-1 08/15/20 15:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Aldrin	U		0.00376	0.0200
Alpha BHC	U		0.00368	0.0200
Beta BHC	U		0.00379	0.0200
Delta BHC	U		0.00346	0.0200
Gamma BHC	U		0.00344	0.0200
4,4-DDD	U		0.00370	0.0200
4,4-DDE	U		0.00366	0.0200
4,4-DDT	U		0.00627	0.0200
Dieldrin	U		0.00344	0.0200
Endosulfan I	U		0.00363	0.0200
Endosulfan II	U		0.00335	0.0200
Endosulfan sulfate	U		0.00364	0.0200
Endrin	U		0.00350	0.0200
Endrin aldehyde	U		0.00339	0.0200
Endrin ketone	U		0.00711	0.0200
Heptachlor	U		0.00428	0.0200
Heptachlor epoxide	U		0.00339	0.0200
Hexachlorobenzene	U		0.00346	0.0200
Methoxychlor	U		0.00484	0.0200
Chlordane	U		0.103	0.300
Toxaphene	U		0.124	0.400
(S) Decachlorobiphenyl	*85.4*			*10.0-135*
(S) Tetrachloro-m-xylene	*72.5*			*10.0-139*

Laboratory Control Sample (LCS)

(LCS) R3560439-2 08/15/20 15:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Aldrin	0.0666	0.0506	76.0	34.0-136	
Alpha BHC	0.0666	0.0486	73.0	34.0-139	
Beta BHC	0.0666	0.0467	70.1	34.0-133	
Delta BHC	0.0666	0.0485	72.8	34.0-135	
Gamma BHC	0.0666	0.0498	74.8	34.0-136	
4,4-DDD	0.0666	0.0501	75.2	33.0-141	
4,4-DDE	0.0666	0.0472	70.9	34.0-134	
4,4-DDT	0.0666	0.0440	66.1	30.0-143	
Dieldrin	0.0666	0.0493	74.0	35.0-137	
Endosulfan I	0.0666	0.0480	72.1	34.0-134	

Laboratory Control Sample (LCS)

(LCS) R3560439-2 08/15/20 15:57

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Endosulfan II	0.0666	0.0469	70.4	35.0-132	
Endosulfan sulfate	0.0666	0.0445	66.8	35.0-132	
Endrin	0.0666	0.0463	69.5	34.0-137	
Endrin aldehyde	0.0666	0.0423	63.5	23.0-121	
Endrin ketone	0.0666	0.0453	68.0	35.0-144	
Heptachlor	0.0666	0.0501	75.2	36.0-141	
Heptachlor epoxide	0.0666	0.0489	73.4	36.0-134	
Hexachlorobenzene	0.0666	0.0523	78.5	33.0-129	
Methoxychlor	0.0666	0.0453	68.0	28.0-150	
(S) Decachlorobiphenyl			*76.4*	*10.0-135*	
(S) Tetrachloro-m-xylene			*64.0*	*10.0-139*	

L1248965-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1248965-01 08/15/20 16:47 • (MS) R3560439-3 08/15/20 16:59 • (MSD) R3560439-4 08/15/20 17:12

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Aldrin	0.0745	ND	0.0613	0.0548	82.3	75.1	1.02	20.0-135			11.1	37
Alpha BHC	0.0745	ND	0.0606	0.0559	81.4	76.6	1.02	27.0-140			8.09	35
Beta BHC	0.0745	ND	0.0580	0.0537	77.9	73.6	1.02	23.0-141			7.65	37
Delta BHC	0.0745	ND	0.0600	0.0552	80.6	75.5	1.02	21.0-138			8.38	35
Gamma BHC	0.0745	ND	0.0625	0.0574	83.9	78.5	1.02	27.0-137			8.60	36
4,4-DDD	0.0745	ND	0.0613	0.0554	82.3	75.8	1.02	15.0-152			10.2	39
4,4-DDE	0.0745	ND	0.0572	0.0511	76.9	70.0	1.02	10.0-152			11.3	40
4,4-DDT	0.0745	ND	0.0549	0.0484	73.8	66.2	1.02	10.0-151			12.7	40
Dieldrin	0.0745	ND	0.0609	0.0552	81.7	75.5	1.02	17.0-145			9.83	37
Endosulfan I	0.0745	ND	0.0574	0.0513	77.0	70.3	1.02	20.0-137			11.1	36
Endosulfan II	0.0745	ND	0.0581	0.0533	78.1	73.0	1.02	15.0-141			8.66	37
Endosulfan sulfate	0.0745	ND	0.0567	0.0520	76.1	71.2	1.02	15.0-143			8.68	38
Endrin	0.0745	ND	0.0576	0.0517	77.3	70.7	1.02	19.0-143			10.8	37
Endrin aldehyde	0.0745	ND	0.0546	0.0500	73.3	68.5	1.02	10.0-139			8.81	40
Endrin ketone	0.0745	ND	0.0566	0.0519	76.0	71.0	1.02	17.0-149			8.70	38
Heptachlor	0.0745	ND	0.0613	0.0553	82.3	75.7	1.02	22.0-138			10.3	37
Heptachlor epoxide	0.0745	ND	0.0597	0.0546	80.1	74.8	1.02	22.0-138			8.83	36
Hexachlorobenzene	0.0745	ND	0.0645	0.0593	86.6	81.2	1.02	25.0-126			8.33	35
Methoxychlor	0.0745	ND	0.0597	0.0529	80.1	72.4	1.02	10.0-159			12.1	40
(S) Decachlorobiphenyl					*82.9*	*78.5*		*10.0-135*				
(S) Tetrachloro-m-xylene					*72.0*	*67.3*		*10.0-139*				

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
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
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P	RPD between the primary and confirmatory analysis exceeded 40%.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
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	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

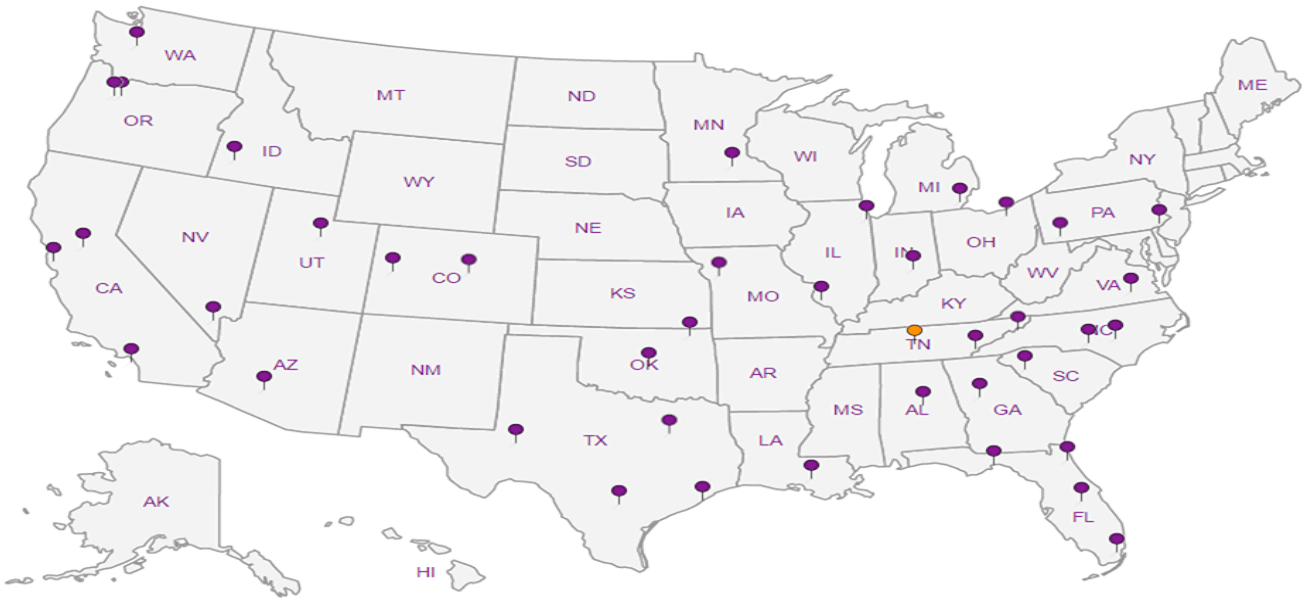
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



PBS Engineering & Env.- POR

4412 SW Corbett Ave
Portland, OR 97239

Billing Information:
Accounts Payable
4412 SW Corbett Ave
Portland, OR 97239

Pres Chk

Report to: Bret Waldron

Email To: Bret.Waldron@pbsusa.com;Samantha.Eckes@p

Project Description: Dollar Street Phase II

City/State Collected: West Linn, OR

Please Circle: PT MT CT ET

Phone: 503-248-1939

Client Project # 24106.001 Phase 0002

Lab Project # PBSENGPOR-24106001

Collected by (print): Sam E + Jessica E

Site/Facility ID #

P.O. #

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

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

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	ISM (MISPREP)* 1L-Clr-NoPres	OCP 8081	Herb 8151	CAM 17 (Ag17) Metals 6020/7471								
DU-3	Comp	SS	0-1ft	8/5/20	1330	X	4	4	4								01
DU-2		SS		8/5/20	820												02
~~DU-3~~ DU-1		SS		8/6/20	1200												03

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 247602

Table # E170

Acctnum: PBSENGPOR

Template: T172035

Prelogin: P789526

PM: 110 - Brian Ford

PB:

Shipped Via:

Remarks | Sample # (lab only)

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

Remarks: *Once MISPREP is complete, log for OCPs 8081, Herb 8151, CAM17 (Ag17) Metals 6020/7471 on a standard turn.

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)
	8/6/20	1340	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	8/6/20	1433	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
PNPUN	8/6/20	1500	

Trip Blank Received: Yes / No
HCl / MeoH
TBR

Temp: 13-1=2 °C Bottles Received: 3

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Date: 8/7/20 Time: 900