ecology and environment, inc.
Global Environmental Specialists
333 SW Fifth Avenue, Suite 600
Portland, Oregon 97204
Tel: (503) 248-5600, Fax: (503) 248-5577

January 29, 2016

Tracy Chellis, Remedial Project Manager
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue, Mail Stop ECL-122
Seattle, Washington 98101

RE: Final Lakewood / Ponders Corner Superfund Site, Well Installation Trip Report
Contract Number EP-S7-13-07, Technical Direction Document Number 15-08-0004

Dear Ms. Chellis:

Attached please find the Final Trip Report for the Lakewood / Ponders Corner Well Installation located in Lakewood, Washington. The report has been updated per EPA's comments received via voice message on January 21, 2016. If you have any questions regarding this submittal, please call me at (503) 248-5600, ext. 4607.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

Erin A. Lynch, R.G.
START-IV Project Manager

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FINAL TRIP REPORT

Lakewood/Ponders Corner Well Installation
Lakewood, Washington
TDD: 15-08-0004

Prepared for

U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue
Seattle, Washington 98101

Prepared by

Ecology and Environment, Inc.
333 SW Fifth Avenue, Suite 600
Portland, Oregon 97204

January 2016

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1. SITE LOCATION

Site Name:	Lakewood/Ponders Corner Superfund Site
Location:	Lakewood, Washington
Dates of Trip:	November 3 to December 11, 2015

2. PURPOSE

The United States Environmental Protection Agency (EPA) has tasked Ecology and Environment, Inc. (E & E), under Superfund Technical Assessment and Response Team (START) contract number EP-S7-13-07, Technical Direction Document Number 15-08-0004, to conduct drilling, monitoring well construction/replacement, and development activities for the Lakewood / Ponders Corner Superfund Site (Site) in Lakewood, Washington. Groundwater contamination at the Site consists of chlorinated solvents and volatile organic compounds (VOCs) that originated from Plaza Cleaners, a dry cleaning and laundry facility. The Remedial Investigation and the Feasibility Study for the Site were completed in 1985, and the EPA is in preparation of the sixth five-year review. In 2012, the fifth five-year review recommended developing a target capture zone based on the monitoring well network and tetrachloroethylene (PCE)-contaminated groundwater plume, as well as evaluating existing information on groundwater flow direction in the Steilacoom gravels (USACE 2012). Two new monitoring wells were proposed to meet the objectives of the fifth five-year review.

3. PERSONS INVOLVED

Agency / Company	Contact Person / Position	Phone Number
United States Environmental Protection Agency	Tracy Chellis / Project Manager	206-553-6326
	Bernie Zavala / Hydrogeologist	206-553-1562
	Jeff Fowlow / On-Scene Coordinator, Task Monitor	206-553-2751
Ecology and Environment, Inc.	Erin Lynch, R.G., Project Manager	503-248-5600
	Jonathan Reeve, R.G., Project Geologist	206-624-9537
	Bryan Ciecko, Geologist	503-248-5600
	Mark Woodke, Chemist	206-624-9537
Environmental West Exploration, Inc. (EWE)	Zach Gourde, Vice President, Project Manager	509-534-2740
True North Land Surveying	Tim Ingraham, PLS, Project Manager	206-332-0800

4. BACKGROUND

The Site is located in the city of Lakewood in Pierce County, Washington (Figure 1, provided in Attachment A). In 1981, the EPA sampled Lakewood Water District drinking water supply wells H1 and H2. The tests indicated that these two wells were contaminated with VOCs, i.e., PCE, trichloroethylene (TCE) and cis-1,2 dichloroethylene (cis- 1,2 DCE). The source of contamination was identified as Plaza

Cleaners and the Site was listed on the National Priorities List on December 30, 1982. The Remedial Investigation and Feasibility Study were completed during August 1984 through July 1985. Selected remedies to address soil contamination at Plaza Cleaners include the excavation of contaminated soils, removal of contaminated sludge, and off-site disposal.

A Record of Decision was signed on September 30, 1985, and amended on November 14, 1986, to include the installation of a soil vapor extraction system for treating a small portion of contaminated soil in the vadose zone. The soil remediation was completed in 1993, and EPA announced in the Federal Register the partial deletion of the Site's "Soil Unit" from the National Priorities List, effective November 27, 1996. The selected remedy for groundwater was wellhead protection through water treatment by stripping towers, vapor extraction from the soil source, and institutional controls. By November 1984, two air strippers were constructed at Lakewood Water District production wells H1 and H2 and began operating to treat the contaminated groundwater. The treated groundwater meets Safe Drinking Water Act Maximum Contaminant Levels standards (after air stripping). The groundwater treatment system is still in operation since the groundwater cleanup levels have not been achieved throughout the Site. A more detailed Site description and background can be found in the *Report of Groundwater Investigation, Lakewood, WA* (EPA 1983).

5. ACTIVITIES

An initial site visit was conducted on October 27, 2015. Tracy Chellis and Bernie Zavala from the EPA, along with Erin Lynch and Bryan Ciecko from E & E, met to discuss placement of the two proposed monitoring wells. Once the well locations were agreed upon, white marking paint was used to mark the locations for future utility clearance. In addition, EPA representatives met with the owners of Rainer Lighting and Electric Supply to discuss access for drilling and well installation as well as temporary storage of investigation derived waste (IDW).

Access to private property was obtained by the EPA with Access Agreements (Attachment B). On November 3, 2015, Jonathan Reeve from E & E and a drilling crew from EWE mobilized to the Site. Two borings were drilled using a rotosonic drill rig to a depth of approximately 100 feet, and two replacement monitoring wells were installed. These monitoring wells were placed near the former locations of the original monitoring wells they replaced, in locations selected by the EPA and finalized during the Site visit. Both monitoring wells have screen intervals installed in the Advance Outwash of the Steilacoom Gravel; the location of the two wells is shown in Figures 2, 3, and 4 (provided in Attachment A) and the detailed boring logs are included as Attachment C.

Drilling and monitoring well installation occurred from November 3 to the 7. EPA representatives Tracy Chellis, Bernie Zavala, and Brent Richmond visited the Site on November 4 to observe drilling activities and subsurface soil conditions. The Site Work Plan (E & E 2015) called for a 48-hour hold on monitoring well development after grout emplacement, so Site work was halted on November 7. Site work resumed on November 10, when Jonathan Reeve and the drilling crew from EWE returned to the Site to develop the newly installed monitoring wells. During drilling and well development, subsurface soil was brought to the surface, fluids were produced from equipment decontamination and groundwater produced by the well development. These IDW were containerized in new 55-gallon steel drums provided by EWE and temporarily stored on the grounds of Rainier Lighting and Electric Supply, near MW-28R. A representative sample of each type of IDW media at each location were collected by E & E on November 10 and sent out for analysis of target-analyte list metals and VOCs, for the purpose of waste

characterization. A total of five samples were sent to Eurofins Lancaster Laboratory, an EPA Contract Laboratory Program Laboratory located in Lancaster, Pennsylvania. A data validation memo with analytical data is included as Attachment D.

Analytical results from the IDW characterization have been validated by E & E's project chemist, Mark Woodke, and will be used by Emerald Services, Inc. to dispose of the IDW at a date yet to be determined. Validated data memorandums are included as Attachment C.

A location and elevation survey was completed on December 8, 2015. Jonathan Reeve and a survey crew from True North Land Surveying, Inc. met on site with Pamela Marti from the Washington State Department of Ecology. Ms. Marti is a hydrogeologist who regularly samples the wells at the Site. The surveying scope of work called for surveying the newly constructed replacement wells (MW-28R and MW-41R), but also included re-surveying existing monitoring wells (MW-16A, MW-16B, MW-19A, MW-19B, MW-20A, MW-20B, MW-31, and MW-32). Ms. Marti located these wells for E & E and True North Land Surveying, Inc. and explained the lockset. Surveyed well locations are provided in Table 1 and an overview figure of well locations is provided as Figure 2 (included in Attachment A).

6. REFERENCES

Ecology and Environment, Inc. (E & E). 2015. *Final Work Plan, Lakewood/Ponders Corner Well Installation*. Prepared for the U.S. Environmental Protection Agency, Region 10. September 2015.

United States Army Corps of Engineers, Seattle District (USACE). 2012. *Fifth Five-Year Review Report for Lakewood/Ponders Corner Superfund Site, Lakewood, Washington.* September 2012.

United States Environmental Protection Agency (EPA). 1983. *Report of Groundwater Investigation, Lakewood, WA.*

Table 1. December 2015 Survey Results, Ponders Corner, Lakewood Washington

Point	State Plane Coordinates[1,2]		Top of metal case Elevation[3,4] (in feet)	Top of PVC casing Elevation[3,4] (in feet)	Ground Elevation[3,4] (in feet)	Monitoring Well	Comment
	Northing	Easting					
1	666131.64	1139260.28	284.78	284.06	281.64	MW-16A	With Baffle
	666131.64	1139260.28	284.78	283.80	281.64	MW-16B	Without Baffle
2	665352.06	1141046.19	292.00	291.24	289.43	MW-19A	2-inch PVC
	665352.06	1141046.19	292.00	290.51	289.43	MW-19B	2-inch PVC
3	666311.06	1139461.97	281.84	281.26	279.62	MW-20A	With Baffle
	666311.06	1139461.97	281.84	281.03	279.62	MW-20B	Without Baffle
4	666576.55	1139391.62	280.57	280.17	280.57	MW-28R	2-inch PVC
5	666560.30	1138286.78	281.63	280.11	281.63	MW-31	2-inch PVC
6	667652.45	1138428.81	274.07	273.74	274.07	MW-41R	2-inch PVC
9	667086.92	1138118.58	303.21	302.74	303.81	MW-32	2-inch PVC

Notes:

1. Horizontal Datum: NAD83/91.
2. Horizontal coordinates were based on WSDOT GPS Survey Control Points Designation TS-27-127 AND GP27005-105.
3. Vertical Datum: NAVD88, Project Benchmark GP27005-105 Elevation = 295.206 feet. Located on New York Avenue SW Overpass of SR-5. Middle of overpass, north side.
4. All elevations were taken on the north side of the rim and north side of the PVC casing.
5. Equipment used: Leica GS-15 GPS, Leica DNA 10 Digital Level.
6. Weather: 50°F, Rain.

ATTACHMENT A – SITE FIGURES

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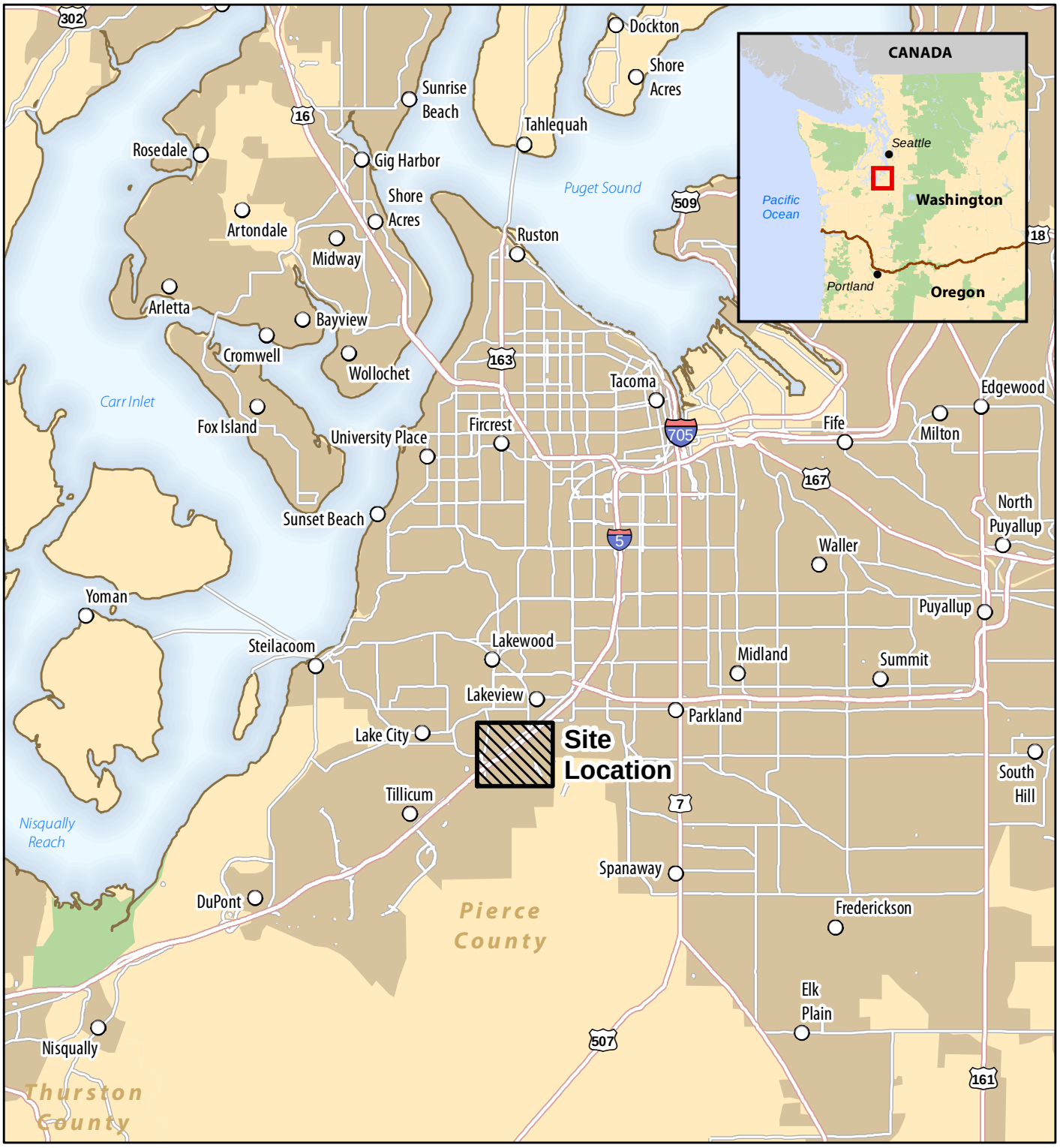
L:\Active\Portland\START\Ponders_Corner\Maps\MXDs\Figure_1_Ponders_Corner_Site_Location_Map.mxd 1/12/2016



N

0 1 2 3 4 5 Miles

1:200,000

Source: Esri, 2012.

Figure 1

Site Location Map

Lakewood/Ponder's Corner Well Installation

Pierce Co., Washington

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0 500 1,000 Feet

1:8,310

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User

Well Type

- Municipal
- Active
- Decommissioned
- Unknown

Figure 2

New and Existing Monitoring Wells

Lakewood/Ponder's Corner Well Installation

Pierce Co., Washington

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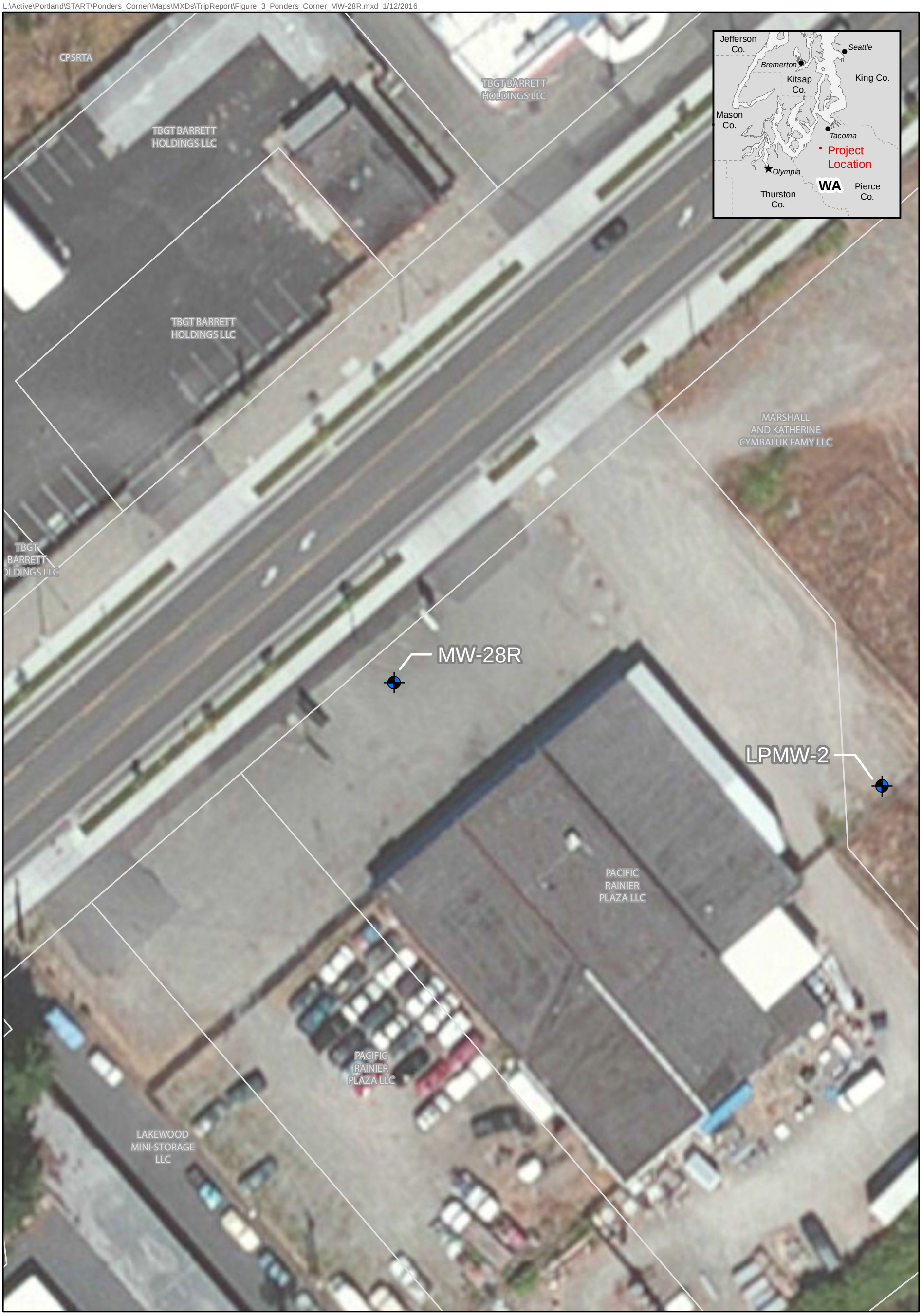

N

0 50 100 Feet

1:600

Source: Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User

Parcel Boundary

Well Type

Active

Figure 3

Proposed Monitoring Well MW-28R

Lakewood/Ponder's Corner Well Installation

Pierce Co., Washington

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N

0 50 100 Feet

1:600

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User

Parcel Boundary

Well Type

Active

Figure 4

Monitoring Well
MW-41R
Lakewood/Ponder's Corner
Well Installation

Pierce Co., Washington

ATTACHMENT B – ACCESS AGREEMENTS

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

CONSENT FOR ACCESS TO PROPERTY

Owner: Pacific Rainier Plaza LLC
Property Location: 12511 Pacific Highway SW, Lakewood, Washington 98499

I hereby give consent to officers, employees, authorized representatives, contractors, and persons acting at the request of the United States Environmental Protection Agency ("EPA") to enter and have access at reasonable times from October 30, 2015 through September 30, 2017 to the above referenced property for the following purposes:

1. Installation of one ground water monitoring well;
2. Monthly collection of ground water samples;
3. Surveying of any and all ground water monitoring wells;
4. Temporary storage, not to exceed December 4, 2015, of up to eight (8) 55-gallon drums of soil cuttings, decontamination water, and purge water until EPA representatives arrange for pick-up and removal of the drums for disposal; and
5. Taking photographs of the property.

I recognize that these actions by EPA are undertaken pursuant to its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601, *et seq*.

This written permission for access is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

10/13/15
Date

Dennis O'Connell
Print Name

Dennis O'Connell
Signature

Owner
Title

253-581-8180
Phone number

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OCT 14 2015

CONSENT FOR ACCESS TO PROPERTY

Owner: Lakewood Mini Storage LLC d/b/a Lakewood You Store It Property
Location: 12611 Pacific Highway SW, Lakewood, Washington 98499

I hereby give consent to officers, employees, authorized representatives, contractors, and persons acting at the request of the United States Environmental Protection Agency ("EPA") to enter and have access at reasonable times from October 30, 2015 through September 30, 2017 to the above referenced property for the following purposes:

1. Monthly collection of ground water samples;
2. Surveying of any and all ground water monitoring wells; and
3. Taking photographs of the property.

I recognize that these actions by EPA are undertaken pursuant to its response and enforcement authorities contained in the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601, *et seq*.

This written permission for access is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

Oct 10, 2015
Date

Jeanette Mason
Print Name

Jeanette Mason
Signature

Manager
Title

253-584-4774
Phone number

ATTACHMENT C – BORING LOGS

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MW-28R
MW-41R

Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-28R **Project No.** 1004530.0017.001.01

ecology and environment, inc.
Global Environmental Specialists

Drilling

Drilling Contractor	Environmental West Exploration		
Drilled by	Greg Walston	Completion Date	11/05/15
Logged By	J. Reeve	Drilling Fluid	potable water
Drill Rig	Speedstar 15K	Borehole Depth	102.0
Drilling Method	Rotosonic	Borehole Dia. (in)	8.0

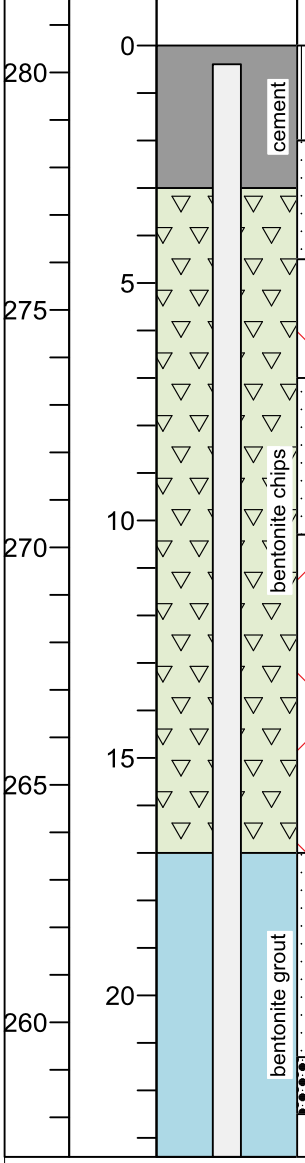
Northing	666576.552
Easting	1139391.616
Surface Elev. (ft)	280.6
TOC Elev. (ft)	280.2
Stick-up/down	-0.40 ft.

Well

Well Depth (bgs)	100.5 ft.	Annular Interval	3' - 81'
Casing Type	Sch. 40 PVC	Filter Material	10-20 Colorado Silica Sand
Casing Joints	Threaded / Flush	Filter Interval	85 - 102 ft. bgs
Casing Dia. (in)	2.0	Seal Material	Bentonite pellets
Screen Type	Slotted Sch. 40 PVC	Seal Interval	81' - 85'
Slot Size (in)	0.010	Surface Seal	0 - 3 ft. bgs
Screen Interval	88 - 98 ft. bgs	Development	Bailing and submersible Pump with surging
Annular Material	Bentonite Grout		

DTW (ft. btoc) 33.7 11/10/2015
* DTW measured after well development

Notes: Centralizers at top and bottom of screen, then every 20 ft. thereafter
Well surface completion is a flush-mount with locking cap.



Elev. (ft. AMSL)	DEPTH (ft)	WELL	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
	0					
280		cement		Dark Brown	Wet	Sandy Silt with gravel. Silt is organic, no plasticity. Sand is very fine to medium. Gravel is subround, 1 - 3cm. No odors or sheen.
				Grayish Brown	Damp	Well-graded Gravel with sand. Gravel is broken subround to rounded clasts, coarse to 9cm. Predominantly granitoids and black fine grained crystalline rocks. Approximately 30% sand, sand is subround to subangular, medium to coarse grained. Trace silt, no odors.
275	5			No Recovery	No Recovery	No Recovery
				Grayish Brown	Damp	Well-graded Gravel with sand and silt. Gravel is fine to 10cm, subround to round, composed of granitoids and black fine-grained crystalline rocks, with one dark green metamorphic rock. Sands are angular, coarse to very coarse. Sand 10-20%, silt 5-15% with increasing silt downwards.
270	10	bentonite chips		No Recovery	No Recovery	No Recovery
265	15					
				Dark Grayish Brown	Moist	Simillar to 7-10.3 ft bgs, with gravel predominantly sized at 2cm from 17 to 18.7 ft.. 18.7 - 19.5 ft. is a lens of fine pea gravel. Below 19.5 ft. is continued well-graded Gravel with silt, with fine to 5cm, subround to round gravel. Gravel lithology same as previous including the green metamorphic rocks. Approximately 20% sand, fine to coarse grained, subangular to angular. 5 - 10% Silt, increasing amount of sand with depth.
260	20	bentonite grout		Grayish Brown	Moist	Poorly-graded Sand with silt and gravel. Sand is fine to medium grained, predominantly angular. Gravel is. 2 - 4cm, subround.
				No Recovery	No Recovery	No Recovery

Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-28R **Project No.** 1004530.0017.001.01

ecology and environment, inc.
Global Environmental Specialists

Elev. (ft. AMSL)	DEPTH (ft)	WELL	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
255	25	bentonite grout		No Recovery	No Recovery	No Recovery
				Dark Grayish Brown	Wet	Well-graded Gravel with silt and sand. Gravel is coarse to 14cm, round to subround. Gravel lithologies as above. Sand is angular to subangular, coarse to very coarse, with black, red, green, felsic (possible plagioclase), and quartz grains. Sand approximately 15%, silt 5 - 15%.
250	30			Grayish Brown	Wet	Silty Gravel with sand. Gravel as above. Approximately 40% silt, silt has no plasticity and is soft. 10% sand, sand is very fine to medium grained. No odors or sheen.
245	35			No Recovery	No Recovery	No Recovery
				Grayish Brown	Wet	Silty Gravel with sand. Gravel is same as above, 40% fines by volume are predominantly silt with 10% very fine to fine grained sand. Clay with silt layer at 38.3 - 38.8 ft. with fine grayishbrown to tan clay banding at 38.6 ft. This banding has fractures that display 6mm of offset and large scale deformation of clay bands. Clay with silt is stiff.
240	40			Grayish Brown	Wet	Same as above, with less clay. One clay band at 41.9 ft. bgs. One 7cm clast of orange quartzite.
235	45			Grayish Brown	Wet	Same as above, with more very fine sand (up to 20%). 30% silt, no clay, 50% gravel. More water presenting with increasing very fine sand.
				Grayish Brown	Wet	Silt with gravel and sand. Silt increases from above to 50%. 20% very fine to fine grained sand and 30% gravel. Gravel is fine to 5cm. Lens of increasing gravel at 50 ft.
230	50			Grayish Brown	Wet	Same as above to 50.5 ft., then increasing in gravel content to 50%. Gravel max size decreases downward to 3cm.
225	55			Grayish Brown	Wet	Silty Gravel with sand. Gravel is coarse to 5cm but predominantely 2 cm in diameter, subangular to rounded. 30% sand is fine to coarse grained, 20% silt.

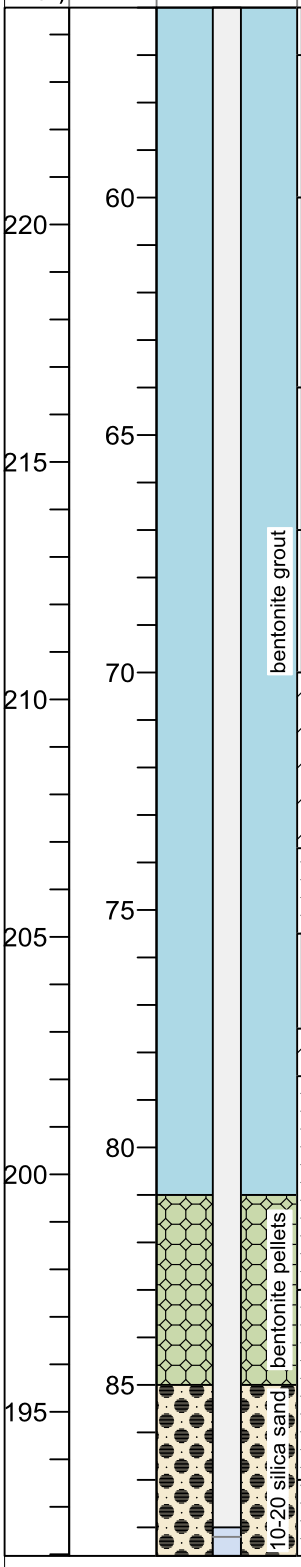
Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-28R **Project No.** 1004530.0017.001.01

ecology and environment, inc.
Global Environmental Specialists



Elev. (ft. AMSL)	DEPTH (ft)	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
			Grayish Brown	Wet	Silty Gravel with sand. Gravel is coarse to 5cm but predominantely 2 cm in diameter, subangular to rounded. 30% sand is fine to coarse grained, 20% silt.
			Grayish Brown	Wet	Same as above, with silty Gravel grading occasionally to Silt with gravel and very fine sand. Gravel and silt vary throughout interval in percentages. Gravels are coarse to 12cm, well-rounded to subround.
220	60		Grayish Brown	Wet	Same as above.
215	65		Grayish Brown	Wet	Same as above, with lenses of stiff silt and possible clay present at 66 ft. and 67 ft.. Core is expanding past 10' sampled interval. Tight packing is producing less free water, additionally, rotosonic cores are now emerging steaming hot due to friction. Driller begins injecting a small amount of water.
			Gray	Wet	Same as above with less brown coloring due to increasing clay.
210	70		Gray	Moist	As above, with more clay than silt. One stiff clay lens at 72.6 ft. Appears unsaturated.
			Gray	Damp	Well-graded Gravel with with sand and silt, low moisture. Gravels as above, up to 8 cm in diameter, with some subangular gravels. Sand is very fine to medium grained, silts include some clay. One 2cm lens of greenish gray silt at 75.5 ft. bgs.
205	75		Grayish Brown	Moist	Very moist to wet from 75.5 to 77.0 ft., then very low moisture to 77.0 - 77.5'. Clumps of very stiff clays and silts. Gravels and sands as above.
			Dark Gray	Moist	Clayey Gravel with occasional greenish-gray clays, possibly the product of a reducing environment. Clay is stiff. Gravels are fine to 2cm, subangular to subround. Trace sand.
200	80		Gray	Wet	Well-graded Gravel with sand and silt. Gravel is fine to 5cm but predominantely fine, subround. 30% sand is medium to very coarse grained. 5-15% silt.
195	85		Grayish Brown	Saturated	Well-graded Gravel with silt and trace sand. Gravel is predominantely subangular fine pebbles and well-rounded coarse pebbles, with some to many 2-7cm pebbles that are rounded to well rounded. This unit has prodigius water compared to previous intervals and is likely contact between Vashon Till and Advance Outwash. Sphericity of particles significantly increased compared to all previous.
			Grayish Brown	Saturated	Well-graded Gravel. Gravel same as above, but with one rounded igneous cobble 9 cm in diameter. Trace silt.

Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-28R **Project No.** 1004530.0017.001.01

ecology and environment, inc.
Global Environmental Specialists

Elev. (ft. AMSL)	DEPTH (ft)	WELL	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
190	90	10-20 silica sand		Grayish Brown	Saturated	Well-graded Gravel. Gravel same as above, but with one rounded igneous cobble 9 cm in diameter. Trace silt.
				Dark Grayish Brown	Wet	Well-graded Gravel with sand and trace silt. Gravel is 3 to 5cm, subround to round. Sand is medium grained. Some coarse pebbles at 90'. Less water than 83-39.
				Dark Grayish Brown	Wet	Well-graded Sand. Sand is medium to coarse grained with trace very coarse grained, angular, clean. Many felsic grains. Few subround 2 to 4cm gravels.
185	95			Grayish Brown	Saturated	Well graded Gravel with silt and sand. Interval is produces copious water. Sand is fine to medium grained Water likely draining freely from clean sands above and being retained in 5-10% silt content in 94-96 ft. interval.
				No Recovery	No Recovery	No Recovery
				Yellowish Brown	Wet	Poorly-graded Sand. Sand is very fine to fine, yellowish brown, clean. At 97.4 ft. is a distinct, sharp color change from yellowish brown to medium gray. No odors, FID=0ppm. Transition in color represents the top of the Colvos Sand.
				Gray	Wet	Poorly graded Sand. This is the Colvos Sand, sand is medium gray, very fine grained and clean.
180	100			Gray	Wet	Same as above.
175	105					
170	110					
165	115					
160	120					

Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-41R **Project No.** 1004530.0017.001.01

ecology and environment, inc.
Global Environmental Specialists

Drilling

Drilling Contractor	Environmental West Exploration		
Drilled by	Greg Walston	Completion Date	11/07/15
Logged By	J. Reeve	Drilling Fluid	potable water
Drill Rig	Speedstar 15K	Borehole Depth	102.0
Drilling Method	Rotosonic	Borehole Dia. (in)	8.0

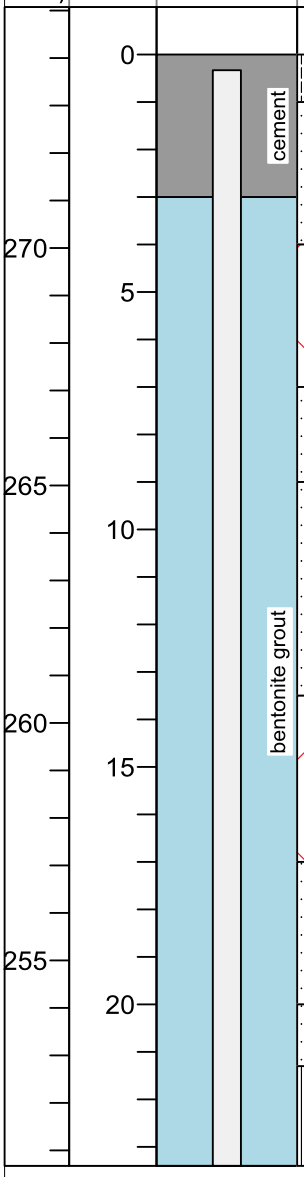
Northing	667652.452
Easting	1138428.810
Surface Elev. (ft)	274.1
TOC Elev. (ft)	273.7
Stick-up/down	-0.33 ft.

Well

Well Depth (bgs)	97.0 ft.	Annular Interval	3' - 77.5'
Casing Type	Sch. 40 PVC	Filter Material	8-12 Colorado Silica Sand
Casing Joints	Threaded / Flush	Filter Interval	81.5 - 102 ft. bgs
Casing Dia. (in)	2.0	Seal Material	Bentonite pellets
Screen Type	Slotted Sch. 40 PVC	Seal Interval	77.5' - 81.5'
Slot Size (in)	0.040	Surface Seal	0 - 3 ft. bgs
Screen Interval	84.5 - 94.5 ft. bgs	Development	Bailing and submersible Pump with surging
Annular Material	Bentonite Grout		

DTW (ft. btoc) 30.8 11/10/2015
* DTW measured after well development

Notes: Centralizers at top and bottom of screen, then every 20 ft. thereafter
Well surface completion is a flush-mount with locking cap.



Elev. (ft. AMSL)	DEPTH (ft)	WELL	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
	0			Very Dark Brown	Moist	Topsoil grading to wet silty Sand with gravel. Topsoil is sandy organic silt with abundant roots, grass, and organics. Silt and organic content reduce rapidly below 0.8'.
				Grayish Brown	Moist	Well-graded Gravel with sand and trace silt. Gravel is subround to well-rounded, fine to 9cm but predominantly 1-2cm. Gravel is composed of granitoids, very dark green crystalline rocks and black fine-grained crystalline rocks. Sand is fine to very coarse grained, predominantely angular with some subangular grains. Sand grains are primarily quartz, black grains, and few pink and orange felsics. Fine to coarse pebbles are subangular to subround. A 5cm thick clean gravel lens exists at 1.5 ft. bgs, otherwise 40-50% sand throughout. One 2cm rounded brick red volcanic clast with vesicles at 3.5 ft.
270	5			No Recovery	No Recovery	No Recovery
				Grayish Brown	Moist	Well-graded gravel with sand. Gravel is fine to 7cm, subround to well-rounded, lithology as above. Sand is fine to very coarse but predominantely medium to coarse, sand grain color and lithology as above. Trace silt lenses.
265	10			Grayish Brown	Moist	Same as above, with trace silt increasing in content to 5% at 13 ft.
260	15			No Recovery	No Recovery	No Recovery
				Grayish Brown	Moist	Well-graded Gravel with sand and silt. 30-40% sand, 10% silt. Gravel and sand are as above, with few medium to dark green metamorphic gravels. Driller began water injection due to difficult drilling through Steilacoom Gravels. Top of cores starting at 17 ft. have some fines washed out due to water injection.
255	20			Grayish Brown	Moist	Same as above.
				Grayish Brown	Moist	Same as above, with silt increasing downward from 10 to 25%. Many broken rocks from drilling. Few quartzite gravels.

Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-41R **Project No.** 1004530.0017.001.01

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Elev. (ft. AMSL)	DEPTH (ft)	WELL	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
250	25	bentonite grout		Grayish Brown	Moist	Same as above, with silt increasing downward from 10 to 25%. Many broken rocks from drilling. Few quartzite gravels.
				No Recovery	No Recovery	No Recovery
				Grayish Brown	Moist	Silty Gravel. 20% silt, 20% sand, 60% gravel. Gravel, silt, and sand same as above. Saturated water present in in first core bag is injected drill water according to driller.
245	30			Grayish Brown	Wet	Same as above. Formation water appears to come into boring differentiated from drill water at 29.5'. Average gravel size increasing, making for difficult drilling. 2-7cm subround pebbles are common. 30.2 to 31.2' is sandy GW lens. No odors, FID = 0ppm.
240	35			Yellowish Brown	Wet	Same as above, but more tan in color. Below 35 ft. are several cobbles >10cm. FID = 0ppm.
				Grayish Brown	Wet	Same as above, except sand is noww medium to very coarse grained. FID = 0ppm.
235	40			Grayish Brown	Wet	Same as above, with 10cm lens of gravelly Sand at 42.5 ft.. FID = 0ppm.
				Grayish Brown	Wet	Same as above, with very little sand (5%). Many coarse gravels. FID = 0ppm.
230	45			No Recovery	No Recovery	No Recovery
				Grayish Brown	Wet	Same as above.
225	50			Grayish Brown	Wet	Same as above, but silt reduced to 10-15%, sand increased to 30%. FID = 0ppm.
				Dark Gray	Wet	Well-graded clean Sand grading downward to Sand with silt. Top clean Sand is very coarse grained, quickly grades downwards to fine to medium grained. No odors, FID = 0ppm.
220	55			Dark Grayish Brown	Wet	Well-graded sandy Gravel with silt. 30-40% sand, 5-10% silt. Gravels and sands same as previous GW-GM (48.3 - 50.4 ft.), predominantely coarse sand and fine gravels. Silt content varies along depth. FID = 0ppm.

Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-41R **Project No.** 1004530.0017.001.01

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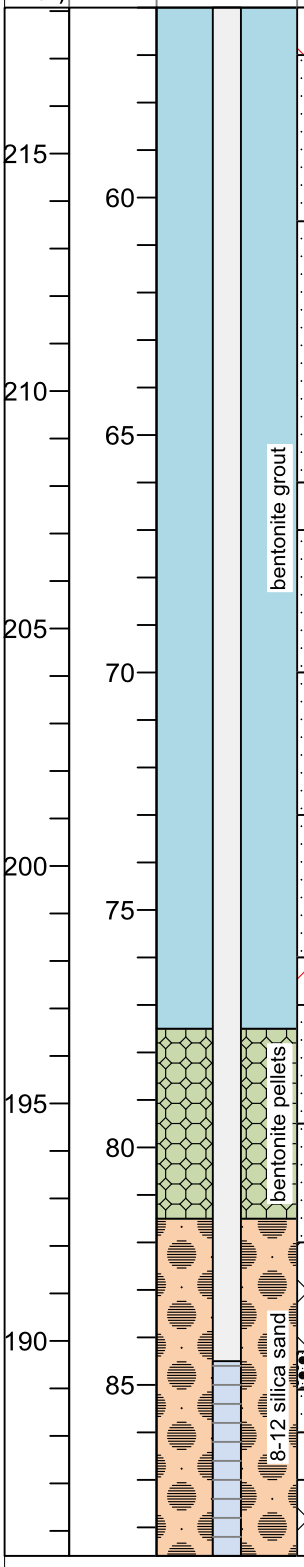

Elev. (ft. AMSL)	DEPTH (ft)	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
			Dark Grayish Brown	Wet	Well-graded sandy Gravel with silt. 30-40% sand, 5-10% silt. Gravels and sands same as previous GW-GM (48.3 - 50.4 ft.), predominantely coarse sand and fine gravels. Silt content varies along depth. FID = 0ppm.
			No Recovery	No Recovery	
			No Recovery	Wet	No Recovery
215			Dark Grayish Brown		Well-graded Gravel with sand and silt, same as 51.1 to 56 ft, except with fewer sands and more gravel from 58 - 59.5 ft. FID = 0ppm.
	60				
			Dark Grayish Brown	Wet	Same as above, except gravel max size reducing to 5cm below 63.5 ft. bgs, sand increasing to 50% below 63.5 ft. as well. FID = 0ppm.
210					
	65				
			No Recovery	No Recovery	No Recovery
			Dark Grayish Brown	Wet	Same as above, with coarse to very coarse gravelly Sand lens at 68.5 - 69.5 ft. FID = 0ppm.
205					
	70		Dark Gray	Wet	Well-graded Gravel. Alternating very coarse angular sands and well-rounded coarse to 2cm Gravels. 2 layers each, distinct and separate. Trace silt <5%, FID = 0ppm.
			Dark Grayish Brown	Wet	Same as previous GW-GM (67-70 ft.). Gravels are 2 - 8cm, more subround than 67 to 70 ft. Increasing sand below 74. ft. FID = 0ppm.
200					
	75				
			No Recovery	No Recovery	No Recovery
			Brown	Wet	Well-graded Gravel with sand and silt. 10-20% sand is medium to very coarse, angular. 10% silt. Gravel is rounded to occasionally well-rounded, coarse to 6cm. FID = 0ppm.
195					
	80		Dark Grayish Brown	Wet	Same as above except 30% sand. One 10cm black fine-grained crystalline cobble caught in nosecone on core removal. FID = 0ppm.
			Brown	Wet	Well-graded Sand with gravel. 10-20% gravel is coarse to 4cm, well-rounded. Sand is coarse to very coarse grained from 82 - 82.5 ft., medium from 82.5 - 83.2 ft., then fine to coarse 83.2 - 84.3 ft. FID = 0ppm. Sand is much more brown due to significant increase in medium size red grains, possibly volcanic in origin.
190					
	85		Dark Grayish Brown	Wet	
				Wet	Poorly-graded Sand with gravel and silt. Sand is very coarse, angular. Gravel is fine, angular. All grains are about the same size near 2mm in diameter. FID = 0ppm.
			Dark Grayish Brown	No Recovery	
			No Recovery	Wet	Well-graded Gravel with silt and sand. Gravel is fine to 5cm, rounded to well-rounded. 15% sand is fine to very coarse grained, 10-15% silt. FID = 0ppm.

Borehole / Well Completion Log

Client USEPA

Project Lakewood / Ponder's Corner Well Installation

Well ID MW-41R **Project No.** 1004530.0017.001.01

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Elev. (ft. AMSL)	DEPTH (ft)	WELL	USCS	Color	Moisture	LITHOLOGICAL DESCRIPTION
185	90	8-12 silica sand		Dark Grayish Brown	Wet	Well-graded Sand with gravel. 30% gravel is fine to 3cm but predominantely fine, subround to rounded. Sand is medium to very coarse, angular. FID = 0ppm.
				Dark Grayish Brown	Wet	Well-graded Gravel with sand. Occasional trace silt. At 88.8 - 89,0 ft. is a coarse to 2cm well-rounded gravel lens. Below 89.0 ft. gravel is fine to 4cm, rounded to well-rounded. 10-40% sand is fine to very coarse grained, angular to subangular. FID = 0ppm.
180	95			Dark Grayish Brown	Wet	Well-graded Gravel with sand. Gravel is fine to 5cm with many fine to coarse pebbles, subround to round. Sand is fine to very coarse grained, angular to subangular. Silt increasing from trace above 93.5 ft. to 5-10% below 93.5 ft.. FID = 0ppm.
				No Recovery	No Recovery	No Recovery
				Grayish Brown	Wet	Well graded gravel with silt. Same as above but with increasing silt content. Few cobbloes 7 - 10cm at 97 - 98 ft. FID = 0ppm.
175	100			Brown	Wet	Same as above. FID = 0ppm.
				Grayish Brown	Wet	Silty Gravel. Silt increasing from above to 20-30%, sand content decreasing from above to 15%. Silt is rust-stained near 100.2 ft. One 9cm rounded cobble. FID = 0ppm.
				Dark Grayish Brown	Wet	Well-graded Gravel with sand and silt. 40% sand, 10% silt. One 7cm clean coarse Sand lens at 101.3 ft. Otherwise gravel is fine to 4cm, round - well rounded. Sand is medium to very coarse grained. FID = 0ppm. Core expanded to 103 ft.
170	105					
165	110					
160	115					
155	120					

ATTACHMENT D – DATA VALIDATION MEMO

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ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: December 10, 2015

TO: Erin Lynch, START-IV Project Manager, E & E, Portland, Oregon

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, Lakewood/Ponder's Corner Well Installation Site, Lakewood, Washington**

REF: TDD: 15-08-0004 PAN: 1004530.0017.001.01

The data quality assurance review of 2 soil and 3 water samples collected from the Lakewood/Ponder's Corner Well Installation site in Lakewood, Washington, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by Eurofins Laboratories, Inc., Lancaster, Pennsylvania. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Electronic and/or Manual Process (S2B/4VE/M).

The samples were numbered:

MW-28R-IDW MW-41R-IDW IDW decon Water MW-28R-IDW
MW-41R-IDW

Data Qualifications:

1. Sample Holding Times: Acceptable.

The samples were maintained and received within the QC limits. The samples were collected on November 10, 2015, and were analyzed by November 22, 2015, therefore meeting QC criteria of less than 14 days between collection and analysis for soil and preserved water samples.

2. Tuning: Acceptable.

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. Initial Calibration: Acceptable.

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

4. Continuing Calibration: Acceptable.

All RRFs were within the QC limits. All % differences were within the QC limits.

5. Blanks: Acceptable.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank.

6. System Monitoring Compounds (SMCs): Acceptable.

All SMC recoveries were within QC limits.

7. Matrix Spike (MS)/Blank Spike (BS)/BS Duplicate (BSD) Analysis: Acceptable.

Spike analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits.

8. Duplicate Analysis: Acceptable.

Laboratory duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits.

9. Internal Standards: Acceptable.

All internal standards were within $\pm$ 30 seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

10. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

12. Overall Assessment of Data for Use

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Superfund Organic Methods Data Review, August 2014". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

JH - The result is an estimated quantity, but the result may be biased high.

JL - The result is an estimated quantity, but the result may be biased low.

JK - The result is an estimated quantity, but the result may have an unknown bias.

JQ - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.

UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R - The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

C - The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/ Mass Spectrometer (GC/MS).

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Analysis Report

Sample Description: MW-28R-IDW Soil
Ponder's Creek

LL Sample # SW 8132428
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 09:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCS28 SDG#: EUR43-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	28	21	7	0.97
10237	Benzene	71-43-2	< 5	5 U	0.5	0.97
10237	Bromodichloromethane	75-27-4	< 5	5	1	0.97
10237	Bromoform	75-25-2	< 5	5	1	0.97
10237	Bromomethane	74-83-9	< 5	5	2	0.97
10237	2-Butanone	78-93-3	< 11	11	4	0.97
10237	Carbon Disulfide	75-15-0	< 5	5	1	0.97
10237	Carbon Tetrachloride	56-23-5	< 5	5	1	0.97
10237	Chlorobenzene	108-90-7	< 5	5	1	0.97
10237	Chloroethane	75-00-3	< 5	5	2	0.97
10237	Chloroform	67-66-3	< 5	5	1	0.97
10237	Chloromethane	74-87-3	< 5	5	2	0.97
10237	Cyclohexane	110-82-7	< 5	5	1	0.97
10237	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	0.97
10237	Dibromochloromethane	124-48-1	< 5	5	1	0.97
10237	1,2-Dibromoethane	106-93-4	< 5	5	1	0.97
10237	1,2-Dichlorobenzene	95-50-1	< 5	5	1	0.97
10237	1,3-Dichlorobenzene	541-73-1	< 5	5	1	0.97
10237	1,4-Dichlorobenzene	106-46-7	< 5	5	1	0.97
10237	Dichlorodifluoromethane	75-71-8	< 5	5	2	0.97
10237	1,1-Dichloroethane	75-34-3	< 5	5	1	0.97
10237	1,2-Dichloroethane	107-06-2	< 5	5	1	0.97
10237	1,1-Dichloroethene	75-35-4	< 5	5	1	0.97
10237	cis-1,2-Dichloroethene	156-59-2	< 5	5	1	0.97
10237	trans-1,2-Dichloroethene	156-60-5	< 5	5	1	0.97
10237	1,2-Dichloropropane	78-87-5	< 5	5	1	0.97
10237	cis-1,3-Dichloropropene	10061-01-5	< 5	5	1	0.97
10237	trans-1,3-Dichloropropene	10061-02-6	< 5	5	1	0.97
10237	Ethylbenzene	100-41-4	< 5	5	1	0.97
10237	Freon 113	76-13-1	< 11	11	2	0.97
10237	2-Hexanone	591-78-6	< 11	11	3	0.97
10237	Isopropylbenzene	98-82-8	< 5	5	1	0.97
10237	Methyl Acetate	79-20-9	< 5	5	2	0.97
10237	Methyl Tertiary Butyl Ether	1634-04-4	< 5	5	0.5	0.97
10237	4-Methyl-2-pentanone	108-10-1	< 11	11	3	0.97
10237	Methylcyclohexane	108-87-2	< 5	5	1	0.97
10237	Methylene Chloride	75-09-2	< 5	5	2	0.97
10237	Styrene	100-42-5	< 5	5	1	0.97
10237	1,1,2,2-Tetrachloroethane	79-34-5	< 5	5	1	0.97
10237	Tetrachloroethene	127-18-4	< 5	5	1	0.97
10237	Toluene	108-88-3	< 5	5	1	0.97
10237	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	0.97
10237	1,1,1-Trichloroethane	71-55-6	< 5	5	1	0.97
10237	1,1,2-Trichloroethane	79-00-5	< 5	5	1	0.97
10237	Trichloroethene	79-01-6	< 5	5	1	0.97
10237	Trichlorofluoromethane	75-69-4	< 5	5	2	0.97
10237	Vinyl Chloride	75-01-4	< 5	5	1	0.97
10237	Xylene (Total)	1330-20-7	< 5	5	1	0.97
Metals	**SW-846 6020A**		mg/kg	mg/kg	mg/kg	
06125	Arsenic	7440-38-2	3.57	0.862	0.162	2

*=This limit was used in the evaluation of the final result

MW 12-10-15

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Analysis Report

Sample Description: MW-41R-IDW Soil
Ponder's Creek

LL Sample # SW 8132429
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 10:00 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCS41 SDG#: EUR43-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	< 18	18 U	6	0.82
10237	Benzene	71-43-2	< 5	5	0.5	0.82
10237	Bromodichloromethane	75-27-4	< 5	5	0.9	0.82
10237	Bromoform	75-25-2	< 5	5	0.9	0.82
10237	Bromomethane	74-83-9	< 5	5	2	0.82
10237	2-Butanone	78-93-3	< 9	9	4	0.82
10237	Carbon Disulfide	75-15-0	< 5	5	0.9	0.82
10237	Carbon Tetrachloride	56-23-5	< 5	5	0.9	0.82
10237	Chlorobenzene	108-90-7	< 5	5	0.9	0.82
10237	Chloroethane	75-00-3	< 5	5	2	0.82
10237	Chloroform	67-66-3	< 5	5	0.9	0.82
10237	Chloromethane	74-87-3	< 5	5	2	0.82
10237	Cyclohexane	110-82-7	< 5	5	0.9	0.82
10237	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	0.82
10237	Dibromochloromethane	124-48-1	< 5	5	0.9	0.82
10237	1,2-Dibromoethane	106-93-4	< 5	5	0.9	0.82
10237	1,2-Dichlorobenzene	95-50-1	< 5	5	0.9	0.82
10237	1,3-Dichlorobenzene	541-73-1	< 5	5	0.9	0.82
10237	1,4-Dichlorobenzene	106-46-7	< 5	5	0.9	0.82
10237	Dichlorodifluoromethane	75-71-8	< 5	5	2	0.82
10237	1,1-Dichloroethane	75-34-3	< 5	5	0.9	0.82
10237	1,2-Dichloroethane	107-06-2	< 5	5	0.9	0.82
10237	1,1-Dichloroethene	75-35-4	< 5	5	0.9	0.82
10237	cis-1,2-Dichloroethene	156-59-2	< 5	5	0.9	0.82
10237	trans-1,2-Dichloroethene	156-60-5	< 5	5	0.9	0.82
10237	1,2-Dichloropropane	78-87-5	< 5	5	0.9	0.82
10237	cis-1,3-Dichloropropene	10061-01-5	< 5	5	0.9	0.82
10237	trans-1,3-Dichloropropene	10061-02-6	< 5	5	0.9	0.82
10237	Ethylbenzene	100-41-4	< 5	5	0.9	0.82
10237	Freon 113	76-13-1	< 9	9	2	0.82
10237	2-Hexanone	591-78-6	< 9	9	3	0.82
10237	Isopropylbenzene	98-82-8	< 5	5	0.9	0.82
10237	Methyl Acetate	79-20-9	< 5	5	2	0.82
10237	Methyl Tertiary Butyl Ether	1634-04-4	< 5	5	0.5	0.82
10237	4-Methyl-2-pentanone	108-10-1	< 9	9	3	0.82
10237	Methylcyclohexane	108-87-2	< 5	5	0.9	0.82
10237	Methylene Chloride	75-09-2	< 5	5	2	0.82
10237	Styrene	100-42-5	< 5	5	0.9	0.82
10237	1,1,2,2-Tetrachloroethane	79-34-5	< 5	5	0.9	0.82
10237	Tetrachloroethene	127-18-4	< 5	5	0.9	0.82
10237	Toluene	108-88-3	< 5	5	0.9	0.82
10237	1,2,4-Trichlorobenzene	120-82-1	< 5	5	0.9	0.82
10237	1,1,1-Trichloroethane	71-55-6	< 5	5	0.9	0.82
10237	1,1,2-Trichloroethane	79-00-5	< 5	5	0.9	0.82
10237	Trichloroethene	79-01-6	< 5	5	0.9	0.82
10237	Trichlorofluoromethane	75-69-4	< 5	5	2	0.82
10237	Vinyl Chloride	75-01-4	< 5	5	0.9	0.82
10237	Xylene (Total)	1330-20-7	< 5 MW	5	0.9	0.82
Metals	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06125	Arsenic	7440-38-2	5.86	0.879	0.165	2 MW

*=This limit was used in the evaluation of the final result

MW 12-10-15

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Analysis Report

Sample Description: IDW decon Water
Ponder's Creek

LL Sample # WW 8132430
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 11:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCWID SDG#: EUR43-03

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Acetone	67-64-1	89	20	6	1
10335	Benzene	71-43-2	< 1	1 U	0.5	1
10335	Bromodichloromethane	75-27-4	< 1	1	0.5	1
10335	Bromoform	75-25-2	< 4	4	0.5	1
10335	Bromomethane	74-83-9	< 1	1	0.5	1
10335	2-Butanone	78-93-3	< 10	10	3	1
10335	Carbon Disulfide	75-15-0	< 5	5	1	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	0.5	1
10335	Chlorobenzene	108-90-7	< 1	1	0.5	1
10335	Chloroethane	75-00-3	< 1	1	0.5	1
10335	Chloroform	67-66-3	< 1	1	0.5	1
10335	Chloromethane	74-87-3	< 1	1	0.5	1
10335	Cyclohexane	110-82-7	< 5	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	1
10335	Dibromochloromethane	124-48-1	< 1	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	< 1	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1	1
10335	Dichlorodifluoromethane	75-71-8	< 1	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	0.5	1
10335	Ethylbenzene	100-41-4	< 1	1	0.5	1
10335	Freon 113	76-13-1	< 10	10	2	1
10335	2-Hexanone	591-78-6	< 10	10	3	1
10335	Isopropylbenzene	98-82-8	< 5	5	1	1
10335	Methyl Acetate	79-20-9	< 5	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	< 10	10	3	1
10335	Methylcyclohexane	108-87-2	< 5	5	1	1
10335	Methylene Chloride	75-09-2	< 4	4	2	1
10335	Styrene	100-42-5	< 5	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	0.5	1
10335	Tetrachloroethene	127-18-4	< 1	1	0.5	1
10335	Toluene	108-88-3	< 1	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	0.5	1
10335	Trichloroethene	79-01-6	< 1	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	0.5	1
10335	Vinyl Chloride	75-01-4	< 1	1	0.5	1
10335	Xylene (Total)	1330-20-7	< 1	1	0.5	1
Metals	SW-846 6020A		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0114	0.0040	0.00054	1

*=This limit was used in the evaluation of the final result

MW 12-10-15

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Analysis Report

Sample Description: MW-28R-IDW Water
Ponder's Creek

LL Sample # WW 8132431
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 14:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW28 SDG#: EUR43-04

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20 U	6	1
10335	Benzene	71-43-2	< 1	1	0.5	1
10335	Bromodichloromethane	75-27-4	< 1	1	0.5	1
10335	Bromoform	75-25-2	< 4	4	0.5	1
10335	Bromomethane	74-83-9	< 1	1	0.5	1
10335	2-Butanone	78-93-3	< 10	10	3	1
10335	Carbon Disulfide	75-15-0	< 5	5	1	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	0.5	1
10335	Chlorobenzene	108-90-7	< 1	1	0.5	1
10335	Chloroethane	75-00-3	< 1	1	0.5	1
10335	Chloroform	67-66-3	< 1	1	0.5	1
10335	Chloromethane	74-87-3	< 1	1	0.5	1
10335	Cyclohexane	110-82-7	< 5	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	1
10335	Dibromochloromethane	124-48-1	< 1	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	< 1	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1	1
10335	Dichlorodifluoromethane	75-71-8	< 1	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	0.5	1
10335	Ethylbenzene	100-41-4	< 1	1	0.5	1
10335	Freon 113	76-13-1	< 10	10	2	1
10335	2-Hexanone	591-78-6	< 10	10	3	1
10335	Isopropylbenzene	98-82-8	< 5	5	1	1
10335	Methyl Acetate	79-20-9	< 5	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	< 10	10	3	1
10335	Methylcyclohexane	108-87-2	< 5	5	1	1
10335	Methylene Chloride	75-09-2	< 4	4	2	1
10335	Styrene	100-42-5	< 5	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	0.5	1
10335	Tetrachloroethene	127-18-4	< 1	1	0.5	1
10335	Toluene	108-88-3	< 1	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	0.5	1
10335	Trichloroethene	79-01-6	< 1	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	0.5	1
10335	Vinyl Chloride	75-01-4	< 1	1	0.5	1
10335	Xylene (Total)	1330-20-7	< 1	1	0.5	1
~~Metals~~	~~SW-846 6020A~~		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	< 0.0040	0.0040 U	0.00054	1

*=This limit was used in the evaluation of the final result

MW 12/10/15

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Analysis Report

Sample Description: MW-41R-IDW Water
Ponder's Creek

LL Sample # WW 8132432
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 17:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW41 SDG#: EUR43-05

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20 U	6	1
10335	Benzene	71-43-2	< 1	1	0.5	1
10335	Bromodichloromethane	75-27-4	< 1	1	0.5	1
10335	Bromoform	75-25-2	< 4	4	0.5	1
10335	Bromomethane	74-83-9	< 1	1	0.5	1
10335	2-Butanone	78-93-3	< 10	10	3	1
10335	Carbon Disulfide	75-15-0	< 5	5	1	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	0.5	1
10335	Chlorobenzene	108-90-7	< 1	1	0.5	1
10335	Chloroethane	75-00-3	< 1	1	0.5	1
10335	Chloroform	67-66-3	< 1	1	0.5	1
10335	Chloromethane	74-87-3	< 1	1	0.5	1
10335	Cyclohexane	110-82-7	< 5	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	1
10335	Dibromochloromethane	124-48-1	< 1	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	< 1	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1	1
10335	Dichlorodifluoromethane	75-71-8	< 1	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	0.5	1
10335	Ethylbenzene	100-41-4	< 1	1	0.5	1
10335	Freon 113	76-13-1	< 10	10	2	1
10335	2-Hexanone	591-78-6	< 10	10	3	1
10335	Isopropylbenzene	98-82-8	< 5	5	1	1
10335	Methyl Acetate	79-20-9	< 5	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	< 10	10	3	1
10335	Methylcyclohexane	108-87-2	< 5	5	1	1
10335	Methylene Chloride	75-09-2	< 4	4	2	1
10335	Styrene	100-42-5	< 5	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	0.5	1
10335	Tetrachloroethene	127-18-4	< 1	1	0.5	1
10335	Toluene	108-88-3	< 1	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	0.5	1
10335	Trichloroethene	79-01-6	< 1	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	0.5	1
10335	Vinyl Chloride	75-01-4	< 1	1	0.5	1
10335	Xylene (Total)	1330-20-7	< 1	1	0.5	1
Metals	**SW-846 6020A**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	< 0.0040	0.0040 U	0.00054	1

*=This limit was used in the evaluation of the final result

MW 12-07-15

ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: December 10, 2015

TO: Erin Lynch, START-IV Project Manager, E & E, Portland, Oregon

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Inorganic Data Quality Assurance Review, Lakewood/Ponder's Corner Well Installation Site, Lakewood, Washington**

REF: TDD: 15-08-0004 PAN: 1004530.0017.001.01

The data quality assurance review of 2 soil and 3 water samples collected from the Lakewood/ Ponder's Corner Well Installation site in Lakewood, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA Methods 6020, 7470 [water], and 7471 [soil]) were performed by Eurofins Laboratories, Inc., Lancaster, Pennsylvania. All sample analyses were evaluated following EPA's Stage 2 and/or 4 Data Validation Electronic and/or Manual Process (S2B/4VE/M).

The samples were numbered:

MW-28R-IDW MW-41R-IDW IDW decon Water MW-28R-IDW
MW-41R-IDW

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

All liquid samples were preserved to a pH < 2. The samples were maintained at < 6°C. The samples were collected on November 10, 2015, and were analyzed by November 29, 2015, therefore meeting QC criteria of less than 6 months between collection, extraction, and analysis (28 days for mercury).

2. **Initial and Continuing Calibration: Acceptable.**

A minimum of one calibration standard and a blank were analyzed at the beginning of the ICP analysis sequence and after every 10 samples. No results were greater than 110% of the highest calibration standard. All ICP recoveries were within the QC limits. All AA recoveries were within QC limits. All cyanide recoveries were within the QC limits.

3. **Blanks: Acceptable.**

A preparation blank was analyzed for each 20 samples or per matrix per concentration level. Blanks were analyzed after each Initial or Continuing Calibration Verification. There were no detections in any blanks.

4. ICP Interference Check Sample: Acceptable.

An Interference Check Sample (ICS) was analyzed at the beginning of each sequence. All ICS (solution AB) results were within QC limits of 80% - 120% recovery.

5. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

6. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

7. ICP Serial Dilution: Acceptable.

A serial dilution analysis was performed per matrix per concentration or per sample delivery group, whichever was more frequent. All serial dilution results were within QC limits.

8. Matrix Spike Analysis: Satisfactory.

A matrix spike analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. Spike and spike duplicate recoveries were within the QC limits except soil arsenic, chromium, nickel, zinc (high recoveries) and mercury (low recoveries). Sample results associated with the low recovery outliers were qualified as estimated quantities with a low bias (JL or UJL). Positive sample results associated with the high recovery outliers were qualified as estimated quantities with a high bias (JH).

9. Duplicate Analysis: Satisfactory.

A laboratory duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All duplicate results were within QC limits except soil cadmium, lead, and selenium outliers. Associated sample results were qualified as estimated quantities with an unknown bias (JK or UJK).

10. Laboratory Control Sample Analysis: Acceptable.

A Laboratory Control Sample (LCS) was analyzed per SDG per matrix. All LCS results were within the established control limits.

11. Overall Assessment of Data for Use

The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "National Functional Guidelines for Inorganic Superfund Data Review, August 2014". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

JH - The result is an estimated quantity, but the result may be biased high.

JL - The result is an estimated quantity, but the result may be biased low.

JK - The result is an estimated quantity, but the result may have an unknown bias.

JQ - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

R - The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

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Analysis Report

Sample Description: MW-28R-IDW Soil
Ponder's Creek

LL Sample # SW 8132428
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 09:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCS28 SDG#: EUR43-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	28	21	7	0.97
10237	Benzene	71-43-2	< 5	5 U	0.5	0.97
10237	Bromodichloromethane	75-27-4	< 5	5	1	0.97
10237	Bromoform	75-25-2	< 5	5	1	0.97
10237	Bromomethane	74-83-9	< 5	5	2	0.97
10237	2-Butanone	78-93-3	< 11	11	4	0.97
10237	Carbon Disulfide	75-15-0	< 5	5	1	0.97
10237	Carbon Tetrachloride	56-23-5	< 5	5	1	0.97
10237	Chlorobenzene	108-90-7	< 5	5	1	0.97
10237	Chloroethane	75-00-3	< 5	5	2	0.97
10237	Chloroform	67-66-3	< 5	5	1	0.97
10237	Chloromethane	74-87-3	< 5	5	2	0.97
10237	Cyclohexane	110-82-7	< 5	5	1	0.97
10237	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	0.97
10237	Dibromochloromethane	124-48-1	< 5	5	1	0.97
10237	1,2-Dibromoethane	106-93-4	< 5	5	1	0.97
10237	1,2-Dichlorobenzene	95-50-1	< 5	5	1	0.97
10237	1,3-Dichlorobenzene	541-73-1	< 5	5	1	0.97
10237	1,4-Dichlorobenzene	106-46-7	< 5	5	1	0.97
10237	Dichlorodifluoromethane	75-71-8	< 5	5	2	0.97
10237	1,1-Dichloroethane	75-34-3	< 5	5	1	0.97
10237	1,2-Dichloroethane	107-06-2	< 5	5	1	0.97
10237	1,1-Dichloroethene	75-35-4	< 5	5	1	0.97
10237	cis-1,2-Dichloroethene	156-59-2	< 5	5	1	0.97
10237	trans-1,2-Dichloroethene	156-60-5	< 5	5	1	0.97
10237	1,2-Dichloropropane	78-87-5	< 5	5	1	0.97
10237	cis-1,3-Dichloropropene	10061-01-5	< 5	5	1	0.97
10237	trans-1,3-Dichloropropene	10061-02-6	< 5	5	1	0.97
10237	Ethylbenzene	100-41-4	< 5	5	1	0.97
10237	Freon 113	76-13-1	< 11	11	2	0.97
10237	2-Hexanone	591-78-6	< 11	11	3	0.97
10237	Isopropylbenzene	98-82-8	< 5	5	1	0.97
10237	Methyl Acetate	79-20-9	< 5	5	2	0.97
10237	Methyl Tertiary Butyl Ether	1634-04-4	< 5	5	0.5	0.97
10237	4-Methyl-2-pentanone	108-10-1	< 11	11	3	0.97
10237	Methylcyclohexane	108-87-2	< 5	5	1	0.97
10237	Methylene Chloride	75-09-2	< 5	5	2	0.97
10237	Styrene	100-42-5	< 5	5	1	0.97
10237	1,1,2,2-Tetrachloroethane	79-34-5	< 5	5	1	0.97
10237	Tetrachloroethene	127-18-4	< 5	5	1	0.97
10237	Toluene	108-88-3	< 5	5	1	0.97
10237	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	0.97
10237	1,1,1-Trichloroethane	71-55-6	< 5	5	1	0.97
10237	1,1,2-Trichloroethane	79-00-5	< 5	5	1	0.97
10237	Trichloroethene	79-01-6	< 5	5	1	0.97
10237	Trichlorofluoromethane	75-69-4	< 5	5	2	0.97
10237	Vinyl Chloride	75-01-4	< 5	5	1	0.97
10237	Xylene (Total)	1330-20-7	< 5	5	1	0.97
Metals	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06125	Arsenic	7440-38-2	3.57 JH	0.862	0.162	2

*=This limit was used in the evaluation of the final result

MW 12/7/15

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Analysis Report

Sample Description: MW-28R-IDW Soil
Ponder's Creek

LL Sample # SW 8132428
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 09:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCS28 SDG#: EUR43-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6020A**	mg/kg	mg/kg	mg/kg	
06126	Barium	7440-39-3	53.2	0.862	0.198	2
06128	Cadmium	7440-43-9	~~< 0.215~~	0.215 U	0.0496	2
06131	Chromium	7440-47-3	18.6	0.862	0.108	2
06133	Copper	7440-50-8	17.9	0.862	0.0862	2
06135	Lead	7439-92-1	3.28	0.431	0.0280	2
06139	Nickel	7440-02-0	20.3	0.862	0.203	2
06141	Selenium	7782-49-2	~~< 0.862~~	0.862 U	0.108	2
06142	Silver	7440-22-4	~~< 0.215~~	0.215 U	0.0215	2
06149	Zinc	7440-66-6	32.5	6.46	0.797	2
		SW-846 7471B	mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	~~< 0.205~~	0.205 U	0.0103	1
Wet Chemistry		**SM 2540 G-1997**	%	%	%	
00111	Moisture	n.a.	9.0	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	PPL/TCL Volatiles in Soil	SW-846 8260B	1	Y153211AA	11/17/2015 22:11	Christopher G Torres	0.97
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201531639392	11/12/2015 21:01	Mitchell R Washel	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201531639392	11/12/2015 21:01	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201531639392	11/12/2015 21:01	Mitchell R Washel	n.a.
06125	Arsenic	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	153210637001D	11/19/2015 15:44	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	153210637001B	11/19/2015 15:44	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
06149	Zinc	SW-846 6020A	1	153210637001A	11/19/2015 15:44	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	153210638001	11/19/2015 05:38	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	153210637001	11/18/2015 09:09	Christopher M Klumpp	1

*=This limit was used in the evaluation of the final result

MW 12-10-15

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Analysis Report

Sample Description: MW-41R-IDW Soil
Ponder's Creek

LL Sample # SW 8132429
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 10:00 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCS41 SDG#: EUR43-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	< 18	18	6	0.82
10237	Benzene	71-43-2	< 5	5	0.5	0.82
10237	Bromodichloromethane	75-27-4	< 5	5	0.9	0.82
10237	Bromoform	75-25-2	< 5	5	0.9	0.82
10237	Bromomethane	74-83-9	< 5	5	2	0.82
10237	2-Butanone	78-93-3	< 9	9	4	0.82
10237	Carbon Disulfide	75-15-0	< 5	5	0.9	0.82
10237	Carbon Tetrachloride	56-23-5	< 5	5	0.9	0.82
10237	Chlorobenzene	108-90-7	< 5	5	0.9	0.82
10237	Chloroethane	75-00-3	< 5	5	2	0.82
10237	Chloroform	67-66-3	< 5	5	0.9	0.82
10237	Chloromethane	74-87-3	< 5	5	2	0.82
10237	Cyclohexane	110-82-7	< 5	5	0.9	0.82
10237	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	0.82
10237	Dibromochloromethane	124-48-1	< 5	5	0.9	0.82
10237	1,2-Dibromoethane	106-93-4	< 5	5	0.9	0.82
10237	1,2-Dichlorobenzene	95-50-1	< 5	5	0.9	0.82
10237	1,3-Dichlorobenzene	541-73-1	< 5	5	0.9	0.82
10237	1,4-Dichlorobenzene	106-46-7	< 5	5	0.9	0.82
10237	Dichlorodifluoromethane	75-71-8	< 5	5	2	0.82
10237	1,1-Dichloroethane	75-34-3	< 5	5	0.9	0.82
10237	1,2-Dichloroethane	107-06-2	< 5	5	0.9	0.82
10237	1,1-Dichloroethene	75-35-4	< 5	5	0.9	0.82
10237	cis-1,2-Dichloroethene	156-59-2	< 5	5	0.9	0.82
10237	trans-1,2-Dichloroethene	156-60-5	< 5	5	0.9	0.82
10237	1,2-Dichloropropane	78-87-5	< 5	5	0.9	0.82
10237	cis-1,3-Dichloropropene	10061-01-5	< 5	5	0.9	0.82
10237	trans-1,3-Dichloropropene	10061-02-6	< 5	5	0.9	0.82
10237	Ethylbenzene	100-41-4	< 5	5	0.9	0.82
10237	Freon 113	76-13-1	< 9	9	2	0.82
10237	2-Hexanone	591-78-6	< 9	9	3	0.82
10237	Isopropylbenzene	98-82-8	< 5	5	0.9	0.82
10237	Methyl Acetate	79-20-9	< 5	5	2	0.82
10237	Methyl Tertiary Butyl Ether	1634-04-4	< 5	5	0.5	0.82
10237	4-Methyl-2-pentanone	108-10-1	< 9	9	3	0.82
10237	Methylcyclohexane	108-87-2	< 5	5	0.9	0.82
10237	Methylene Chloride	75-09-2	< 5	5	2	0.82
10237	Styrene	100-42-5	< 5	5	0.9	0.82
10237	1,1,2,2-Tetrachloroethane	79-34-5	< 5	5	0.9	0.82
10237	Tetrachloroethene	127-18-4	< 5	5	0.9	0.82
10237	Toluene	108-88-3	< 5	5	0.9	0.82
10237	1,2,4-Trichlorobenzene	120-82-1	< 5	5	0.9	0.82
10237	1,1,1-Trichloroethane	71-55-6	< 5	5	0.9	0.82
10237	1,1,2-Trichloroethane	79-00-5	< 5	5	0.9	0.82
10237	Trichloroethene	79-01-6	< 5	5	0.9	0.82
10237	Trichlorofluoromethane	75-69-4	< 5	5	2	0.82
10237	Vinyl Chloride	75-01-4	< 5	5	0.9	0.82
10237	Xylene (Total)	1330-20-7	< 5	5	0.9	0.82
Metals	SW-846 6020A		mg/kg	mg/kg	mg/kg	
06125	Arsenic	7440-38-2	5.86	0.879	0.165	2

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW-41R-IDW Soil
Ponder's Creek

LL Sample # SW 8132429
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 10:00 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCS41 SDG#: EUR43-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6020A**	mg/kg	mg/kg	mg/kg	
06126	Barium	7440-39-3	115	0.879	0.202	2
06128	Cadmium	7440-43-9	~~< 0.220~~	0.220 UJK	0.0505	2
06131	Chromium	7440-47-3	29.5 JH	0.879	0.110	2
06133	Copper	7440-50-8	46.6	0.879	0.0879	2
06135	Lead	7439-92-1	4.17 JK JH	0.440	0.0286	2
06139	Nickel	7440-02-0	32.1	0.879	0.207	2
06141	Selenium	7782-49-2	~~< 0.879~~	0.879 UJK	0.110	2
06142	Silver	7440-22-4	< 0.220	0.220 U	0.0220	2
06149	Zinc	7440-66-6	54.0 JH	6.59	0.813	2
		SW-846 7471B	mg/kg	mg/kg	mg/kg	
00159	Mercury	7439-97-6	~~< 0.220~~	0.220 UJL	0.0110	1
Wet Chemistry		**SM 2540 G-1997**	%	%	%	
00111	Moisture	n.a.	9.9	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	PPL/TCL Volatiles in Soil	SW-846 8260B	1	X153211AA	11/17/2015 22:34	Christopher G Torres	0.82
08389	GC/MS - LL Encore Prep	SW-846 5035A	1	201531639392	11/12/2015 20:58	Mitchell R Washel	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035A	2	201531639392	11/12/2015 20:58	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201531639392	11/12/2015 20:58	Mitchell R Washel	n.a.
06125	Arsenic	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
06126	Barium	SW-846 6020A	1	153210637001D	11/19/2015 16:08	Choon Y Tian	2
06128	Cadmium	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
06131	Chromium	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
06133	Copper	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
06135	Lead	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
06139	Nickel	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
06141	Selenium	SW-846 6020A	1	153210637001B	11/19/2015 16:08	Choon Y Tian	2
06142	Silver	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
06149	Zinc	SW-846 6020A	1	153210637001A	11/19/2015 16:08	Choon Y Tian	2
00159	Mercury	SW-846 7471B	1	153210638001	11/19/2015 05:40	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	153210637001	11/18/2015 09:09	Christopher M Klumpp	1

*=This limit was used in the evaluation of the final result

MW 12-7-15

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Analysis Report

Sample Description: IDW decon Water
Ponder's Creek

LL Sample # WW 8132430
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 11:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCWID SDG#: EUR43-03

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Acetone	67-64-1	89	20	6	1
10335	Benzene	71-43-2	< 1	1 U	0.5	1
10335	Bromodichloromethane	75-27-4	< 1	1	0.5	1
10335	Bromoform	75-25-2	< 4	4	0.5	1
10335	Bromomethane	74-83-9	< 1	1	0.5	1
10335	2-Butanone	78-93-3	< 10	10	3	1
10335	Carbon Disulfide	75-15-0	< 5	5	1	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	0.5	1
10335	Chlorobenzene	108-90-7	< 1	1	0.5	1
10335	Chloroethane	75-00-3	< 1	1	0.5	1
10335	Chloroform	67-66-3	< 1	1	0.5	1
10335	Chloromethane	74-87-3	< 1	1	0.5	1
10335	Cyclohexane	110-82-7	< 5	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	1
10335	Dibromochloromethane	124-48-1	< 1	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	< 1	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1	1
10335	Dichlorodifluoromethane	75-71-8	< 1	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	0.5	1
10335	Ethylbenzene	100-41-4	< 1	1	0.5	1
10335	Freon 113	76-13-1	< 10	10	2	1
10335	2-Hexanone	591-78-6	< 10	10	3	1
10335	Isopropylbenzene	98-82-8	< 5	5	1	1
10335	Methyl Acetate	79-20-9	< 5	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	< 10	10	3	1
10335	Methylcyclohexane	108-87-2	< 5	5	1	1
10335	Methylene Chloride	75-09-2	< 4	4	2	1
10335	Styrene	100-42-5	< 5	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	0.5	1
10335	Tetrachloroethene	127-18-4	< 1	1	0.5	1
10335	Toluene	108-88-3	< 1	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	0.5	1
10335	Trichloroethene	79-01-6	< 1	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	0.5	1
10335	Vinyl Chloride	75-01-4	< 1	1	0.5	1
10335	Xylene (Total)	1330-20-7	< 1	1	0.5	1
Metals	SW-846 6020A		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0114	0.0040	0.00054	1

*=This limit was used in the evaluation of the final result

MW 12-04-15

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Analysis Report

Sample Description: IDW decon Water
Ponder's Creek

LL Sample # WW 8132430
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 11:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCWID SDG#: EUR43-03

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
Metals		**SW-846 6020A**	mg/l	mg/l	mg/l	
06026	Barium	7440-39-3	0.355	0.0040	0.00092	1
06028	Cadmium	7440-43-9	~~< 0.0010~~ J	0.0010 UJK	0.00023	1
06031	Chromium	7440-47-3	1.71 J	0.0040	0.00070	1
06033	Copper	7440-50-8	0.113	0.0040	0.00040	1
06035	Lead	7439-92-1	0.0162 J	0.0020	0.00013	1
06039	Nickel	7440-02-0	0.0064 J	0.0040	0.00094	1
06041	Selenium	7782-49-2	0.0351 J	0.0040	0.00050	1
06042	Silver	7440-22-4	~~< 0.0010~~ J	0.0010 U	0.00011	1
06049	Zinc	7440-66-6	0.0470 J	0.0300	0.0074	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	~~< 0.00020~~ J	0.00020 UJL	0.000050	1
Wet Chemistry		**EPA 170.1**	Degrees C	Degrees C	Degrees C	
12151	Temperature of pH	n.a.	20.7	0.010	0.010	1
		SM 4500-H+ B-2000	Std. Units	Std. Units	Std. Units	
12152	pH	n.a.	12.3 J	0.010	0.010	1

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T153261AA	11/22/2015 23:08	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T153261AA	11/22/2015 23:08	Sara E Johnson	1
06025	Arsenic	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	153220639002D	11/25/2015 07:03	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	153220639002A	11/29/2015 06:11	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	153220639002B	11/25/2015 07:03	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06049	Zinc	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	153225713002	11/20/2015 05:59	Damary Valentin	1
10639	ICPMS - Water, 3020A - U4	SW-846 3010A modified	1	153220639002	11/21/2015 10:20	Katlin N Catsaldi	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153225713002	11/20/2015 00:45	Annamaria Kuhns	1
12151	Temperature of pH	EPA 170.1	1	15321003106A	11/18/2015 05:57	Michele L Graham	1

*=This limit was used in the evaluation of the final result

12-10-15

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Analysis Report

Sample Description: MW-28R-IDW Water
Ponder's Creek

LL Sample # WW 8132431
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 14:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW28 SDG#: EUR43-04

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20 U	6	1
10335	Benzene	71-43-2	< 1	1	0.5	1
10335	Bromodichloromethane	75-27-4	< 1	1	0.5	1
10335	Bromoform	75-25-2	< 4	4	0.5	1
10335	Bromomethane	74-83-9	< 1	1	0.5	1
10335	2-Butanone	78-93-3	< 10	10	3	1
10335	Carbon Disulfide	75-15-0	< 5	5	1	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	0.5	1
10335	Chlorobenzene	108-90-7	< 1	1	0.5	1
10335	Chloroethane	75-00-3	< 1	1	0.5	1
10335	Chloroform	67-66-3	< 1	1	0.5	1
10335	Chloromethane	74-87-3	< 1	1	0.5	1
10335	Cyclohexane	110-82-7	< 5	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	1
10335	Dibromochloromethane	124-48-1	< 1	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	< 1	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1	1
10335	Dichlorodifluoromethane	75-71-8	< 1	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	0.5	1
10335	Ethylbenzene	100-41-4	< 1	1	0.5	1
10335	Freon 113	76-13-1	< 10	10	2	1
10335	2-Hexanone	591-78-6	< 10	10	3	1
10335	Isopropylbenzene	98-82-8	< 5	5	1	1
10335	Methyl Acetate	79-20-9	< 5	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	< 10	10	3	1
10335	Methylcyclohexane	108-87-2	< 5	5	1	1
10335	Methylene Chloride	75-09-2	< 4	4	2	1
10335	Styrene	100-42-5	< 5	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	0.5	1
10335	Tetrachloroethene	127-18-4	< 1	1	0.5	1
10335	Toluene	108-88-3	< 1	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	0.5	1
10335	Trichloroethene	79-01-6	< 1	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	0.5	1
10335	Vinyl Chloride	75-01-4	< 1	1	0.5	1
10335	Xylene (Total)	1330-20-7	< 1	1	0.5	1
Metals	SW-846 6020A		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	< 0.0040	0.0040 U	0.00054	1

*=This limit was used in the evaluation of the final result

MW 12/10/15

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Analysis Report

Sample Description: MW-28R-IDW Water
Ponder's Creek

LL Sample # WW 8132431
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 14:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW28 SDG#: EUR43-04

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
Metals		**SW-846 6020A**	mg/l	mg/l	mg/l	
06026	Barium	7440-39-3	0.0768	0.0040	0.00092	1
06028	Cadmium	7440-43-9	< 0.0010	0.0010 U	0.00023	1
06031	Chromium	7440-47-3	0.0092	0.0040	0.00070	1
06033	Copper	7440-50-8	0.0233	0.0040	0.00040	1
06035	Lead	7439-92-1	0.0029 J	0.0020	0.00013	1
06039	Nickel	7440-02-0	0.0352	0.0040	0.00094	1
06041	Selenium	7782-49-2	< 0.0040	0.0040 U	0.00050	1
06042	Silver	7440-22-4	< 0.0010	0.0010 U	0.00011	1
06049	Zinc	7440-66-6	< 0.0300	0.0300 U	0.0074	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	< 0.00020	0.00020 U	0.000050	1
Wet Chemistry		**EPA 170.1**	Degrees C	Degrees C	Degrees C	
12151	Temperature of pH	n.a.	20.6	0.010	0.010	1
		SM 4500-H+ B-2000	Std. Units	Std. Units	Std. Units	
12152	pH	n.a.	8.5	0.010	0.010	1

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T153261AA	11/22/2015 23:32	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T153261AA	11/22/2015 23:32	Sara E Johnson	1
06025	Arsenic	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	153220639002D	11/25/2015 07:05	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	153220639002A	11/25/2015 06:13	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	153220639002B	11/25/2015 07:05	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06049	Zinc	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	153225713002	11/20/2015 06:01	Damary Valentin	1
10639	ICPMS - Water, 3020A - U4	SW-846 3010A modified	1	153220639002	11/21/2015 10:20	Katlin N Cataldi	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153225713002	11/20/2015 00:45	Annamaria Kuhns	1
12151	Temperature of pH	EPA 170.1	1	15321003106A	11/18/2015 06:01	Michele L Graham	1

*=This limit was used in the evaluation of the final result

MW 12-10-15

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Analysis Report

Sample Description: MW-41R-IDW Water
Ponder's Creek

LL Sample # WW 8132432
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 17:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW41 SDG#: EUR43-05

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l	ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20 U	6	1
10335	Benzene	71-43-2	< 1	1	0.5	1
10335	Bromodichloromethane	75-27-4	< 1	1	0.5	1
10335	Bromoform	75-25-2	< 4	4	0.5	1
10335	Bromomethane	74-83-9	< 1	1	0.5	1
10335	2-Butanone	78-93-3	< 10	10	3	1
10335	Carbon Disulfide	75-15-0	< 5	5	1	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	0.5	1
10335	Chlorobenzene	108-90-7	< 1	1	0.5	1
10335	Chloroethane	75-00-3	< 1	1	0.5	1
10335	Chloroform	67-66-3	< 1	1	0.5	1
10335	Chloromethane	74-87-3	< 1	1	0.5	1
10335	Cyclohexane	110-82-7	< 5	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	< 5	5	2	1
10335	Dibromochloromethane	124-48-1	< 1	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	< 1	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1	1
10335	Dichlorodifluoromethane	75-71-8	< 1	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	0.5	1
10335	Ethylbenzene	100-41-4	< 1	1	0.5	1
10335	Freon 113	76-13-1	< 10	10	2	1
10335	2-Hexanone	591-78-6	< 10	10	3	1
10335	Isopropylbenzene	98-82-8	< 5	5	1	1
10335	Methyl Acetate	79-20-9	< 5	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	< 10	10	3	1
10335	Methylcyclohexane	108-87-2	< 5	5	1	1
10335	Methylene Chloride	75-09-2	< 4	4	2	1
10335	Styrene	100-42-5	< 5	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	0.5	1
10335	Tetrachloroethene	127-18-4	< 1	1	0.5	1
10335	Toluene	108-88-3	< 1	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	< 5	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	0.5	1
10335	Trichloroethene	79-01-6	< 1	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	0.5	1
10335	Vinyl Chloride	75-01-4	< 1	1	0.5	1
10335	Xylene (Total)	1330-20-7	< 1	1	0.5	1
Metals	SW-846 6020A		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	< 0.0040	0.0040 U	0.00054	1

*=This limit was used in the evaluation of the final result

12-10-15

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Analysis Report

Sample Description: MW-41R-IDW Water
Ponder's Creek

LL Sample # WW 8132432
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 17:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW41 SDG#: EUR43-05

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
Metals		**SW-846 6020A**	mg/l	mg/l	mg/l	
06026	Barium	7440-39-3	0.0695	0.0040	0.00092	1
06028	Cadmium	7440-43-9	< 0.0010	0.0010 U	0.00023	1
06031	Chromium	7440-47-3	< 0.0040	0.0040 U	0.00070	1
06033	Copper	7440-50-8	0.0090	0.0040	0.00040	1
06035	Lead	7439-92-1	< 0.0020	0.0020 U	0.00013	1
06039	Nickel	7440-02-0	0.0131	0.0040	0.00094	1
06041	Selenium	7782-49-2	< 0.0040	0.0040 U	0.00050	1
06042	Silver	7440-22-4	< 0.0010	0.0010 U	0.00011	1
06049	Zinc	7440-66-6	< 0.0300	0.0300 U	0.0074	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	< 0.00020	0.00020 U	0.000050	1
Wet Chemistry		**EPA 170.1**	Degrees C	Degrees C	Degrees C	
12151	Temperature of pH	n.a.	20.7	0.010	0.010	1
		SM 4500-H+ B-2000	Std. Units	Std. Units	Std. Units	
12152	pH	n.a.	7.9	0.010	0.010	1

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T153261AA	11/22/2015 23:55	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T153261AA	11/22/2015 23:55	Sara E Johnson	1
06025	Arsenic	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	153220639002D	11/25/2015 07:07	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	153220639002A	11/29/2015 06:15	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	153220639002B	11/25/2015 07:07	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06049	Zinc	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	153225713002	11/20/2015 06:07	Damary Valentin	1
10639	ICPMS - Water, 3020A - U4	SW-846 3010A modified	1	153220639002	11/21/2015 10:20	Katlin N Cataldi	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153225713002	11/20/2015 00:45	Annamaria Kuhns	1
12151	Temperature of pH	EPA 170.1	1	15321003106A	11/18/2015 05:53	Michele L Graham	1

*=This limit was used in the evaluation of the final result

MW 12-10-15

ecology and environment, inc.
Global Environmental Specialists
720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: December 10, 2015

TO: Erin Lynch, START-IV Project Manager, E & E, Portland, Oregon

FROM: Mark Woodke, START-IV Chemist, E & E, Seattle, Washington

SUBJ: **Organic Data Quality Assurance Review, Lakewood/Ponder's Corner Well Installation Site, Lakewood, Washington**

REF: TDD: 15-08-0004 PAN: 1004530.0017.001.01

The data quality assurance review of 3 water samples collected from the Lakewood/Ponder's Corner Well Installation site in Lakewood, Washington, has been completed. pH analysis (SM 4500-H+ B-2000) was performed by Eurofins Laboratories, Inc., Lancaster, Pennsylvania. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Electronic and/or Manual Process (S2B/4VE/M).

The samples were numbered:

IDW decon Water MW-28R-IDW MW-41R-IDW

Data Qualifications:

The samples were maintained at < 6°C. The samples were collected on November 10, 2015, and were analyzed on November 18, 2015. pH analyses should be performed as soon as possible according to the method. The sample was analyzed within 8 days of collection; therefore, the sample results were qualified as estimated quantities with an unknown bias (JK).

The pH calibration and blank spike results were within QC limits. In the reviewers' professional judgment, all sample results were acceptable except as noted. The reviewer used professional judgment to apply a single bias qualifier when more than one bias qualifier was applicable to an individual estimated sample result.

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan, the OSWER Directive "Quality Assurance/Quality Control Guidance for Removal Activities, Data Validation Procedures" (EPA/540/G-90/004), and the analytical method(s). Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.

JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.

JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.

JQ – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).

N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be confirmed.

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Analysis Report

Sample Description: MW-41R-IDW Water
Ponder's Creek

LL Sample # WW 8132432
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 17:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW41 SDG#: EUR43-05

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
Metals	SW-846 6020A		mg/l	mg/l	mg/l	
06026	Barium	7440-39-3	0.0695	0.0040	0.00092	1
06028	Cadmium	7440-43-9	< 0.0010	0.0010 U	0.00023	1
06031	Chromium	7440-47-3	< 0.0040	0.0040 U	0.00070	1
06033	Copper	7440-50-8	0.0090	0.0040	0.00040	1
06035	Lead	7439-92-1	< 0.0020	0.0020 U	0.00013	1
06039	Nickel	7440-02-0	0.0131	0.0040	0.00094	1
06041	Selenium	7782-49-2	< 0.0040	0.0040 U	0.00050	1
06042	Silver	7440-22-4	< 0.0010	0.0010 U	0.00011	1
06049	Zinc	7440-66-6	< 0.0300	0.0300 U	0.0074	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	< 0.00020	0.00020 U	0.000050	1
Wet Chemistry	EPA 170.1		Degrees C	Degrees C	Degrees C	
12151	Temperature of pH	n.a.	20.7	0.010	0.010	1
		SM 4500-H+ B-2000	Std. Units	Std. Units	Std. Units	
12152	pH	n.a.	7.9 JK	0.010	0.010	1

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T153261AA	11/22/2015 23:55	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T153261AA	11/22/2015 23:55	Sara E Johnson	1
06025	Arsenic	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	153220639002D	11/25/2015 07:07	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	153220639002A	11/29/2015 06:15	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	153220639002B	11/25/2015 07:07	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
06049	Zinc	SW-846 6020A	1	153220639002A	11/25/2015 07:07	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	153225713002	11/20/2015 06:07	Damary Valentin	1
10639	ICPMS - Water, 3020A - U4	SW-846 3010A modified	1	153220639002	11/21/2015 10:20	Katlin N Cataldi	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153225713002	11/20/2015 00:45	Annamaria Kuhns	1
12151	Temperature of pH	EPA 170.1	1	15321003106A	11/18/2015 05:53	Michele L Graham	1

*=This limit was used in the evaluation of the final result

MW 12-10-15

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Analysis Report

Sample Description: MW-28R-IDW Water
Ponder's Creek

LL Sample # WW 8132431
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 14:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCW28 SDG#: EUR43-04

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
Metals	**SW-846 6020A**		mg/l	mg/l	mg/l	
06026	Barium	7440-39-3	0.0768	0.0040	0.00092	1
06028	Cadmium	7440-43-9	< 0.0010	0.0010 U	0.00023	1
06031	Chromium	7440-47-3	0.0092	0.0040	0.00070	1
06033	Copper	7440-50-8	0.0233	0.0040	0.00040	1
06035	Lead	7439-92-1	0.0029	0.0020	0.00013	1
06039	Nickel	7440-02-0	0.0352	0.0040	0.00094	1
06041	Selenium	7782-49-2	< 0.0040	0.0040 U	0.00050	1
06042	Silver	7440-22-4	< 0.0010	0.0010 U	0.00011	1
06049	Zinc	7440-66-6	< 0.0300	0.0300 U	0.0074	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	< 0.00020	0.00020 U	0.000050	1
Wet Chemistry	**EPA 170.1**		Degrees C	Degrees C	Degrees C	
12151	Temperature of pH	n.a.	20.6	0.010	0.010	1
	SM 4500-H+ B-2000		Std. Units	Std. Units	Std. Units	
12152	pH	n.a.	8.5 JK	0.010	0.010	1

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T153261AA	11/22/2015 23:32	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T153261AA	11/22/2015 23:32	Sara E Johnson	1
06025	Arsenic	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	153220639002D	11/25/2015 07:05	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	153220639002A	11/29/2015 06:13	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	153220639002B	11/25/2015 07:05	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
06049	Zinc	SW-846 6020A	1	153220639002A	11/25/2015 07:05	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	153225713002	11/20/2015 06:01	Damary Valentin	1
10639	ICPMS - Water, 3020A - U4	SW-846 3010A modified	1	153220639002	11/21/2015 10:20	Katlin N Cataldi	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153225713002	11/20/2015 00:45	Annamaria Kuhns	1
12151	Temperature of pH	EPA 170.1	1	153210031106A	11/18/2015 06:01	Michele L Graham	1

*=This limit was used in the evaluation of the final result

MW 12-10-15

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Analysis Report

Sample Description: IDW decon Water
Ponder's Creek

LL Sample # WW 8132430
LL Group # 1609026
Account # 13589

Project Name: Ponder's Corner

Collected: 11/10/2015 11:30 by JR

Submitted: 11/12/2015 09:15
Reported: 11/29/2015 15:39

Eurofins Air Toxics, Inc.
180 Blue Ravine Road
Suite B
Folsom CA 95630

PCWID SDG#: EUR43-03

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
Metals	SW-846 6020A		mg/l	mg/l	mg/l	
06026	Barium	7440-39-3	0.355	0.0040	0.00092	1
06028	Cadmium	7440-43-9	< 0.0010	0.0010 U	0.00023	1
06031	Chromium	7440-47-3	1.71	0.0040	0.00070	1
06033	Copper	7440-50-8	0.113	0.0040	0.00040	1
06035	Lead	7439-92-1	0.0162	0.0020	0.00013	1
06039	Nickel	7440-02-0	0.0064	0.0040	0.00094	1
06041	Selenium	7782-49-2	0.0351	0.0040	0.00050	1
06042	Silver	7440-22-4	< 0.0010	0.0010 U	0.00011	1
06049	Zinc	7440-66-6	0.0470	0.0300	0.0074	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	< 0.00020	0.00020 U	0.000050	1
Wet Chemistry	EPA 170.1		Degrees C	Degrees C	Degrees C	
12151	Temperature of pH	n.a.	20.7	0.010	0.010	1
	SM 4500-H+ B-2000		Std. Units	Std. Units	Std. Units	
12152	pH	n.a.	12.3 JK	0.010	0.010	1

General Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T153261AA	11/22/2015 23:08	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T153261AA	11/22/2015 23:08	Sara E Johnson	1
06025	Arsenic	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	153220639002D	11/25/2015 07:03	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	153220639002A	11/29/2015 06:11	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	153220639002B	11/25/2015 07:03	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
06049	Zinc	SW-846 6020A	1	153220639002A	11/25/2015 07:03	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	153225713002	11/20/2015 05:59	Damary Valentin	1
10639	ICPMS - Water, 3020A - U4	SW-846 3010A modified	1	153220639002	11/21/2015 10:20	Katlin N Cataldi	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	153225713002	11/20/2015 00:45	Annamaria Kuhns	1
12151	Temperature of pH	EPA 170.1	1	15321003106A	11/18/2015 05:57	Michele L Graham	1

*=This limit was used in the evaluation of the final result

MW 12-10-15