

February 27, 2018

Ms. Katie Robertson
Oregon Department of Environmental Quality
800 SE Emigrant, Suite 330
Pendleton, Oregon 97801

**Re: Monitoring Well Abandonments
Former Progress Cleaners (ECSI #3798)
8602 SW Hall Boulevard
Beaverton, Oregon
150-001-051/Task 9**

Dear Ms. Robertson:

This letter summarizes the abandonment of four monitoring wells at the Former Progress Cleaners site located at 8602 SW Hall Boulevard in Beaverton, Oregon (Figure 1). The site received a Conditional No Further Action determination from the Oregon Department of Environmental Quality (DEQ) on November 9, 2015. Abandonment activities were conducted on October 20 and 24, 2017, and included abandoning wells MW-1 to MW-4, by overdrilling. Figure 2 shows the abandoned monitoring well locations. All work was completed for the DEQ under Task Order 22-13-51.

Preparatory Activities

Hart Crowser conducted a competitive bid solicitation for private utility locating, well abandoning, and for picking up and disposing of investigation-derived waste (IDW). Based on cost and the ability to complete the work within the required timeframe, the following subcontractors were selected: APS Locates of Portland, Oregon, to perform private utility locates at the abandonment locations; Stratus Corporation (Stratus) of Gaston, Oregon, for monitoring well abandonment; and WasteXpress of Portland, Oregon, to pick up and dispose of the IDW. Access to the well locations was granted by an access agreement that DEQ has with the site's property owner.

Abandonment Activities

Well abandonment activities, including mobilization to the site, occurred on October 20 and 24, 2017, and were completed on those two days. Monitoring wells MW-1 to MW-4 were abandoned by overdrilling by Stratus, an Oregon-licensed driller, in accordance with Oregon Water Resource Department (OWRD) regulations (Oregon Administrative Rule [OAR] 690-340). Copies of the



decommissioning logs are presented in Attachment A. Photographs of the abandonment activities are included in Attachment B.

Hart Crowser arrived on the site the morning of October 20, 2017, with APS Locates to perform an underground utility locate in the areas around the wells prior to abandonment activities. During the utility locate, a City of Beaverton (City) sewer line was identified within close proximity of well MW-2 (Photograph 1). The City was notified and arrived at the site to measure the depth of the utility. The sewer line was found to be 13 feet below ground surface (bgs). Abandonment by overdrilling consisted of removing the flush-mounted monument, and to the extent practicable, pulling the well riser casing and well screen from the ground. Except for MW-2, after the casing and screen were removed, the well bores were overdrilled using a push probe drill rig fitted with a 3.75-inch-diameter solid-stem auger (Photograph 2). The wells were overdrilled to 25 feet bgs. Hydrated bentonite chips were used to backfill the holes to approximately 2.5 feet bgs and concrete (dyed black) was placed as a surface seal over the bentonite (Photograph 3). Air knifing to “clear” well MW-2 from the sewer utility line was completed to 14 feet bgs using a vacuum truck (Photograph 4). MW-2 was then overdrilled from 14 to 25 feet bgs and similarly backfilled.

Well casing, concrete, steel monument, bentonite/concrete bags, and personal protective equipment were disposed of by Stratus as solid waste. Soil IDW consisted of approximately 25 cubic feet of soil cuttings generated during overdrilling and air knifing. Approximately 2 gallons of decontamination wash water was generated and added to the soil IDW. The soil IDW was containerized in three individual, labelled 55-gallon drums, sampled for disposal profiling, and stored on the site. As tetrachloroethylene (an F-listed hazardous waste) was detected at the site, the DEQ evaluated the generation of the soil IDW in a December 13, 2017, No Longer Contained-In (NLCI) Determination. Based on analytical results, the IDW was designated as non-hazardous per the NLCI Determination and thus could be disposed of as a non-hazardous waste. The soil IDW was picked up and delivered to Chemical Waste Management’s (CWM), Columbia Ridge Landfill disposal facility in Arlington, Oregon on January 4, 2018. Upon arrival, one of the soil drums contained approximately 5 gallons of water. Because the water was not addressed by the NLCI Determination, CWM indicated that the water (and the associated soil) could not be disposed of as non-hazardous waste. As such, the contents of the drum were treated by incineration as F002-listed hazardous waste. The IDW laboratory report and disposal receipt are provided in Attachment C.



Limitations

Work performed by Hart Crowser for this project and in preparation of this letter was conducted in accordance with generally accepted professional practices in the same or similar localities, related to the nature of the work accomplished at the time our services were performed. This letter is for specific application to the referenced project and for the exclusive use of the DEQ. No other warranty, express or implied, is made. If you have any questions regarding this letter, please feel free to contact us.

Sincerely,

HART CROWSER, INC.



Expires: 12/31/2018

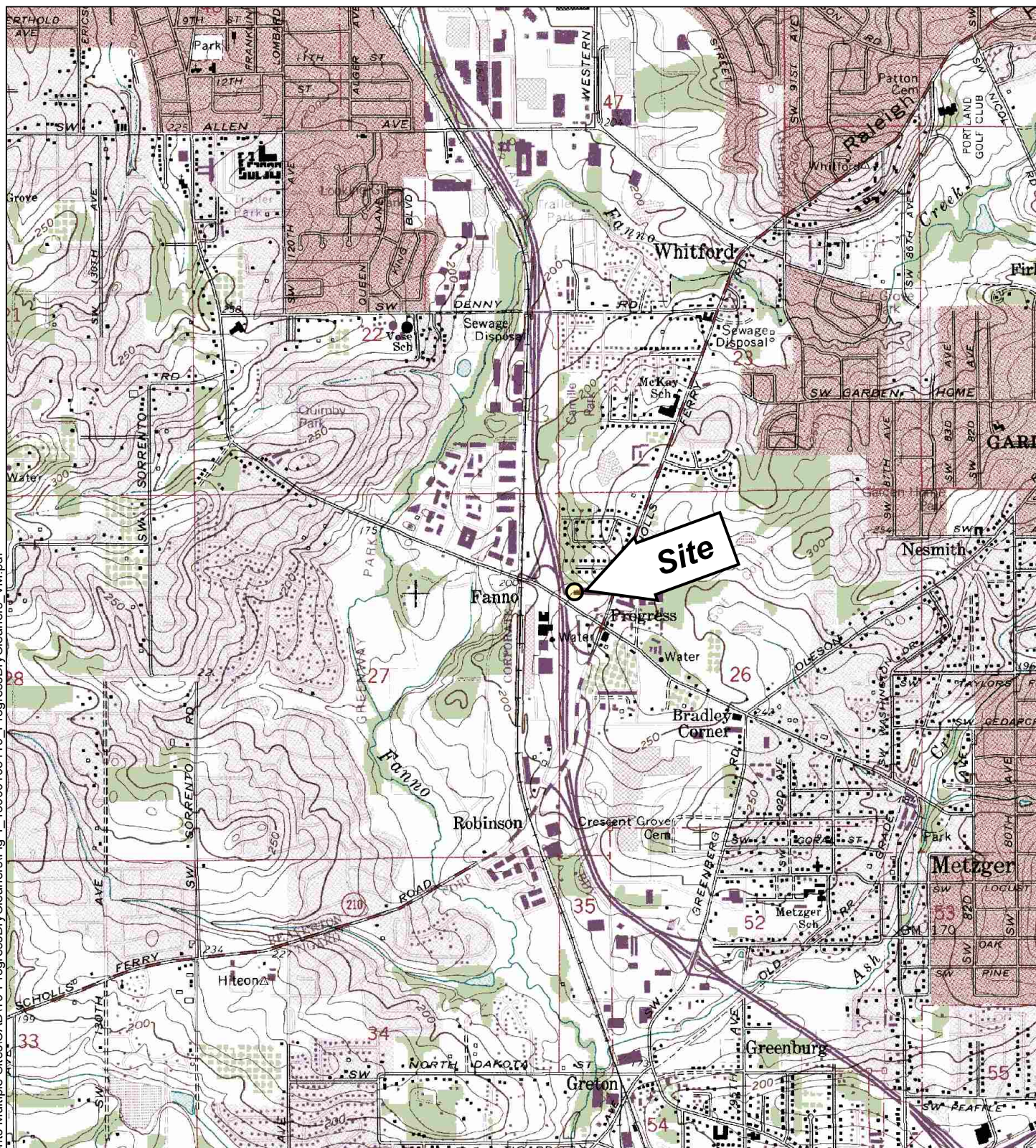
ANTHONY CHAVEZ, RG
Task Order Manager

RICHARD D. ERNST, RG
Program Manager

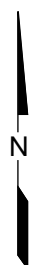
Attachments:

- Figure 1 – Site Location Map
- Figure 2 – Monitoring Well Abandonments
- Attachment A – Decommissioning Logs
- Attachment B – Photograph Log
- Attachment C – IDW Laboratory Report and Disposal Documentation

cc: Steve Campbell, DEQ (Headquarters)
Mark Pugh, DEQ (Portland)



0 2,000 4,000
Scale in Feet



Source: Base map prepared from the USGS 7.5-minute quadrangle of Beaverton, Oregon, photorevised 1984.

Former Progress Dry Cleaners
8602 SW Hall Boulevard, Beaverton, Oregon

Site Location Map

150-001-051

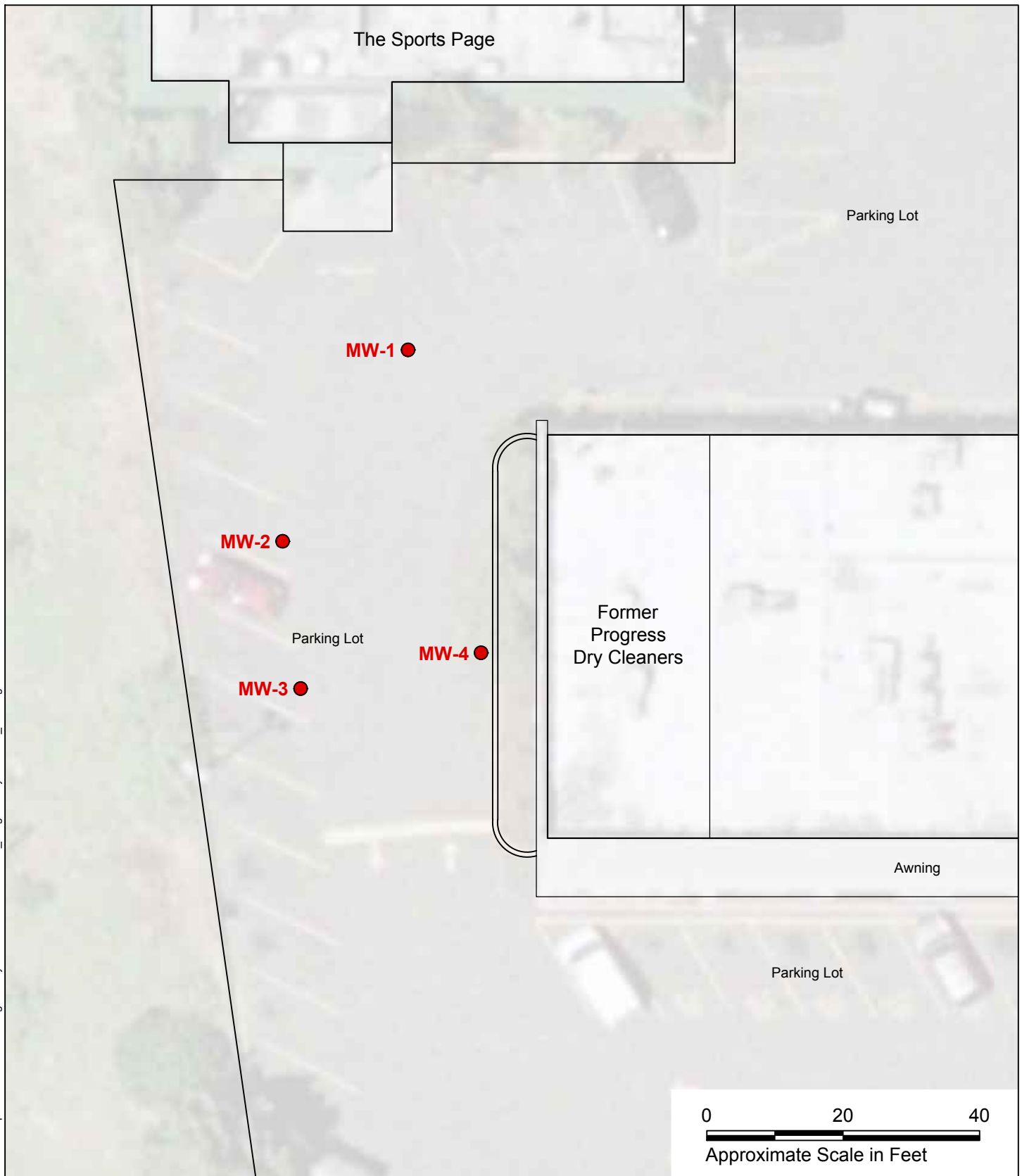
12/17



Figure

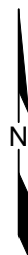
1

F:\Notebooks\150001051_DEQ Well Abandonments-Multiple Sites\CAD\T9-ProgressDryCleaners\150001051T9_ProgressDryCleaners_SP.dwg



LEGEND

MW-1 ● Abandoned Monitoring Well



Source: Google Earth, and Figure 2 Boring Locations (dated 1/6/06)
by Tim O'Gara Consulting Hydrogeologist.

Former Progress Dry Cleaners
8602 SW Hall Boulevard, Beaverton, Oregon

Monitoring Well Abandonments

150-001-051

12/17



Figure

2

ATTACHMENT A Decommissioning Logs

START CARD # 1036746

[illegible]

Form Version:

ATTACHMENT B

Photograph Log



Photograph 1 – City of Beaverton sewer line adjacent to monitoring well MW-2.



Photograph 2 – Monitoring well MW-1 abandonment.



Photograph 3 – View of surface completion at monitoring well MW-1.



Photograph 4 – Air knifing with vacuum truck at MW-2.

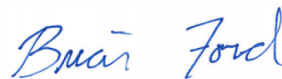
ATTACHMENT C
IDW Laboratory Report and Disposal Documentation

Oregon Dept. of Env. Quality - ODEQ

Sample Delivery Group: L946592
Samples Received: 10/26/2017
Project Number:
Description: Progress Cleaners Well Abandonment

Report To: Katie Robertson
2020 SW 4th, Suite 400
Portland, OR 97201

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	4
Sr: Sample Results	5
IDW-SOIL L946592-01	5
Qc: Quality Control Summary	7
Total Solids by Method 2540 G-2011	7
Volatile Organic Compounds (GC/MS) by Method 8260B	8
Gl: Glossary of Terms	12
Al: Accreditations & Locations	13
Sc: Sample Chain of Custody	14





IDW-SOIL L946592-01 Solid

Collected by
A. Chavez

Collected date/time
10/25/17 14:00

Received date/time
10/26/17 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1037708	1	11/01/17 15:12	11/01/17 15:13	JD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1036523	1.02	10/25/17 14:00	10/28/17 04:03	DWR

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	75.0		1	11/01/2017 15:13	WG1037708

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

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acetone	0.0161	J	0.0136	0.0680	1.02	10/28/2017 04:03	WG1036523
Acrylonitrile	U		0.00243	0.0136	1.02	10/28/2017 04:03	WG1036523
Benzene	U		0.000366	0.00136	1.02	10/28/2017 04:03	WG1036523
Bromobenzene	U		0.000386	0.00136	1.02	10/28/2017 04:03	WG1036523
Bromodichloromethane	U		0.000345	0.00136	1.02	10/28/2017 04:03	WG1036523
Bromoform	U		0.000576	0.00136	1.02	10/28/2017 04:03	WG1036523
Bromomethane	U		0.00183	0.00680	1.02	10/28/2017 04:03	WG1036523
n-Butylbenzene	U		0.000350	0.00136	1.02	10/28/2017 04:03	WG1036523
sec-Butylbenzene	U		0.000273	0.00136	1.02	10/28/2017 04:03	WG1036523
tert-Butylbenzene	U		0.000280	0.00136	1.02	10/28/2017 04:03	WG1036523
Carbon disulfide	0.000607	J	0.000300	0.00136	1.02	10/28/2017 04:03	WG1036523
Carbon tetrachloride	U		0.000445	0.00136	1.02	10/28/2017 04:03	WG1036523
Chlorobenzene	0.000617	J	0.000288	0.00136	1.02	10/28/2017 04:03	WG1036523
Chlorodibromomethane	U		0.000506	0.00136	1.02	10/28/2017 04:03	WG1036523
Chloroethane	U		0.00129	0.00680	1.02	10/28/2017 04:03	WG1036523
Chloroform	U		0.000312	0.00680	1.02	10/28/2017 04:03	WG1036523
Chloromethane	U		0.000509	0.00340	1.02	10/28/2017 04:03	WG1036523
2-Chlorotoluene	U		0.000409	0.00136	1.02	10/28/2017 04:03	WG1036523
4-Chlorotoluene	U		0.000326	0.00136	1.02	10/28/2017 04:03	WG1036523
1,2-Dibromo-3-Chloropropane	U		0.00143	0.00680	1.02	10/28/2017 04:03	WG1036523
1,2-Dibromoethane	U		0.000466	0.00136	1.02	10/28/2017 04:03	WG1036523
Dibromomethane	U		0.000520	0.00136	1.02	10/28/2017 04:03	WG1036523
1,2-Dichlorobenzene	U		0.000414	0.00136	1.02	10/28/2017 04:03	WG1036523
1,3-Dichlorobenzene	U		0.000325	0.00136	1.02	10/28/2017 04:03	WG1036523
1,4-Dichlorobenzene	U		0.000306	0.00136	1.02	10/28/2017 04:03	WG1036523
Dichlorodifluoromethane	U		0.000969	0.00680	1.02	10/28/2017 04:03	WG1036523
1,1-Dichloroethane	U		0.000271	0.00136	1.02	10/28/2017 04:03	WG1036523
1,2-Dichloroethane	U		0.000360	0.00136	1.02	10/28/2017 04:03	WG1036523
1,1-Dichloroethene	U		0.000412	0.00136	1.02	10/28/2017 04:03	WG1036523
cis-1,2-Dichloroethene	0.227		0.000320	0.00136	1.02	10/28/2017 04:03	WG1036523
trans-1,2-Dichloroethene	0.00116	J	0.000358	0.00136	1.02	10/28/2017 04:03	WG1036523
1,2-Dichloropropane	U		0.000486	0.00136	1.02	10/28/2017 04:03	WG1036523
1,1-Dichloropropene	U		0.000430	0.00136	1.02	10/28/2017 04:03	WG1036523
1,3-Dichloropropane	U		0.000281	0.00136	1.02	10/28/2017 04:03	WG1036523
cis-1,3-Dichloropropene	U		0.000356	0.00136	1.02	10/28/2017 04:03	WG1036523
trans-1,3-Dichloropropene	U		0.000362	0.00136	1.02	10/28/2017 04:03	WG1036523
2,2-Dichloropropane	U		0.000378	0.00136	1.02	10/28/2017 04:03	WG1036523
Di-isopropyl ether	U		0.000337	0.00136	1.02	10/28/2017 04:03	WG1036523
Ethylbenzene	U		0.000404	0.00136	1.02	10/28/2017 04:03	WG1036523
Hexachloro-1,3-butadiene	U		0.000465	0.00136	1.02	10/28/2017 04:03	WG1036523
Isopropylbenzene	U		0.000330	0.00136	1.02	10/28/2017 04:03	WG1036523
p-Isopropyltoluene	U		0.000277	0.00136	1.02	10/28/2017 04:03	WG1036523
2-Butanone (MEK)	U		0.00636	0.0136	1.02	10/28/2017 04:03	WG1036523
Methylene Chloride	U		0.00136	0.00680	1.02	10/28/2017 04:03	WG1036523
4-Methyl-2-pentanone (MIBK)	U		0.00256	0.0136	1.02	10/28/2017 04:03	WG1036523
Methyl tert-butyl ether	U		0.000288	0.00136	1.02	10/28/2017 04:03	WG1036523
Naphthalene	U		0.00136	0.00680	1.02	10/28/2017 04:03	WG1036523
n-Propylbenzene	U		0.000280	0.00136	1.02	10/28/2017 04:03	WG1036523
Styrene	U		0.000318	0.00136	1.02	10/28/2017 04:03	WG1036523
1,1,1,2-Tetrachloroethane	U		0.000358	0.00136	1.02	10/28/2017 04:03	WG1036523

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 10/25/17 14:00

L946592

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

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1,2,2-Tetrachloroethane	U		0.000496	0.00136	1.02	10/28/2017 04:03	WG1036523
1,1,2-Trichlorotrifluoroethane	U		0.000496	0.00136	1.02	10/28/2017 04:03	WG1036523
Tetrachloroethene	0.0241		0.000376	0.00136	1.02	10/28/2017 04:03	WG1036523
Toluene	U		0.000590	0.00680	1.02	10/28/2017 04:03	WG1036523
1,2,3-Trichlorobenzene	U		0.000416	0.00136	1.02	10/28/2017 04:03	WG1036523
1,2,4-Trichlorobenzene	U		0.000528	0.00136	1.02	10/28/2017 04:03	WG1036523
1,1,1-Trichloroethane	U		0.000389	0.00136	1.02	10/28/2017 04:03	WG1036523
1,1,2-Trichloroethane	U		0.000376	0.00136	1.02	10/28/2017 04:03	WG1036523
Trichloroethene	0.190		0.000378	0.00136	1.02	10/28/2017 04:03	WG1036523
Trichlorofluoromethane	U		0.000520	0.00680	1.02	10/28/2017 04:03	WG1036523
1,2,3-Trichloropropane	U		0.00101	0.00340	1.02	10/28/2017 04:03	WG1036523
1,2,4-Trimethylbenzene	U		0.000287	0.00136	1.02	10/28/2017 04:03	WG1036523
1,2,3-Trimethylbenzene	U		0.000390	0.00136	1.02	10/28/2017 04:03	WG1036523
1,3,5-Trimethylbenzene	U		0.000361	0.00136	1.02	10/28/2017 04:03	WG1036523
Vinyl chloride	0.0151		0.000396	0.00136	1.02	10/28/2017 04:03	WG1036523
Xylenes, Total	U		0.000949	0.00408	1.02	10/28/2017 04:03	WG1036523
(S) Toluene-d8	97.1			80.0-120		10/28/2017 04:03	WG1036523
(S) Dibromofluoromethane	112			74.0-131		10/28/2017 04:03	WG1036523
(S) a,a,a-Trifluorotoluene	92.2			80.0-120		10/28/2017 04:03	WG1036523
(S) 4-Bromofluorobenzene	99.7			64.0-132		10/28/2017 04:03	WG1036523

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3262445-1 11/01/17 15:13

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0			

L946589-03 Original Sample (OS) • Duplicate (DUP)

(OS) L946589-03 11/01/17 15:13 • (DUP) R3262445-3 11/01/17 15:13

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	%	%		%		%
Total Solids	83.1	83.2	1	0		5

Laboratory Control Sample (LCS)

(LCS) R3262445-2 11/01/17 15:13

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	%	%	%	%	
Total Solids	50.0	50.0	100	85-115	

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3261465-3 10/27/17 12:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00179	0.0100
Benzene	U		0.000270	0.00100
Bromobenzene	U		0.000284	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon disulfide	U		0.000221	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
2-Chlorotoluene	U		0.000301	0.00100
4-Chlorotoluene	U		0.000240	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00105	0.00500
1,2-Dibromoethane	U		0.000343	0.00100
Dibromomethane	U		0.000382	0.00100
1,2-Dichlorobenzene	U		0.000305	0.00100
1,3-Dichlorobenzene	U		0.000239	0.00100
1,4-Dichlorobenzene	U		0.000226	0.00100
Dichlorodifluoromethane	U		0.000713	0.00500
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
1,1-Dichloropropene	U		0.000317	0.00100
1,3-Dichloropropane	U		0.000207	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
2,2-Dichloropropane	U		0.000279	0.00100
Di-isopropyl ether	U		0.000248	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Method Blank (MB)

(MB) R3261465-3 10/27/17 12:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Isopropylbenzene	U		0.000243	0.00100
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,1,2-Tetrachloroethane	U		0.000264	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000365	0.00100
1,2,3-Trichlorobenzene	0.000357	U	0.000306	0.00100
1,2,4-Trichlorobenzene	U		0.000388	0.00100
1,1,1-Trichloroethane	U		0.000286	0.00100
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
Trichlorofluoromethane	U		0.000382	0.00500
1,2,3-Trichloropropane	U		0.000741	0.00250
1,2,3-Trimethylbenzene	U		0.000287	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	104			80.0-120
(S) Dibromofluoromethane	105			74.0-131
(S) a,a,a-Trifluorotoluene	97.4			80.0-120
(S) 4-Bromofluorobenzene	94.5			64.0-132

1

Cp

2

Tc

3

Ss

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Cn

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Sr

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Qc

7

Gl

8

Al

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Sc

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

(LCS) R3261465-1 10/27/17 11:05 • (LCSD) R3261465-2 10/27/17 11:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.153	0.156	122	125	11.0-160			2.17	23
Acrylonitrile	0.125	0.163	0.167	131	133	61.0-143			1.95	20
Benzene	0.0250	0.0259	0.0259	103	103	71.0-124			0.0600	20

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

(LCS) R3261465-1 10/27/17 11:05 • (LCSD) R3261465-2 10/27/17 11:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Bromobenzene	0.0250	0.0250	0.0249	100	99.5	78.0-120			0.510	20
Bromodichloromethane	0.0250	0.0243	0.0244	97.3	97.5	75.0-120			0.200	20
Bromoform	0.0250	0.0237	0.0234	94.8	93.7	65.0-133			1.16	20
Bromomethane	0.0250	0.0289	0.0305	116	122	26.0-160			5.48	20
n-Butylbenzene	0.0250	0.0309	0.0311	124	124	73.0-126			0.680	20
sec-Butylbenzene	0.0250	0.0284	0.0289	114	116	75.0-121			1.68	20
tert-Butylbenzene	0.0250	0.0273	0.0275	109	110	74.0-122			0.970	20
Carbon disulfide	0.0250	0.0249	0.0252	99.5	101	53.0-130			1.15	20
Carbon tetrachloride	0.0250	0.0234	0.0237	93.6	94.8	66.0-123			1.32	20
Chlorobenzene	0.0250	0.0270	0.0272	108	109	79.0-121			0.890	20
Chlorodibromomethane	0.0250	0.0247	0.0249	98.8	99.6	74.0-128			0.810	20
Chloroethane	0.0250	0.0284	0.0294	114	117	51.0-147			3.43	20
Chloroform	0.0250	0.0259	0.0261	104	104	73.0-123			0.490	20
Chloromethane	0.0250	0.0321	0.0322	129	129	51.0-138			0.300	20
2-Chlorotoluene	0.0250	0.0265	0.0265	106	106	72.0-124			0.250	20
4-Chlorotoluene	0.0250	0.0270	0.0267	108	107	78.0-120			1.06	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0255	0.0249	102	99.7	65.0-126			2.15	20
1,2-Dibromoethane	0.0250	0.0252	0.0257	101	103	78.0-122			1.69	20
Dibromomethane	0.0250	0.0255	0.0258	102	103	79.0-120			1.34	20
1,2-Dichlorobenzene	0.0250	0.0273	0.0276	109	110	80.0-120			1.07	20
1,3-Dichlorobenzene	0.0250	0.0272	0.0274	109	110	72.0-123			1.01	20
1,4-Dichlorobenzene	0.0250	0.0274	0.0272	110	109	77.0-120			0.960	20
Dichlorodifluoromethane	0.0250	0.0288	0.0289	115	115	49.0-155			0.330	20
1,1-Dichloroethane	0.0250	0.0280	0.0281	112	112	70.0-128			0.490	20
1,2-Dichloroethane	0.0250	0.0276	0.0272	110	109	69.0-128			1.45	20
1,1-Dichloroethene	0.0250	0.0255	0.0254	102	102	63.0-131			0.600	20
cis-1,2-Dichloroethene	0.0250	0.0270	0.0267	108	107	74.0-123			1.03	20
trans-1,2-Dichloroethene	0.0250	0.0267	0.0268	107	107	72.0-122			0.120	20
1,2-Dichloropropane	0.0250	0.0281	0.0278	112	111	75.0-126			1.05	20
1,1-Dichloropropene	0.0250	0.0258	0.0261	103	104	72.0-130			1.04	20
1,3-Dichloropropane	0.0250	0.0262	0.0259	105	104	80.0-121			1.16	20
cis-1,3-Dichloropropene	0.0250	0.0251	0.0246	100	98.3	80.0-125			1.98	20
trans-1,3-Dichloropropene	0.0250	0.0251	0.0249	100	99.7	75.0-129			0.620	20
2,2-Dichloropropane	0.0250	0.0229	0.0240	91.7	96.0	60.0-129			4.59	20
Di-isopropyl ether	0.0250	0.0283	0.0283	113	113	62.0-133			0.0800	20
Ethylbenzene	0.0250	0.0259	0.0262	104	105	77.0-120			1.04	20
Hexachloro-1,3-butadiene	0.0250	0.0290	0.0297	116	119	68.0-128			2.21	20
Isopropylbenzene	0.0250	0.0284	0.0287	113	115	75.0-120			1.12	20
p-Isopropyltoluene	0.0250	0.0288	0.0291	115	116	74.0-125			1.16	20
2-Butanone (MEK)	0.125	0.147	0.148	117	118	37.0-159			0.800	20

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Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Sc



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

(LCS) R3261465-1 10/27/17 11:05 • (LCSD) R3261465-2 10/27/17 11:26

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methylene Chloride	0.0250	0.0255	0.0257	102	103	67.0-123			0.890	20
4-Methyl-2-pentanone (MIBK)	0.125	0.140	0.144	112	115	60.0-144			3.21	20
Methyl tert-butyl ether	0.0250	0.0275	0.0279	110	112	66.0-125			1.43	20
Naphthalene	0.0250	0.0280	0.0289	112	116	64.0-125			2.96	20
n-Propylbenzene	0.0250	0.0276	0.0279	110	112	78.0-120			1.29	20
Styrene	0.0250	0.0248	0.0244	99.0	97.7	78.0-124			1.32	20
1,1,1,2-Tetrachloroethane	0.0250	0.0253	0.0258	101	103	74.0-124			1.99	20
1,1,2,2-Tetrachloroethane	0.0250	0.0267	0.0274	107	109	73.0-120			2.38	20
Tetrachloroethene	0.0250	0.0251	0.0253	100	101	70.0-127			0.740	20
Toluene	0.0250	0.0247	0.0247	98.8	98.8	77.0-120			0.0200	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0251	0.0251	100	100	64.0-135			0.0100	20
1,2,3-Trichlorobenzene	0.0250	0.0269	0.0271	108	108	68.0-126			0.720	20
1,2,4-Trichlorobenzene	0.0250	0.0277	0.0269	111	108	70.0-127			2.69	20
1,1,1-Trichloroethane	0.0250	0.0248	0.0253	99.0	101	69.0-125			2.08	20
1,1,2-Trichloroethane	0.0250	0.0253	0.0258	101	103	78.0-120			1.73	20
Trichloroethene	0.0250	0.0255	0.0262	102	105	79.0-120			2.75	20
Trichlorofluoromethane	0.0250	0.0264	0.0277	106	111	59.0-136			4.83	20
1,2,3-Trichloropropane	0.0250	0.0243	0.0250	97.1	100	73.0-124			2.96	20
1,2,3-Trimethylbenzene	0.0250	0.0269	0.0272	108	109	76.0-120			0.980	20
1,2,4-Trimethylbenzene	0.0250	0.0271	0.0275	109	110	75.0-120			1.14	20
1,3,5-Trimethylbenzene	0.0250	0.0270	0.0273	108	109	75.0-120			1.10	20
Vinyl chloride	0.0250	0.0304	0.0307	122	123	63.0-134			0.920	20
Xylenes, Total	0.0750	0.0779	0.0791	104	105	77.0-120			1.53	20
(S) Toluene-d8				100	100	80.0-120				
(S) Dibromofluoromethane				104	105	74.0-131				
(S) a,a,a-Trifluorotoluene				95.8	95.3	80.0-120				
(S) 4-Bromofluorobenzene				95.3	94.5	64.0-132				

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Guide to Reading and Understanding Your Laboratory Report

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

Abbreviations and Definitions

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

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

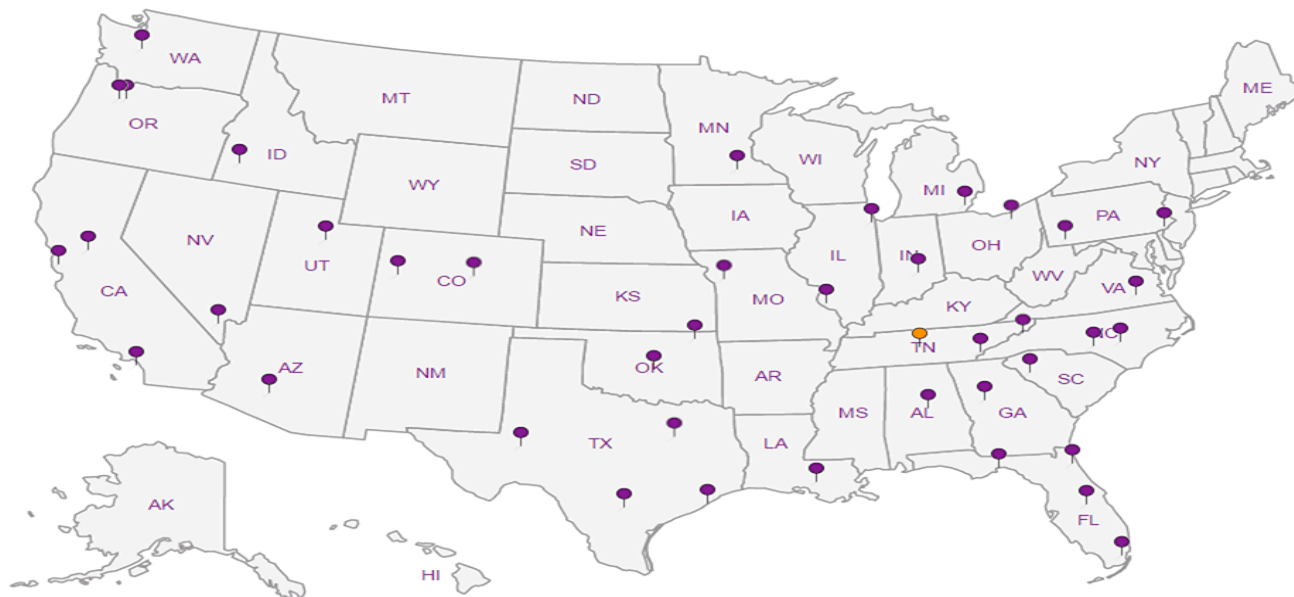
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

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

Third Party & Federal Accreditations

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

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



[illegible]

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # 8903. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S & C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

Sample wt - 5

1-7 mw 11

ESC LAB SCIENCES

Cooler Receipt Form

Client: <u>Oregon</u>	SDG#	<u>6946592</u>	
Cooler Received/Opened On: <u>10/26/17</u>	Temperature:	<u>1.7</u>	
Received By: Branford Shaw			
Signature: <u>B. Shaw</u>			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	<u>/</u>		
COC Signed / Accurate?		<u>/</u>	
Bottles arrive intact?		<u>/</u>	
Correct bottles used?		<u>/</u>	
Sufficient volume sent?		<u>/</u>	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

459144

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number CE-606 081987200377	2. Page 1 of 1	3. Emergency Response Phone 503-224-3206	4. Manifest Tracking Number 011014253 FLE		
5. Generator's Name and Mailing Address ODEQ 700 NE Multnomah St. Ste. 400 8620 SW HALL BLVD BEAVERTON, OR 97008			Generator's Site Address (if different than mailing address) ODEQ 8620 SW HALL BLVD BEAVERTON, OR 97008				
6. Transporter 1 Company Name WASTEXPRESS			U.S. EPA ID Number ORQ000023150				
7. Transporter 2 Company Name CHEMICAL WASTE MANAGEMENT			U.S. EPA ID Number ORD080452353				
8. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT 17829 CEDAR SPRINGS LANE ARLINGTON, OR 97812			U.S. EPA ID Number ORD080452353				
Facility's Phone: 541 454-2643							
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	
			No.	Type			
		1. NON-DOT REGULATED MATERIAL, N.O.S., (IDW SOIL),	032	DM	1000	P	NONE
		2. UN3082, Environmentally Hazardous Substance Liquid, N.O.S. RQ (IDW soil + water) <i>Attractant ethylene</i>	01	DM	500	P	F002
		3.					
14. Special Handling Instructions and Additional Information 1) 0812617808 (5/55 DM) 1) OR336223 2) 08336536 (4/55 DM) 558, 617 483)							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Officer's Printed Name DEA - MARIE PUGH			Signature 		Month 12	Day 8	
TRANSPORTER	16. International Shipments ☐ Import to U.S. ☐ Export from U.S.		Port of entry/exit Date leaving U.S.				
	17. Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name Chris Moore		Signature 		Month 12	Day 22	
DESIGNATED FACILITY	Transporter 2 Printed/Typed Name Michael Crause		Signature 		Month 12	Day 28	
	18. Discrepancy						
	18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection Drum #1 received with liquid. Approved new profile 08336536 added to manifest. Approved to add 96.02 per Duane Neucom/Wastexpress mb 1-24-18						
	18b. Alternate Facility (or Generator) Facility's Phone 18c. Signature of Alternate Facility (or Generator)						
	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. H132		2.		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name Dawn Dwyer			Signature 		Month 11	Day 4	