



May 17, 2012  
Project No. 8006.31.01

Mr. Guy Barrett  
Washington State Department of Ecology  
PO Box 47775  
Olympia, Washington 98504-7775

Re: Data Submittal for March 2012 Investigation at Former Park Laundry Property,  
Ridgefield, Washington

Dear Mr. Barrett:

Maul Foster & Alongi, Inc. (MFA) has prepared this letter on behalf of Union Ridge Investment Company (URIC) updating the status of the remedial investigation (RI) for the former Park Laundry site at 122 N. Main Avenue in Ridgefield, Washington (the Property). The RI is being conducted pursuant to Agreed Order No. DE 6829 (the Order). The Order requires URIC to perform an RI to determine the nature and extent of hazardous substances at the site and to evaluate the potential threats to human health and the environment pursuant to the Model Toxics Control Act (MTCA). The Property was historically used by Park Laundry, which may have conducted dry cleaning operations that resulted in the release of tetrachloroethene (PCE).

To date, MFA has performed the following investigations of the site:

- March 2010—assessment of the nature and extent of contamination in soil, groundwater, and soil vapor, using reconnaissance techniques.
- October 2010—further characterization of the uppermost water-bearing zone (UWBZ) and the extent of contamination in groundwater, using reconnaissance techniques.
- June 2011—installation of groundwater monitoring wells to further characterize groundwater and extent of groundwater contamination.

This letter summarizes the results of continued efforts to fully characterize the nature and extent of groundwater contamination in the UWBZ. At the Washington State Department of Ecology's (Ecology) request, additional groundwater monitoring wells were installed in March 2012. Groundwater sampling and analysis have focused on the characterization of PCE and its possible degradation products (including trichloroethene [TCE], cis-1,2-dichloroethene [DCE], trans-1,2-DCE, and vinyl chloride) above MTCA cleanup levels (CULs) in groundwater.

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## **SITE INVESTIGATION ACTIVITIES**

Site characterization activities completed by MFA in March 2012 focused on further characterization of the UWBZ. Eight additional monitoring wells were installed at the locations shown on Figure 1. The boring for monitoring well MW-12 encountered refusal and was not completed. Well logs are included in Attachment A and field sampling data sheets in Attachment B of this letter report. Laboratory reports and a data validation memorandum are also attached (Attachment C).

## **SITE GEOLOGY AND HYDROGEOLOGY**

Figure 1 shows the location of a geologic cross section constructed for the site; the cross section is shown on Figure 2. Typically, fine sands and silty sands were observed to approximately 15 feet below ground surface (bgs); this unit forms the UWBZ, from the Property west to approximately the Burlington Northern (BN) railroad tracks. A low-permeability layer of clay underlies the UWBZ and acts as a perching layer for groundwater. Silty gravels and sandy gravels of the Upper Troutdale Formation underlie the low-permeability clay. Groundwater was not encountered below the low-permeability clay until approximately 80 feet bgs. West of the BN railroad tracks, the clay unit appears to pinch out, transitioning to sandy gravel. The clay perching layer present in the upland is truncated toward the west, and the silty sand UWBZ of the upland connects to the sandy gravel unit underlying the Port of Ridgefield's (Port) property to the west.

Hydrology data are summarized on Table 1. On the Property, groundwater is shallow and has been observed in the UWBZ at approximately 5 feet bgs. Figure 3 is an estimated potentiometric surface map constructed using hydrology data from the March 2012 sampling event. The data indicate that groundwater in the area of the Property is mounded, and in the upland area of the site, groundwater flows to the west and north/northwest. In the northerly direction, moving away from the Property, the groundwater flow direction becomes more westerly.

## **RESULTS OF LABORATORY ANALYSIS**

Monitoring well analytical data are summarized on Table 2. The highest concentrations of PCE in groundwater during the March 2012 sampling event were measured in samples from MW03 and MW05, northwest of the Property (see Table 2). While earlier reconnaissance data indicated the presence of elevated concentrations of PCE on the Property (37,700 micrograms per liter [ $\mu\text{g}/\text{L}$ ]), concentrations of PCE measured in monitoring wells MW01 and MW02, both of which are installed on the Property, were much lower than the earlier reconnaissance sample results. The concentrations in MW01 (8.38  $\mu\text{g}/\text{L}$ ) and MW02 (0.88  $\mu\text{g}/\text{L}$ ) are also significantly lower than the concentrations in MW03 (3,510  $\mu\text{g}/\text{L}$ ) and MW05 (1,520  $\mu\text{g}/\text{L}$ ) on the adjoining property. MW01 through MW07 were sampled in June 2011

and March 2012. Concentrations of PCE were lower in all seven monitoring wells between the two sampling events. It is not clear if this is a result of the second round of sampling being more representative of actual site conditions, or if it might be due to natural seasonal fluctuations. PCE in all newly installed monitoring wells, with the exception of MW08, were above the MTCA Method A CUL of 5 µg/L.

The PCE concentrations in monitoring wells from the March 2012 sampling event are shown on Figure 4. Groundwater concentrations from the March 2012 investigation were also screened against the draft MTCA Method B preliminary screening levels to assess the potential for vapor intrusion risk.<sup>1</sup> Concentrations of PCE in groundwater at all wells except MW02 and MW08 were above the vapor screening level of 1 µg/L. Concentrations of TCE in groundwater in MW03 through MW06 and MW09 through MW16 were also above the MTCA Method A CUL of 5 µg/L and the vapor screening level of 0.42 µg/L. It should be noted that groundwater concentrations are from just above the confining unit, and not from the groundwater-vadose zone interface. This may result in overestimation of the potential risk.

TCE is present in slightly under 50 percent of the groundwater samples from monitoring wells. There is not a clear relationship between PCE and TCE concentrations, and groundwater monitoring data do not suggest that degradation of PCE is occurring.

## CONCLUSIONS AND RECOMMENDATIONS

MFA believes that the nature and extent of contamination in groundwater to the west of the BN railroad tracks have been adequately characterized. Ecology has determined that contaminant levels in the deeper portion of the UWBZ on the Port's property do not represent a threat to Lake River. PCE is not present in shallow groundwater west of the BN railroad tracks, nor are there any structures west of the tracks; therefore, indoor air is not threatened.

There are inconsistent detections of TCE in some monitoring wells, which could suggest other sources of volatile organic compounds. In addition, concentrations have decreased in wells that have now been sampled twice (MW01 through MW07). Additional monitoring is necessary to evaluate trends, including seasonal fluctuations.

MFA recommends completing quarterly groundwater monitoring at the existing monitoring wells through December 2012. If this course of action is pursued, the next monitoring event will occur in June 2012. This will provide data that can be compared to the initial set of data that was collected in June 2011. Collecting data at the same time of year will help determine if the lower concentrations we are seeing during this most recent March 2012 event are from

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<sup>1</sup> Ecology. Guidance for evaluating soil vapor intrusion in Washington State: investigation and remedial action. Prepared by the Washington State Department of Ecology. October 2009 (review draft).

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seasonal variations in groundwater or are more representative of *in situ* concentrations. Additional quarterly data in September and December will also provide seasonally representative data to allow for evaluation of possible seasonal fluctuations in groundwater. MFA recommends additional monitoring prior to installing additional wells (to the extent necessary). Once a year of quarterly monitoring is complete, MFA will evaluate the data and provide recommendations to Ecology for its review.

As it relates to the potential for vapor intrusion, MFA understands that Ecology has sent out informational packets and survey questionnaires to residences in areas where groundwater is impacted. Once copies of completed questionnaires are provided to MFA, MFA will compile the results of those questionnaires in conjunction with groundwater and geologic data to create conceptual models for the various structures and to assess the need for additional vapor assessment.

Please call either of us if you have questions.

Sincerely,

Maul Foster & Alongi, Inc.



MERIDETH D'ANDREA

Merideth D'Andrea  
Project Geologist

James J. Maul, LHG  
President and Principal Hydrogeologist

Attachments: Tables  
Figures  
A—Boring Logs  
B—Field Sampling Data Sheets  
C—Laboratory Reports and Data Validation Memorandum

cc: Union Ridge Investment Company  
Lou Ferreira, Stoel Rives LLP  
Laurie Olin; Port of Ridgefield

## LIMITATIONS

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The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

# TABLES



**Table 1**  
**Water Level Elevations in Monitoring Wells**  
**Former Park Laundry**  
**Union Ridge Investment Company**  
**Ridgefield, Washington**

Location	Date	Water Level (feet bgs)	TOC Elevation (feet MSL)	Water Level Elevation (feet MSL)
MW01	6/24/2011	5.89	85.2	79.31
	03/17/2012	3.11	85.2	82.09
MW02	6/24/2011	5.75	84.78	79.03
	03/17/2012	1.60	84.78	83.18
MW03	6/24/2011	6.25	84.7	78.45
	03/17/2012	1.40	84.7	83.30
MW04	6/24/2011	5.98	83.05	77.07
	03/17/2012	3.18	83.05	79.87
MW05	6/24/2011	7.46	83.46	76.00
	03/17/2012	6.19	83.46	77.27
MW06	6/24/2011	7.96	85.11	77.15
	03/17/2012	7.45	85.11	77.66
MW07	6/24/2011	9.01	82.01	73.00
	03/16/2012	8.85	82.01	73.16
MW08	03/16/2012	7.21	19.46	12.25
MW09	03/14/2012	2.87	76.69	73.82
MW10	03/13/2012	10.71	81.06	70.35
MW11	03/13/2012	9.75	78.00	68.25
MW13	03/14/2012	6.00	74.02	68.02
MW14	03/12/2012	10.74	78.13	67.39
MW15	03/15/2012	38.95	51.45	12.50
MW16	03/15/2012	37.42	50.02	12.60
NOTES: bgs = below ground surface. MSL = mean sea level.				

**Table 2**  
**Volatile Organic Compounds in Groundwater (µg/L)**  
**Former Park Laundry**  
**Union Ridge Investment Company**  
**Ridgefield, Washington**

Location	Sample ID	Date	Depth (feet bgs)	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetra-chloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride
MTC A Method A				NV	NV	5	NV	5	0.2
MTC A Method B				400	80	0.081	160	0.49	0.029
MW01	MW1-12.5	06/24/2011	12.5	1 U	1 U	19.5	1 U	1 U	1 U
	MW01_031712	03/17/2012	12.5	0.0964 U	0.154 U	8.38	0.149 U	0.087 U	0.165 U
MW02	MW2-14.0	06/24/2011	14	1 U	1 U	8.84	1 U	1 U	1 U
	MW2_031712	03/17/2012	14	0.0964 U	0.154 U	0.88 J	0.149 U	0.087 U	0.165 U
MW03	MW3-15.0	06/24/2011	15	1 U	1 U	12500	1 U	3.47	1 U
	MW3_031712	03/17/2012	15	0.0964 U	0.154 U	3510	0.149 U	1.34	0.165 U
MW04	MW4-16.0	06/24/2011	16	1 U	1 U	226	1 U	13.9	1 U
	MW4-16-DUP	06/24/2011	16	1 U	1 U	216	1 U	15.8	1 U
	MW04_031712	03/17/2012	16	0.0964 U	0.154 U	63.6	0.149 U	3.83	0.165 U
MW05	MW5-16.5	06/24/2011	16.5	1 U	1 U	2240	1 U	3.61	1 U
	MW05_031712	03/17/2012	16.5	0.0964 U	0.154 U	1520	0.149 U	2.22	0.165 U
MW06	MW6-16.0	06/24/2011	16	1 U	1.31	3.77	1 U	19.1	1 U
	MW06_031712	03/17/2012	16	0.0964 U	1.08	4.03	0.149 U	11.1	0.165 U
MW07	MW7-15.0	06/24/2011	15	1 U	1 U	11.7	1 U	1 U	1 U
	MW07_031612	03/16/2012	15	0.0964 U	0.154 U	6.11	0.149 U	0.087 U	0.165 U
MW08	MW08_031612	03/16/2012	54.5	0.0964 U	0.154 U	0.158 U	0.149 U	0.087 U	0.165 U
MW09	MW09_031412	03/14/2012	14.5	0.0964 U	0.48 J	53.9	0.149 U	62.6	0.165 U
MW10	MW10_031312	03/13/2012	29	0.0964 U	0.154 U	76.6	0.149 U	17.4	0.165 U
MW11	MW11_031312	03/13/2012	19	0.0964 U	0.154 U	32.9	0.149 U	1.49	0.165 U
MW13	MW13_031412	03/14/2012	19	0.0964 U	2.01	447	0.5 J	65.4	0.165 U



**Table 2**  
**Volatile Organic Compounds in Groundwater (µg/L)**  
**Former Park Laundry**  
**Union Ridge Investment Company**  
**Ridgefield, Washington**

Location	Sample ID	Date	Depth (feet bgs)	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetra-chloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl chloride
MTCA Method A				NV	NV	5	NV	5	0.2
MTCA Method B				400	80	0.081	160	0.49	0.029
MW14	MW14_031212	03/12/2012	21.5	0.0964 U	0.154 U	<b>74.4</b>	0.149 U	<b>40.8</b>	0.165 U
MW15	MW15_031512	03/15/2012	64.5	0.0964 U	0.154 U	<b>6.89</b>	0.149 U	0.45 J	0.165 U
MW16	MW16_031512	03/15/2012	64	0.0964 U	0.154 U	<b>7.1</b>	0.149 U	<b>0.68 J</b>	0.165 U

NOTES:

bgs = below ground surface.

bold = value exceeds MTCA Method B screening levels.

J = estimated value.

MTCA = Model Toxics Control Act.

µg/L = micrograms per liter.

NV = no value.

shading = value exceeds MTCA Method A screening levels.

U = not detected at or above the method reporting limit.

# FIGURES





Path: X:\8006\_31\Projects\01\April 2012\Date Submittal\Fig1\_Site Map and Cross Section Location.mxd  
 Produced By: J. Schane  
 Approved By: M. D'Andrea  
 Print Date: 4/26/2012  
 Project: 8006\_31



**Figure 1  
 Site Map and  
 Cross Section Location**

Former Park Laundry  
 Union Ridge  
 Investment Company  
 Ridgefield, Washington

**Legend**

- Port of Ridgefield Monitoring Wells
- Monitoring Well, MFA March 2012
- Monitoring Well, MFA June 2011
- Deep Boring, MFA March 2010
- Shallow Boring, MFA 2001
- Shallow Boring, MFA March 2010
- Shallow Boring, MFA October 2010
- Shallow Boring, MFA June 2011
- Cross Section
- Property Boundary



Source: Aerial photograph obtained from Clark County GIS (2007).

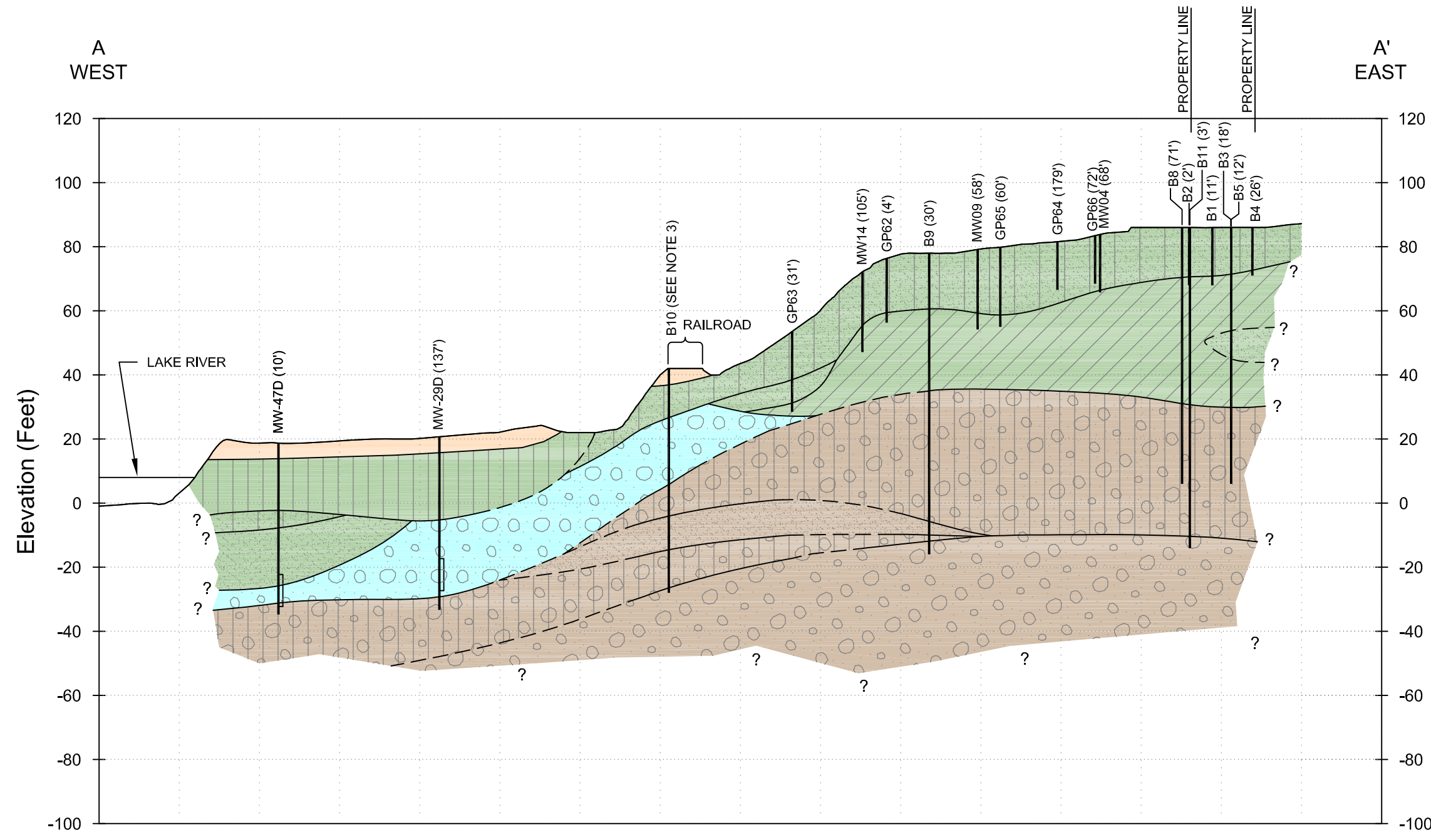


This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.



**Figure 2**  
**Generalized Geologic**  
**Cross Section A-A'**

**Former Park Laundry**  
**Union Ridge Investment Company**  
**Ridgefield, Washington**



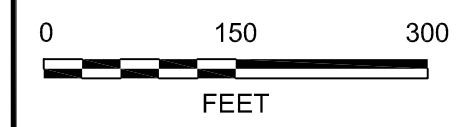
**LEGEND:**

- FILL
- ALLUVIUM**
  - SILT
  - SILTY SAND
  - SAND
  - CLAY
  - SANDY GRAVEL
- UPPER TROUTDALE**
  - SILTY GRAVEL (AQUITARD)
  - SANDY GRAVEL
  - SAND
- LITHOLOGIC CONTACT
- INFERRED LITHOLOGIC CONTACT

**NOTES:**

1. Borings and Wells are projected perpendicular to the cross section line. Distances in feet are projected as shown in parentheses.
2. Actual location of B10 is just east of the railroad although it is shown to the west because of projection.

PROFILE VIEW OF SECTION A-A'  
 HORIZONTAL SCALE: 1" = 150'      VERTICAL SCALE: 1" = 38'  
 VERTICAL EXAGGERATION: 4









Project: 8006.31  
 Produced By: J. Schane  
 Approved By: M. D'Andrea  
 Print Date: 5/9/2012  
 Path: X:\8006.31\Projects\01\April 2012 Data Submittal\Fig3\_WLE March 2012 Estimated Potentiometric Surface Map.mxd



**Figure 3**  
**Estimated Groundwater**  
**Potentiometric Surface Map**  
**March 12, 2012**

Former Park Laundry  
 Union Ridge  
 Investment Company  
 Ridgefield, Washington

**Legend**

-  Monitoring Well
-  Property Boundary
-  Water Level Contour (feet)
-  Groundwater Flow Direction

Note: Monitoring wells were surveyed by Minister-Glaser on June 23, 2011 and March 12, 2012.



Source: Aerial photograph obtained from Clark County GIS (2007).



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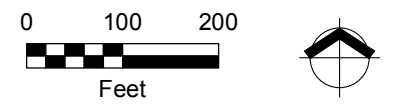
**Figure 4**  
**PCE Groundwater**  
**Investigation Results**  
**March 2012**

Former Park Laundry  
 Union Ridge  
 Investment Company  
 Ridgefield, Washington

**Legend**

- MW10 76.6 µg/L MFA Monitoring Wells
- MW47-D 14.2 µg/L POR Monitoring Wells
- Estimated Potentiometric Surface Contour (feet, msl)
- PCE > 100 µg/L
- PCE > 500 µg/L
- Property Boundary

- Notes:**
1. Wells were surveyed by Minister-Glaser on June 23, 2011 and March 12, 2012.
  2. PCE = Tetrachloroethylene.
  3. µg/L = micrograms per liter.
  4. msl = mean sea level.
  5. POR = Port of Ridgefield.
  6. Contours on POR site interpolated from water level measurements taken in August, 2011.
  7. PCE Concentrations in POR Monitoring Wells from samples collected March 13th through March 17th, 2012.



Source: Aerial photograph obtained from Clark County GIS (2007).



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# ATTACHMENT A

BORING LOGS



**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
8006.31.01

Well Number  
MW08

Sheet  
1 of 3

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/20/12 to 2/20/12**  
 Driller/Equipment **Cascade/Mini Sonic**  
 Geologist/Engineer **Merideth D'Andrea**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **60.0-feet**  
 Outer Hole Diam **6-inch**

Depth (feet, BGS)	Well Details	Sample Data				Blows/6"	Lithologic Column	Soil Description
		Interval	Percent Recovery	Collection Method	Number			
1		100%	CB	1			0 to 0.5 feet: TOPSOIL. Grass and roots. 0.5 to 3.0 feet: SILT (ML); brown; 100% fines; trace brick; damp.	
2								
3							3.0 to 5.0 feet: SILT with SAND (ML); gray; 85% fines, low plasticity, firm; 15% sand, fine; micaceous; moist.	
4								
5		0%	CB	2			5.0 to 10.0 feet: No Recovery.	
6								
7								
8								
9								
10		100%	CB	3			10.0 to 13.0 feet: SILT with SAND (ML); gray; 85% fines, medium plasticity, soft; 15% sand, fine; micaceous; damp.	
11								
12								
13							13.0 to 20.0 feet: SILT (ML); light grayish brown; 100% fines, medium to high plasticity, soft to very soft; wet.	
14								
15		100%	CB	4				
16								
17								
18								
19								
20								

NOTES:



Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
21			100%	CB	5				20.0 to 30.0 feet: SILT with SAND (ML); gray; 80% fines, low plasticity, soft; 20% sand, fine; wet.	
22										
23										
24										
25			100%	CB	6					
26										
27										
28										
29										
30			100%	CB	7				30.0 to 35.0 feet: SAND (SP); yellowish brown; 100% sand, fine to medium, loose; trace gravel, medium, round to subrounded; damp.	
31										
32										
33										
34										
35			100%	CB	8				35.0 to 50.0 feet: SANDY GRAVEL (GW); brownish gray; 60% gravel, fine to coarse, subangular to rounded; 40% sand, fine to coarse; some fines, loose; wet.	
36										
37										
38										
39										
40			100%	CB	9					
41										
42										

**NOTES:**

Depth (feet, BGS)	Well Details	Sample Data					Blows/6"	Lithologic Column	Soil Description
		Interval	Percent Recovery	Collection Method	Number	Name (Type)			
43									
44									
45		80%	CB	10				@ approximately 45 feet: increase in fines.	
46									
47									
48									
49									
50		100%	CB	11				50.0 to 60.0 feet: SILTY GRAVEL with SAND (GM); gray; 60% gravel, fine to coarse, subangular to rounded; 30% fines; 10% sand, fine to coarse; dense; wet.	
51									
52									
53									
54									
55		100%	CB	12				Total Depth: 60 feet below ground surface. <u>Borehole completion details</u> 0 to 60.0 feet bgs: 6-inch borehole. 0.0 to 2.0 feet bgs: Concrete. 2.0 to 42.0 feet bgs: Bentonite chips hydrated with potable water. 42.0 to 56.0 feet bgs: Filter pack sand. 56.0 to 60.0 feet bgs: Bentonite chips hydrated with potable water.	
56									
57									
58									
59									
60								<u>Well Completion Details</u> 0.0 to 1.0 feet bgs: Monument. 0.5 to 45.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser. 45.0 to 55.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen. 55.0 to 55.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.	

NOTES:

**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW09**

Sheet  
**1 of 2**

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/20/12 to 2/20/12**  
 Driller/Equipment **Cascade/Geoprobe**  
 Geologist/Engineer **Meaghan Gallagher**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **25.0-feet**  
 Outer Hole Diam **2-inch**

Depth (feet, BGS)	Well Details	Sample Data				Blows/6"	Lithologic Column	Soil Description
		Interval	Percent Recovery	Collection Method	Number			
1		100%	GP	1			0.0 to 1.5 feet: SILTY SAND with GRAVEL (SM); brown; 40% fines, non-plastic; 40% sand, fine to medium; 20% gravel, subround to subangular, fine to medium; damp.	
2							1.5 to 5.0 feet: SANDY SILT (ML); light brown; 70% fines, low plasticity to medium plasticity; 30% sand, fine to medium; damp.	
3								
4								
5		90%	GP	2			5.0 to 7.0 feet: SILT with SAND (ML); medium brown; 90% fines, medium plasticity; 10% sand, fine to medium; moist.	
6								
7								
8							7.0 to 9.5 feet: SAND (SP); grayish brown; 100% sand, medium; trace fines; damp.	
9							@9.0 feet: Becomes dark brown.	
10		100%	GP	3			9.5 to 10.0 feet: No recovery. 10.0 to 15.0 feet: SAND (SP); light brown to medium brown; 100% sand, medium; wet.	
11								
12							@12.75 feet: Becomes gray.	
13								
14								
15		100%	GP	4			15.0 to 25.0 feet: CLAY (CL); grayish blue; 100% fines, high plasticity; very compact; moist.	
16								
17								
18								
19								
20								

**NOTES:**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
21			100%	GP	5				
22									
23									
24									
25									

Total Depth: 25.0 feet below ground surface.

Borehole Completion Details

- 0.0 to 25.0 feet bgs: 2-inch borehole.
- 0.0 to 1.0 feet bgs: Concrete.
- 1.0 to 9.0 feet bgs: Bentonite chips hydrated with potable water.
- 9.0 to 15.0 feet bgs: Filter pack sand.
- 15.0 to 25.0 feet bgs: Sluff.

Well Completion Details

- 0.0 to 1.0 feet bgs: Monument.
- 0.5 to 9.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser.
- 9.0 to 14.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen.
- 14.5 to 15.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

**NOTES:**

**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW10**

Sheet  
**1 of 2**

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/20/12 to 2/20/12**  
 Driller/Equipment **Cascade/Geoprobe**  
 Geologist/Engineer **Meaghan Gallagher**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **30.0-feet**  
 Outer Hole Diam **2-inch**

Depth (feet, BGS)	Well Details	Sample Data				Blows/6"	Lithologic Column	Soil Description
		Interval	Percent Recovery	Collection Method	Number			
1		100%	CB	1			0.0 to 5.0 feet: SILT (ML); medium brown; 95% fines, low plasticity; 5% sand, fine to medium; damp.	
2		80%	CB	2			5.0 to 8.0 feet: SILTY SAND (SM); medium brown; 20% fines, low plasticity; 80% sand, medium; damp.	
3							8.0 to 9.0 feet: SAND (SP); medium brown; 100% sand, medium; damp.	
4							9.0 to 10.0 feet: No recovery.	
5							10.0 to 11.5 feet: SAND (SP); brownish gray; 100% sand, medium to coarse, damp.	
6			80%	CB	3			11.5 to 14.0 feet: SAND (SP); gray; 100% sand, coarse; wet.
7							14.0 to 15.0 feet: No recovery.	
8							15.0 to 17.0 feet: SAND (SP); brownish gray; 100% sand, medium to coarse, damp.	
9							17.0 to 20.0 feet: SAND with SILT (SW); medium brown; 10% fines, non-plastic; 90% sand, medium; wet.	
10			100%	CB	4			
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

**NOTES:**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
21		100%	100%	CB	5			20.0 to 24.5 feet: SANDY SILT (ML); medium brown; 65% fines, non-plastic; 35% sand, fine to medium; wet.	
22									
23									
24									
25								24.5 to 26.5 feet: SAND with SILT (SW); grayish brown; 15% fines, non-plastic; 85% sand, medium; wet.	
26									
27	26.5 to 28.5 feet: SAND (SP); medium brown; 100% sand, medium; wet.								
28									
29	28.5 to 29.0 feet: SANDY SILT (ML); medium brown; 80% fines, non-plastic; 20% sand, fine, wet.								
30	29.0 to 30.0 feet: CLAY (CL); Bluish gray; 100% fines, medium to high plasticity.								

Total Depth: 30.0 feet below ground surface.

Borehole Completion Details

0.0 to 30.0 feet bgs: 2-inch borehole.  
 0.0 to 1.0 feet bgs: Concrete.  
 1.0 to 24.0 feet bgs: Bentonite chips hydrated with potable water.  
 24.0 to 30.0 feet bgs: Filter pack sand.

Well Completion Details

0.0 to 1.0 feet bgs: Monument.  
 0.5 to 25.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser.  
 25.0 to 29.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen.  
 29.5 to 30.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

**NOTES:**

**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW11**

Sheet  
**1 of 2**

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/21/12 to 2/21/12**  
 Driller/Equipment **Cascade/Geoprobe**  
 Geologist/Engineer **Meaghan Gallagher**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **25.0-feet**  
 Outer Hole Diam **2-inch**

Depth (feet, BGS)	Well Details	Sample Data				Blows/6"	Lithologic Column	Soil Description
		Interval	Percent Recovery	Collection Method	Number			
1		100%	CB	1			0.0 to 6.7 feet: SILT with SAND (ML); medium brown; 85-90% fines, non-plastic to low plasticity; 10-15% sand, fine; damp.	
2								
3								
4								
5		100%	CB	2				
6								
7							6.7 to 9.0 feet: SANDY SILT (ML); medium brown; 85% fines, non-plastic to low plasticity; 15% sand, fine; damp. @7.5 feet: becomes light brown.	
8								
9								
10		100%	CB	3			9.0 to 15.0 feet: SAND (SP); light brown; 100% sand, fine to medium; moist. @11.5 feet: Becomes wet.	
11								
12								
13								
14								
15		100%	CB	4			15.0 to 17.7 feet: SILTY SAND (SM); medium brown; 30-40% fines, non-plastic; 60-70% sand, fine to medium; wet.	
16								
17								
18							17.7 to 19.0 feet: SILT (ML); medium brown; 100% fines, non-plastic; wet.	
19								
20							19.0 to 25.0 feet: CLAY (CL); light brown; 100% fines, non-plastic; very compacted, dry to damp. @19.5 feet: becomes grayish blue and damp.	

**NOTES:**

GBLWC WA\GINTGINT\PROJECTS\8006.31\MW08-MW16.GPJ 5/16/12

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
21			100%	CB	5				
22									
23									
24									
25									

Total Depth: 25.0 feet below ground surface.

Borehole Completion Details

0.0 to 25.0 feet bgs: 2-inch borehole.  
 0.0 to 1.0 feet bgs: Concrete.  
 1.0 to 14.0 feet bgs: Bentonite chips hydrated with potable water.  
 14.0 to 20.0 feet bgs: Filter pack sand.  
 20.0 to 25.0 feet bgs: Sluff.

Well Completion Details

0.0 to 1.0 feet bgs: Monument.  
 0.5 to 15.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser.  
 15.0 to 19.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen.  
 19.5 to 20.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

**NOTES:**



**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW13**

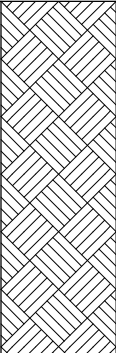
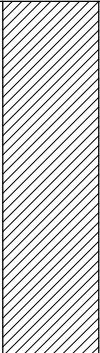
Sheet  
**1 of 2**

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/21/12 to 2/21/12**  
 Driller/Equipment **Cascade/Geoprobe**  
 Geologist/Engineer **Meaghan Gallagher**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **25.0-feet**  
 Outer Hole Diam **2-inch**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
1			100%	CB	1				0.0 to 6.0 feet: SILT (ML); medium brown; 100% fines, non-plastic; wet.	
2										
3										
4										
5			100%	CB	2				6.0 to 10.5 feet: SILT with SAND (ML); medium brown; 90-95% fines, non-plastic; 5-10% sand, fine; damp.	
6										
7										
8										
9										
10			100%	CB	3				@10.0 feet: becomes moist.	
11									10.5 to 12.0 feet: SANDY SILT (ML); medium brown; 75% fines, non-plastic; 25% sand, fine; wet.	
12										
13									12.0 to 20.0 feet: SILTY SAND (SM); medium brown to reddish brown; 20% fines, non-plastic; 80% sand, fine to medium; wet.	
14										
15			100%	CB	4					
16										
17										
18										
19									@19.0 feet: fines increase to 40%.	
20										

**NOTES:**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
21 22 23 24 25		<b>100%</b>	<b>CB</b>	<b>5</b>				20.0 to 25.0 feet: CLAY (CL); grayish blue; 100% fines, high plasticity, very compact; moist.	

Total Depth: 25.0 feet below ground surface.

Borehole Completion Details

- 0.0 to 25.0 feet bgs: 2-inch borehole.
- 0.0 to 1.0 feet bgs: Concrete.
- 1.0 to 14.0 feet bgs: Bentonite chips hydrated with potable water.
- 14.0 to 20.0 feet bgs: Filter pack sand.
- 20.0 to 25.0 feet bgs: Sluff.

Well Completion Details

- 0.0 to 1.0 feet bgs: Monument.
- 0.5 to 15.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser.
- 15.0 to 19.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen.
- 19.5 to 20.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

**NOTES:**

**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW14**

Sheet  
**1 of 2**

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/22/12 to 2/22/12**  
 Driller/Equipment **Cascade/Geoprobe**  
 Geologist/Engineer **Meaghan Gallagher**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **25.0-feet**  
 Outer Hole Diam **2-inch**

Depth (feet, BGS)	Well Details	Sample Data				Blows/6"	Lithologic Column	Soil Description	
		Interval	Percent Recovery	Collection Method	Number				Name (Type)
1		0.0 to 1.2 feet	58%	CB	1			0.0 to 1.2 feet: SANDY GRAVEL (GWS); light brown with white; 40% sand, medium to coarse; 60% gravel, fine to medium, subround to subangular; trace fines; dry.	
2		1.2 to 2.9 feet						1.2 to 2.9 feet: SANDY SILT (ML); medium grayish brown; 75% to 80% fines, non-plastic; 20% to 25% sand, fine to medium; damp.	
3								2.9 to 5.0 feet: No recovery.	
4									
5			92%	CB	2				5.0 to 6.6 feet: SILTY SAND with GRAVEL (SM); light brown; 25% to 30% fines, non-plastic; 60% sand, medium to coarse; 10% to 15% gravel, fine to medium, round to subround; damp.
6									
7									6.6 to 9.6 feet: SANDY SILT (ML); medium brown; 70% fines, non-plastic; 30% sand, fine to medium; damp.
8									
9									
10			100%	CB	3				10.0 to 10.3 feet: SANDY SILT (ML); medium brown; 70% fines, non-plastic; 30% sand, fine to medium; damp.
11									10.3 to 12.3 feet: SILT (ML); grayish brown; 100% fines, low plasticity; moist.
12									
13									12.3 to 15.0 feet: SANDY SILT (ML); orangish brown; 75% fines, non-plastic to low plasticity; 25% sand, fine to medium.
14									
15			100%	CB	4				15.0 to 16.5 feet: SILTY SAND (SM); orangish brown; 40% fines, non-plastic; 60% sand, fine to medium; wet.
16									
17									16.5 to 18.9 feet: SAND (SP); orangish brown; 100% sand, fine; wet.
18									
19									
20									18.9 to 20.0 feet: SANDY SILT (ML); grayish brown; 60% fines, non-plastic; 40% sand, fine; wet.

**NOTES:**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW14**

Sheet  
**2 of 2**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
21		100%	CB	5				20.0 to 22.5 feet: SAND (SP); light brown; 100% sand, fine to medium; wet.	
22								22.5 to 25.0 feet: CLAY (CL); grayish blue; 100% fines, high plasticity; damp.	
23									
24									
25									

Total Depth feet: 25.0 feet below ground surface.

Borehole Completion Details

- 0.0 to 25.0 feet bgs: 2-inch borehole.
- 0.0 to 1.0 feet bgs: Concrete.
- 1.0 to 16.0 feet bgs: Bentonite chips hydrated with potable water.
- 16.0 to 22.0 feet bgs: Filter pack sand.
- 22.0 to 25.0 feet bgs: Sluff.

Well Completion Details

- 0.0 to 1.0 feet bgs: Monument.
- 0.5 to 17.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser.
- 17.0 to 21.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen.
- 21.5 to 22.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

**NOTES:**

**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW15**

Sheet  
**1 of 4**

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/27/12 to 2/28/12**  
 Driller/Equipment **Cascade/Mini Sonic**  
 Geologist/Engineer **Meaghan Gallagher**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **70.0-feet**  
 Outer Hole Diam **6-inch**

Depth (feet, BGS)	Well Details	Sample Data				Blows/6"	Lithologic Column	Soil Description					
		Interval	Percent Recovery	Collection Method	Number								
1		100%	CB	1				0.0 to 5.5 feet: SILTY CLAY (CL); medium brown; 100% fines, low-plasticity to medium-plasticity; trace sand, fine; damp; slight odor.					
2		3						4					
5		100%						CB	2				5.5 to 6.8 feet: SILT with SAND (SP-SM); medium brown; 85% to 90% fines, non-plastic to low plasticity; 10% to 15% sand, fine; damp.
6		7											8
9		10	11										
12		100%	CB	3									8.4 to 11.5 feet: SAND with SILT (SP-SM); grayish brown; 10% to 15% fines, non-plastic; 85% to 90% sand, fine; damp.
13		14						15					
16		100%						CB	4				15.0 to 15.7 feet: SILT (ML); light brown; 100% fines, non-plastic to low plasticity; moist.
17		18											19
20		17.5 to 18.3 feet: CLAY with SAND (CL); brown; 90% fines, non-plastic; 10% sand, coarse; damp.											
18.3 to 19.4 feet: CLAY (CL); grayish brown; 100% fines, high plasticity; trace sand, coarse; moist.													
19.4 to 20.0 feet: SILTY SAND with GRAVEL (SM); 20% to 25% fines, non-plastic; 70% sand, coarse; 5% to 10% gravel, medium to													

**NOTES:**

GBLWC WA\GINTGINT\PROJECTS\8006.31\MW08-MW16.GPJ 5/16/12

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
21			40%	CB	5			coarse, round to subround.	
22								20.0 to 22.0 feet: SILTY GRAVEL with SAND (GM); gray; 20% to 25% fines, non-plastic; 10% to 15% sand, medium to coarse; 65% gravel, fine to coarse, angular to round; gravel increases with depth; sample temperature elevated from drilling action; wet, transition to dry.	
23								22.0 to 25.0 feet: No recovery.	
24									
25			100%	CB	6			25.0 to 27.1 feet: SILTY SANDY GRAVEL (GW); Dark brown; 20% fines, non-plastic to low plasticity; 20% sand, fine to medium; 60% gravel, medium to coarse, angular to round; slight odor; damp.	
26								@26.0 feet: Becomes dry, rock pulverized from drilling action.	
27								27.1 to 30.0 feet: SANDY GRAVEL (GW); brown; 25% sand, medium to coarse; 75% gravel, fine to coarse, angular to round; damp.	
28									
29									
30			50%	CB	7			30.0 to 32.0 feet: SILTY SANDY GRAVEL (GW); gray; 20% fines, non-plastic to low plasticity; 20% sand, fine to medium; 60% gravel, medium to coarse, angular to round; dry, pulverized from drilling.	
31								@30.85 feet: Becomes wet.	
32								32.0 to 32.5 feet: SAND (SW); 100% sand, medium to coarse; trace fines; wet.	
33								32.5 to 35.0 feet: No recovery.	
34									
35			80%	CB	8			35.0 to 36.8 feet: SILTY GRAVEL (GM); Dark grayish brown; 25% fines, non-plastic to low plasticity; 75% gravel, fine to coarse, angular to round; fines increase with depth; damp.	
36									
37								36.8 to 39.0 feet: SANDY GRAVEL (GW); Dark brown; 25% sand, medium to coarse; 75% gravel, fine to coarse, angular to round; trace fines; pulverized rock from 37.1 to 37.4; damp.	
38									
39								39.0 to 45.0 feet: No recovery.	
40			0%	CB	9				
41									
42									

**NOTES:**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
43									
44									
45			100%	CB	10			45.0 to 46.5 feet: SANDY GRAVEL with SILT (GW); brown; 10% fines, non-plastic; 20% sand, medium to coarse; 70% gravel, fine to coarse, subangular to round; wet.	
46									
47								46.5 to 54.0 feet: SAND with GRAVEL (SW); brown; 90% sand, medium to coarse; 10% gravel, coarse, round; gravel increases with depth; wet.	
48									
49									
50			100%	CB	11				
51									
52									
53									
54									
55			100%	CB	12			54.0 to 55.0 feet: SILTY GRAVEL with SAND (GM); brown; 30% fines, non-plastic; 10% sand, fine to medium; 60% gravel, medium to coarse, subround to round; wet. 55.0 to 59.0 feet: SANDY GRAVEL (GW); brown; 25% sand, medium to coarse; 75% gravel, medium to coarse, angular to round; wet.	
56									
57									
58									
59									
60			100%	CB	13			59.0 to 60.0 feet: GRAVEL (GW); 100% gravel, medium to coarse, subround to round. 60.0 to 61.3 feet: SILTY SANDY GRAVEL (GW); brown; 20% fines, non-plastic; 20% sand, medium to coarse; 60% gravel, medium to coarse, angular to round; wet. 61.3 to 65.0 feet: SANDY GRAVEL (GW); brown; 40% sand, medium to coarse; 60% gravel, medium to coarse, subround to round; moist.	
61									
62									
63									
64									
65									

**NOTES:**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
66 67 68 69 70		<b>100%</b>		<b>CB</b>	<b>14</b>				65.0 to 70.0 feet: <b>SILTY GRAVEL</b> with SAND (GM); grayish brown; 25% to 30% fines, non-plastic to low plasticity; 10% to 15% sand, fine to medium; 60% gravel, medium to coarse, subangular to round; fines increase with depth; moist, becomes damp with depth.

Total Depth: 70.0 feet below ground surface.

Borehole Completion Details

0.0 to 70.0 feet bgs: 6-inch borehole.  
 0.0 to 1.0 feet bgs: Concrete.  
 2.0 to 5.0 feet bgs: Sluff.  
 5.0 to 53.0 feet bgs: Bentonite chips hydrated with potable water.  
 53.0 to 65.0 feet bgs: Filter pack sand.  
 65.0 to 70.0 feet bgs: Sluff.

Well Completion Details

0.0 to 1.0 feet bgs: Monument.  
 0.5 to 55.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser.  
 55.0 to 64.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen.  
 64.5 to 65.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

**NOTES:**



**Maul Foster & Alongi, Inc.**

**Geologic Borehole Log/Well Construction**

Project Number  
**8006.31.01**

Well Number  
**MW16**

Sheet  
**1 of 4**

Project Name **Union Ridge Investment Company**  
 Project Location **Ridgefield, WA**  
 Start/End Date **2/28/12 to 2/29/12**  
 Driller/Equipment **Cascade/Mini Sonic**  
 Geologist/Engineer **Meaghan Gallagher**  
 Sample Method

TOC Elevation (feet)  
 Surface Elevation (feet)  
 Northing  
 Easting  
 Hole Depth **70.0-feet**  
 Outer Hole Diam **6-inch**

Depth (feet, BGS)	Well Details	Sample Data				Blows/6"	Lithologic Column	Soil Description
		Interval	Percent Recovery	Collection Method	Number			
1		74%	CB	1			0.0 to 3.7 feet: SILT (ML); medium brown; 100% fines, non-plastic; trace sand, fine; trace mica; moist.	
2							3.7 to 5.0 feet: No recovery.	
3		90%	CB	2			5.0 to 7.0 feet: SANDY SILT (ML); grayish brown; 75% fines, non-plastic; 25% sand, fine; moist.	
4							7.0 to 9.5 feet: SILTY SAND (SM); gray; 20% fines, non-plastic; 80% sand, fine to medium; moist.	
5								9.5 to 10.0 feet: No recovery.
6								
7		100%	CB	3			11.7 to 15.0 feet: CLAY (CL); light brown; 100% fines, high plasticity; moist.	
8							62%	CB
9		16.3 to 18.1 feet: SILTY SANDY GRAVEL (GW); 20% fines, non-plastic; 20% sand, fine to coarse; 60% gravel, fine to coarse, angular to round; dry.						
10		18.1 to 20.0 feet: No recovery.						

**NOTES:**

GBLWC WA\GINTGINT\PROJECTS\8006.31\MW08-MW16.GPJ 5/16/12

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Collection Method	Sample Data			Blows/6"	Lithologic Column	Soil Description
					Number	Name (Type)				
21			100%	CB	5				20.0 to 22.0 feet: SANDY GRAVEL (GW); grayish brown; 40% sand, medium to coarse; 60% gravel, medium to coarse, subangular to round; damp.	
22										
23									22.0 to 26.5 feet: SILTY SANDY GRAVEL (GW); grayish brown; 15% fines, non-plastic; 25% sand, medium; 60% gravel, medium to coarse, subround to round; damp to moist.	
24										
25			100%	CB	6					
26										
27									26.5 to 28.0 feet: SANDY GRAVEL (GW); gray; 25% sand, fine to coarse; 75% gravel, fine to coarse, angular to round; trace fines; pulverized rock; dry.	
28										
29									28.0 to 32.7 feet: SILTY SANDY GRAVEL (GW); gray and brown; 20% fines, non-plastic; 20% sand, medium to coarse; 60% gravel, fine to coarse, subround to round; moist.	
30			100%	CB	7					
31										
32										
33									32.7 to 34.2 feet: SANDY GRAVEL (GW); brown to yellowish brown; 50% sand, medium to coarse; 50% gravel, fine to coarse, angular to round; possible pulverized rock; damp to dry.	
34										
35			100%	CB	8				34.2 to 40.0 feet: SILTY SANDY GRAVEL (GW); gray and brown; 20% fines, non-plastic; 20% sand, medium to coarse; 60% gravel, fine to coarse, subround to round; moist.	
36										
37										
38										
39										
40			100%	CB	9				@40.0 feet: becomes wet and fines increase.	
41									40.0 to 44.5 feet: SILTY GRAVEL (GM); grayish brown; 40% fines, non-plastic; 60% gravel, fine to coarse; subround to round; wet.	
42										

**NOTES:**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
43									
44									
45			100%	CB	10			44.5 to 45.0 feet: SANDY GRAVEL (GWS); grayish brown; 50% sand, fine to medium; 50% gravel, fine to coarse, round; wet.	
46								45 to 46.7 feet: SANDY GRAVEL with SILT (GW); grayish brown; 10% fines, non-plastic; 30% sand, fine to medium; 60% gravel, fine to coarse; subround to round; wet.	
47								46.7 to 48.0 feet: SANDY GRAVEL (GW); grayish brown; 25% sand, fine to medium; 75% gravel, fine to coarse, subangular to round; wet.	
48								48.0 to 50.0 feet: SAND (SP); brown; 100% sand, fine to medium; trace gravel at 50.0; wet.	
49									
50			80%	CB	11			50.0 to 54.0 feet: SANDY GRAVEL with SILT (GW); gray; 5% to 10% fines, non-plastic; 20% to 25% sand, medium to coarse; 70% gravel, fine to coarse, subangular to round; wet.	
51									
52									
53									
54								54.0 to 55.0 feet: No recovery.	
55			66%	CB	12			55.0 to 55.8 feet: SAND with GRAVEL (SW); brown; 90% to 95% sand, medium; 5% to 10% gravel, medium to coarse; subround to round.	
56								55.8 to 56.3 feet: SANDY GRAVEL (SW); brown; 50% sand, very coarse; 50% gravel, fine to medium, angular to subangular; wet.	
57								56.3 to 57 feet: SILTY GRAVEL (GM); brown; 40% fines, non-plastic; 60% gravel, fine to coarse, angular to round; wet.	
58								57.0 to 58.3 feet: SANDY GRAVEL with SILT (SW); brown; 10% fines, non-plastic; 30% sand, medium; 60% gravel, fine to coarse, angular to subangular; fines increase with depth; wet.	
59								58.3 to 60.0 feet: No recovery.	
60			90%	CB	13			60.0 to 60.9 feet: SANDY GRAVEL (GW); gray; 40% sand, very coarse; 60% gravel, medium to coarse, subangular to angular; wet.	
61								60.9 to 64.5 feet: SILTY GRAVEL with SAND (GM); grayish brown; 30% to 35% fines, non-plastic; 5% to 10% sand, fine; 60% gravel, medium to coarse, subround to round; sand increases with depth; wet.	
62									
63									
64									
65								64.5 to 65.0 feet: No recovery.	

**NOTES:**

Depth (feet, BGS)	Well Details	Interval	Percent Recovery	Sample Data			Blows/6"	Lithologic Column	Soil Description
				Collection Method	Number	Name (Type)			
66			80%	CB	14			65.0 to 69.0 feet: SILTY GRAVEL (GM); gray; 40% fines, non-plastic; 60% gravel, fine to coarse, angular to round; trace sand; becomes more compact with depth; some pulverized rock; wet.	
67								69.0 to 70.0 feet: No recovery.	
68									
69									
70									

Total Depth: 70.0 feet below ground surface.

Borehole Completion Details

- 0.0 to 70.0 feet bgs: 6-inch borehole.
- 0.0 to 1.0 feet bgs: Concrete.
- 2.0 to 5.0 feet bgs: Sluff.
- 5.0 to 53.0 feet bgs: Bentonite chips hydrated with potable water.
- 53.0 to 65.0 feet bgs: Filter pack sand.
- 65.0 to 70.0 feet bgs: Sluff.

Well Completion Details

- 0.0 to 1.0 feet bgs: Monument.
- 0.5 to 55.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, blank riser.
- 55.0 to 64.5 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, 0.010-inch machine slotted, well screen.
- 64.5 to 65.0 feet bgs: 2-inch diameter, PVC, schedule 40, flush threaded, end cap.

**NOTES:**

# ATTACHMENT B

FIELD SAMPLING DATA SHEETS



# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW01		
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG		
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/17/2012		
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW01-031712		
<b>Sub Area</b>	MW	<b>Sample Depth</b>	12.95		
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>	<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>		

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/17/2012	10:47	12.95		3.11		9.84	1.6

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	11:33:00 AM	1.7	0.2	6.27	10.34	204	2.05	153.9	57.6
	11:55:00 AM	3.5	0.2	6.09	10.34	204	1.43	157.8	51.4
Final Field Parameters	12:22:00 PM	5	0.15	6.12	10.51	205	1.48	157	9.49

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	12:36:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles		

### General Sampling Comments

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW02
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MD
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/17/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW02-031712
<b>Sub Area</b>	MW	<b>Sample Depth</b>	14.5
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/17/2012	11:09	14.57		1.6		12.97	2.11

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	11:29:00 AM	2.5	0.6	7.39	10.37	3015	10.33	139.7	7.87
	11:46:00 AM	5	0.6	7.45	10.29	185	10.9	89.2	2.51
Final Field Parameters	12:03:00 PM	7.5	0.6	6.7	9.95	92	9.9	102.7	1.42

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	12:07:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles		

### General Sampling Comments

Conductivity probe is reading inconsistent

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW03
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MD
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/17/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW03-031712
<b>Sub Area</b>	MW	<b>Sample Depth</b>	15
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/17/2012	12:48	15.26		1.4		13.86	2.26

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	1:05:00 PM	2.5	0.8	7.2	10.53	2147	4.97	168.2	2.06
	1:16:00 PM	5	0.8	6.92	10.68	254	4.42	86.7	1.27
Final Field Parameters									
	1:27:00 PM	7.5	0.8	6.74	10.68	215	4.66	109.6	0.72

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	1:32:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Signature \_\_\_\_\_



# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW04
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/17/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW04-031712
<b>Sub Area</b>	MW	<b>Sample Depth</b>	16.11
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/17/2012	14:00	16.11		3.18		12.93	2.11

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	2:14:00 PM	2.2	0.6	6.59	11.21	265	2.91	151.4	0.74
	2:28:00 PM	4.3	0.6	6.55	11.62	261	2.87	137.2	-0.81
Final Field Parameters									
	2:35:00 PM	6.4	0.6	6.55	11.63	258	2.77	133.7	-1.12

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	2:45:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Turbidity meter reading inconsistent.

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

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## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW05
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MD
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/17/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW05-031712
<b>Sub Area</b>	MW	<b>Sample Depth</b>	17.13
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/17/2012	14:05	17.13		6.19		10.94	1.78

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	2:20:00 PM	2	0.6	7.28	12.98	2045	5.13	166.3	1.44
	2:35:00 PM	4	0.6	7.34	12.88	380	4.4	83.7	1.1
Final Field Parameters	2:48:00 PM	6	0.6	6.72	12.8	214	4.45	84	0.95

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	2:56:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles		

### General Sampling Comments

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW06
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/17/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW06-031712
<b>Sub Area</b>	MW	<b>Sample Depth</b>	16.32
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/16/2012	17:23	16.32		7.45		8.87	1.44

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	5:52:00 PM	1.4	0.25	6.48	11.89	267	4.49	84.4	1.39
Final Field Parameters	6:00:00 PM	3	0.25	6.41	11.45	270	6.67	101	12.6

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	9:51:00 AM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Purged 3 gallons, well dry. Sample 3/17/12

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW07
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/16/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW07-031612
<b>Sub Area</b>	MW	<b>Sample Depth</b>	15.62
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/16/2012	15:26	15.62		8.85		6.77	1.1

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	3:50:00 PM	1.1	0.3	6.05	12.19	197	5.16	97.5	47
	4:12:00 PM	2.2	1.8	6.08	12.32	184	6.16	97.7	4.39
Final Field Parameters	4:39:00 PM	3.3	1.8	6.09	12.09	182	6.15	108.2	0.87

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	4:50:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles		5

### General Sampling Comments

Clear and colorless

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW08
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/16/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW08-031612
<b>Sub Area</b>	MW	<b>Sample Depth</b>	54.98
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/16/2012	9:47	54.98		7.21		47.77	7.7

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	11:24:00 AM	7.7	0.35	6.59	11.6	577	1.63	96.3	4.17
	12:30:00 PM	15.5	0.42	6.56	10.36	545	1.16	23.8	3.53
Final Field Parameters	2:00:00 PM	23.3	0.4	6.55	12.53	569	1.48	19.1	2.73

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	2:19:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Clear & colorless.

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW09		
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG		
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/14/2012		
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW09-031412		
<b>Sub Area</b>	MW	<b>Sample Depth</b>	14.61		
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>		<b>Northing</b>	
				<b>TOC</b>	

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/14/2012	14:50	14.61		2.87		11.74	1.91

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	3:25:00 PM	2	0.27	6.4	9.73	287	1.43	105.2	201
	4:05:00 PM	3.9	0.25	6.37	9.5	273	1.43	69	82.7
	4:42:00 PM	6	0.2	6.33	9.68	264	1.63	55.1	63.6
Final Field Parameters	5:55:00 PM	11	0.15	6.34	10.1	258	1.9	43.2	51.3

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

Samples appear slightly cloudy with pale yellow tint.

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	6:06:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Meri approved sampling with higher turbidity.

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW10		
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG		
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/13/2012		
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW10-031312		
<b>Sub Area</b>	MW	<b>Sample Depth</b>	29.53		
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>	<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>		

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/13/2012	12:55	29.53		10.71		18.82	3.06

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	1:52:00 PM	3	0.2	6.75	10.37	201	1.67	83.3	17.2
	2:44:00 PM	6	0.22	6.56	10.98	197	2.13	-11.5	6.79
Final Field Parameters	3:32:00 PM	9	0.2	6.53	11.28	194	1.99	-11.4	3.78

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	3:45:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW11
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/13/2012
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW11-031312
<b>Sub Area</b>	MW	<b>Sample Depth</b>	19.54
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>
		<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/13/2012	17:00	19.54		9.75		9.79	1.59

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	5:35:00 PM	1.6	0.25	6.24	10.54	259	4.55	71.7	1.75
	5:59:00 PM	3.2	0.25	6.05	11.03	260	3.9	89	0.49
Final Field Parameters	6:22:00 PM	4.8	0.22	6.01	11.06	261	3.99	101.1	0.18

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	6:45:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Pressure built up inside well, popped cap off when loosened.  
First two attempts had noticeable sediments in bailer. 3 attempts at sampling with clean bailer and string each time.

Signature \_\_\_\_\_



# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW13		
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG		
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/14/2012		
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW13-031412		
<b>Sub Area</b>	MW	<b>Sample Depth</b>	19.45		
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input type="text"/>	<b>Northing</b>	<input type="text"/>
		<b>TOC</b>	<input type="text"/>		

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/14/2012	11:00	19.45		6		13.45	2.19

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	11:34:00 AM	2.2	0.32	6.69	10.9	270	2.4	152.5	86.8
	12:12:00 PM	4.4	0.25	6.49	11.4	253	2.6	149.6	25.7
	12:40:00 PM	6.6	0.27	6.47	11.98	250	3.05	149	15.1
Final Field Parameters	1:25:00 PM	10	0.25	6.44	12.5	249	2.96	149.6	10.37

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	1:40:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles		

### General Sampling Comments

Although final turbidity reading was ~10 NTU, samples appeared slightly cloudy and tinted pale yellow.

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW14		
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG		
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/12/2012		
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW14-031212		
<b>Sub Area</b>	MW	<b>Sample Depth</b>	21.81		
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>	<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>		

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/12/2012	12:30	21.81		10.74		11.07	1.8

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(2) Peristaltic Pump	1:30:00 PM	1.8	0.25	6.44	12.19	153	1.73	113.9	2.08
	2:00:00 PM	3.6	0.25	6.43	11.86	160	2.07	109.7	1.22
Final Field Parameters									
	2:30:00 PM	5.4	0.25	6.34	11.86	160	1.71	114.5	0.28

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	2:40:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Some sediment in bailer. Samples appear clear and colorless.

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW15		
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG		
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/15/2012		
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW15-031512		
<b>Sub Area</b>	MW	<b>Sample Depth</b>	64.95		
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>		<b>Northing</b>	
				<b>TOC</b>	

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/15/2012	10:45	64.95		38.95		26	4.2

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(7) "Other (Grundfos)"	12:25:00 PM	4.2	0.25	6.58	14.01	213	2.31	157.2	10.4
	1:27:00 PM	8.4	0.3	6.53	15.02	212	2.44	121.6	6.65
Final Field Parameters									
	2:24:00 PM	12.8	0.4	6.45	14.91	209	2.09	119.8	7.41

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	3:12:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles	5	

### General Sampling Comments

Grundfos= 139.50 Hz

Signature \_\_\_\_\_

# Maul Foster & Alongi, Inc.

400 E. Mill Plain Blvd, Suite 400, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1958

## Water Field Sampling Data Sheet

<b>Client Name</b>	URIC	<b>Sample Location</b>	MW16		
<b>Project #</b>	8006.31.01	<b>Sampler</b>	MKG		
<b>Project Name</b>	URIC- Ridgefield	<b>Sampling Date</b>	3/15/2012		
<b>Sampling Event</b>	March 2012	<b>Sample Name</b>	MW16-031512		
<b>Sub Area</b>	MW	<b>Sample Depth</b>	64.53		
<b>FSDS QA:</b>	JJP 03/28/12	<b>Easting</b>	<input style="width: 50px;" type="text"/>	<b>Northing</b>	<input style="width: 50px;" type="text"/>
		<b>TOC</b>	<input style="width: 50px;" type="text"/>		

### Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
3/15/2012	15:45	64.53		37.42		27.11	4.4

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

### Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	EH	Turbidity
(7) "Other (Grundfos)"	4:50:00 PM	4.5	0.5	6.53	13.97	221	3.17	132.4	12.6
	6:00:00 PM	9	0.3	6.45	14.27	221	3.32	126.4	11.5
Final Field Parameters	6:50:00 PM	13.5	0.4	6.42	13.07	212	3.84	128.2	5.87

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

### Water Quality Observations:

### Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(7) Other (bailer)	Groundwater	7:13:00 PM	VOA-Glass	5	No
			Amber Glass		
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly		
			Total Bottles		5

### General Sampling Comments

Signature \_\_\_\_\_

# ATTACHMENT C

LABORATORY REPORTS AND DATA  
VALIDATION MEMORANDUM



# DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 8006.31.01 | MARCH 28, 2012 | UNION RIDGE INVESTMENT COMPANY

This report reviews the analytical results for groundwater samples collected by the Maul Foster & Alongi, Inc. project team on the Union Ridge Investment Company site at 122 N. Main Avenue in Ridgefield, Washington. The samples were collected in March 2012.

Specialty Analytical (SA), in Clackamas, Oregon, performed the analyses. SA report numbers 1203120rev1, 1203158rev1, and 1203167rev1 were reviewed. The analyses performed are listed below.

Analysis	Reference
Volatile organic compounds (PCE, TCE, and breakdown products)	USEPA 8260B

PCE = tetrachloroethene.

TCE = trichloroethene.

USEPA = U.S. Environmental Protection Agency.

## DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of USEPA procedures (USEPA, 2008), and appropriate laboratory and method-specific guidelines (SA, 2012; USEPA, 1986).

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

## HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

### Holding Times

Extractions and analyses were performed within the recommended holding time criteria.

### Preservation and Sample Storage

The samples were preserved and stored appropriately.

## BLANKS

### Method Blanks

Laboratory method blank analyses were performed at the required frequencies. No target analytes were detected in the method blanks above the method detection limits (MDLs).

## Trip Blanks

Trip blanks were not submitted for this sampling event.

## Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

## SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples. All surrogate recoveries were within acceptance limits.

## MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

MS/MSD results are used to evaluate laboratory precision and accuracy. All MS/MSD samples were extracted and analyzed at the required frequency. All recoveries were within acceptance limits for percent recovery and relative percent differences.

## LABORATORY CONTROL SAMPLE RESULTS

An LCS is spiked with target analytes to provide information on laboratory accuracy. The LCS samples were extracted and analyzed at the required frequency. All LCS analytes were within acceptance limits for percent recovery.

## REPORTING LIMITS

As the client requested, SA used MDLs for non-detect results.

## DATA PACKAGE

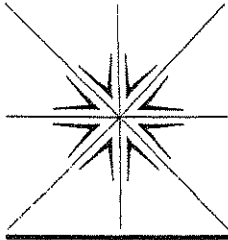
The data packages were reviewed for transcription errors, omissions, and anomalies. None were found.

## REFERENCES

---

- SA. 2012. Quality assurance manual. Specialty Analytical, Clackamas, Oregon.
- USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods. EPA-530/SW-846. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. September (revision 6, February 2007).
- USEPA. 2008. USEPA contract laboratory program, national functional guidelines for organics data review. EPA 540/R-08/01. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. June.





# Specialty Analytical

11711 SE Capps Road  
Clackamas, OR 97015  
(503) 607-1331  
Fax (503) 607-1336

March 28, 2012

Merideth D'Andrea  
Maul, Foster & Alongi  
400 East Mill Plain Blvd  
Suite 400  
Vancouver, WA 98660

TEL: (360) 694-2691  
FAX: (360) 906-1958

RE: Union Ridge / 8006.31.01  
Dear Merideth D'Andrea:

Order No.: 1203167

Specialty Analytical received 8 samples on 3/19/2012 for the analyses presented in the following report.

REVISED REPORT VERSION 1 . Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

  
Cindy Hillyard  
Project Manager

  
Technical Review

**Specialty Analytical**

**Date:** 28-Mar-12

---

**CLIENT:** Maul, Foster & Alongi  
**Project:** Union Ridge / 8006.31.01  
**Lab Order:** 1203167

**CASE NARRATIVE**

---

Report Revision 1.

This report contains the original results with all data now reported to the Method Detection Limit at the request of the client.

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-01

**Client Sample ID:** MW08\_031612  
**Collection Date:** 3/16/2012 2:19:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 9:54:00 PM
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/20/2012 9:54:00 PM
Tetrachloroethene	ND		0.158	1.00	µg/L	1	3/20/2012 9:54:00 PM
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/20/2012 9:54:00 PM
Trichloroethene	ND		0.0870	1.00	µg/L	1	3/20/2012 9:54:00 PM
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 9:54:00 PM
Surr: 1,2-Dichloroethane-d4	107		0	72.2-129	%REC	1	3/20/2012 9:54:00 PM
Surr: 4-Bromofluorobenzene	97.9		0	73.5-125	%REC	1	3/20/2012 9:54:00 PM
Surr: Dibromofluoromethane	111		0	58.8-148	%REC	1	3/20/2012 9:54:00 PM
Surr: Toluene-d8	108		0	79.8-137	%REC	1	3/20/2012 9:54:00 PM

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-02

**Client Sample ID:** MW07\_031612  
**Collection Date:** 3/16/2012 4:50:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 10:30:00 P
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/20/2012 10:30:00 P
Tetrachloroethene	6.11		0.158	1.00	µg/L	1	3/20/2012 10:30:00 P
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/20/2012 10:30:00 P
Trichloroethene	ND		0.0870	1.00	µg/L	1	3/20/2012 10:30:00 P
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 10:30:00 P
Surr: 1,2-Dichloroethane-d4	99.8		0	72.2-129	%REC	1	3/20/2012 10:30:00 P
Surr: 4-Bromofluorobenzene	105		0	73.5-125	%REC	1	3/20/2012 10:30:00 P
Surr: Dibromofluoromethane	107		0	58.8-148	%REC	1	3/20/2012 10:30:00 P
Surr: Toluene-d8	105		0	79.8-137	%REC	1	3/20/2012 10:30:00 P

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-03

**Client Sample ID:** MW06\_031712  
**Collection Date:** 3/17/2012 9:51:00 AM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 11:05:00 P
cis-1,2-Dichloroethene	1.08		0.154	1.00	µg/L	1	3/20/2012 11:05:00 P
Tetrachloroethene	4.03		0.158	1.00	µg/L	1	3/20/2012 11:05:00 P
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/20/2012 11:05:00 P
Trichloroethene	11.1		0.0870	1.00	µg/L	1	3/20/2012 11:05:00 P
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 11:05:00 P
Surr: 1,2-Dichloroethane-d4	102		0	72.2-129	%REC	1	3/20/2012 11:05:00 P
Surr: 4-Bromofluorobenzene	106		0	73.5-125	%REC	1	3/20/2012 11:05:00 P
Surr: Dibromofluoromethane	111		0	58.8-148	%REC	1	3/20/2012 11:05:00 P
Surr: Toluene-d8	104		0	79.8-137	%REC	1	3/20/2012 11:05:00 P

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-04

**Client Sample ID:** MW2\_031712  
**Collection Date:** 3/17/2012 12:07:00 PM

**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 11:38:00 P
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/20/2012 11:38:00 P
Tetrachloroethene	0.88	J	0.158	1.00	µg/L	1	3/20/2012 11:38:00 P
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/20/2012 11:38:00 P
Trichloroethene	ND		0.0870	1.00	µg/L	1	3/20/2012 11:38:00 P
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 11:38:00 P
Surr: 1,2-Dichloroethane-d4	91.6		0	72.2-129	%REC	1	3/20/2012 11:38:00 P
Surr: 4-Bromofluorobenzene	109		0	73.5-125	%REC	1	3/20/2012 11:38:00 P
Surr: Dibromofluoromethane	102		0	58.8-148	%REC	1	3/20/2012 11:38:00 P
Surr: Toluene-d8	106		0	79.8-137	%REC	1	3/20/2012 11:38:00 P

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-05

**Client Sample ID:** MW01\_031712  
**Collection Date:** 3/17/2012 12:36:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/21/2012 12:14:00 A
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/21/2012 12:14:00 A
Tetrachloroethene	8.38		0.158	1.00	µg/L	1	3/21/2012 12:14:00 A
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/21/2012 12:14:00 A
Trichloroethene	ND		0.0870	1.00	µg/L	1	3/21/2012 12:14:00 A
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/21/2012 12:14:00 A
Surr: 1,2-Dichloroethane-d4	103		0	72.2-129	%REC	1	3/21/2012 12:14:00 A
Surr: 4-Bromofluorobenzene	101		0	73.5-125	%REC	1	3/21/2012 12:14:00 A
Surr: Dibromofluoromethane	114		0	58.8-148	%REC	1	3/21/2012 12:14:00 A
Surr: Toluene-d8	106		0	79.8-137	%REC	1	3/21/2012 12:14:00 A

**Specialty Analytical**

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-06

**Client Sample ID:** MW3\_031712  
**Collection Date:** 3/17/2012 1:32:00 PM

**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/21/2012 12:50:00 A
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/21/2012 12:50:00 A
Tetrachloroethene	3510		15.8	100	µg/L	100	3/21/2012 12:10:00 P
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/21/2012 12:50:00 A
Trichloroethene	1.34		0.0870	1.00	µg/L	1	3/21/2012 12:50:00 A
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/21/2012 12:50:00 A
Surr: 1,2-Dichloroethane-d4	102		0	72.2-129	%REC	1	3/21/2012 12:50:00 A
Surr: 4-Bromofluorobenzene	107		0	73.5-125	%REC	1	3/21/2012 12:50:00 A
Surr: Dibromofluoromethane	116		0	58.8-148	%REC	1	3/21/2012 12:50:00 A
Surr: Toluene-d8	111		0	79.8-137	%REC	1	3/21/2012 12:50:00 A



# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-07

**Client Sample ID:** MW04\_031712  
**Collection Date:** 3/17/2012 2:42:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/21/2012 1:24:00 AM
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/21/2012 1:24:00 AM
Tetrachloroethene	63.6		0.158	1.00	µg/L	1	3/21/2012 11:36:00 A
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/21/2012 1:24:00 AM
Trichloroethene	3.83		0.0870	1.00	µg/L	1	3/21/2012 1:24:00 AM
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/21/2012 1:24:00 AM
Surr: 1,2-Dichloroethane-d4	95.4		0	72.2-129	%REC	1	3/21/2012 1:24:00 AM
Surr: 4-Bromofluorobenzene	116		0	73.5-125	%REC	1	3/21/2012 1:24:00 AM
Surr: Dibromofluoromethane	105		0	58.8-148	%REC	1	3/21/2012 1:24:00 AM
Surr: Toluene-d8	114		0	79.8-137	%REC	1	3/21/2012 1:24:00 AM

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203167  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203167-08

**Client Sample ID:** MW05\_031712  
**Collection Date:** 3/17/2012 3:56:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/21/2012 1:59:00 AM
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/21/2012 1:59:00 AM
Tetrachloroethene	1520		7.90	50.0	µg/L	50	3/21/2012 12:44:00 P
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/21/2012 1:59:00 AM
Trichloroethene	2.22		0.0870	1.00	µg/L	1	3/21/2012 1:59:00 AM
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/21/2012 1:59:00 AM
Surr: 1,2-Dichloroethane-d4	106		0	72.2-129	%REC	1	3/21/2012 1:59:00 AM
Surr: 4-Bromofluorobenzene	104		0	73.5-125	%REC	1	3/21/2012 1:59:00 AM
Surr: Dibromofluoromethane	113		0	58.8-148	%REC	1	3/21/2012 1:59:00 AM
Surr: Toluene-d8	112		0	79.8-137	%REC	1	3/21/2012 1:59:00 AM

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203167  
**Project:** Union Ridge / 8006.31.01

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31070</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/20/2012</b>	Run ID: <b>5973J_120320B</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31070</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823717</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.00									
1,1,1-Trichloroethane	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,1-Dichloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
1,1-Dichloropropene	ND	1.00									
1,2,3-Trichlorobenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									
1,2,4-Trichlorobenzene	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2-Dibromoethane	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dichloroethane	ND	1.00									
1,2-Dichloropropane	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,3-Dichloropropane	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
2,2-Dichloropropane	ND	1.00									
2-Butanone	ND	10.0									
2-Chlorotoluene	ND	1.00									
2-Hexanone	ND	10.0									
4-Chlorotoluene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
4-Methyl-2-pentanone	ND	20.0									
Acetone	3.32	50.0									J
Acrylonitrile	ND	5.00									
Benzene	ND	0.300									

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203167  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31070</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/20/2012</b>	Run ID: <b>5973J_120320B</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31070</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823717</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	ND	1.00									
Bromochloromethane	ND	1.00									
Bromodichloromethane	ND	1.00									
Bromoform	ND	1.00									
Bromomethane	ND	1.00									
Carbon disulfide	ND	2.00									
Carbon tetrachloride	ND	1.00									
Chlorobenzene	ND	1.00									
Chloroethane	ND	1.00									
Chloroform	ND	1.00									
Chloromethane	0.62	1.00									J
cis-1,2-Dichloroethene	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Dibromochloromethane	ND	1.00									
Dibromomethane	ND	1.00									
Dichlorodifluoromethane	ND	1.00									
Ethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	1.00									
Isopropylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
Methyl tert-butyl ether	ND	1.00									
Methylene chloride	1.72	20.0									J
n-Butylbenzene	ND	1.00									
n-Propylbenzene	ND	1.00									
Naphthalene	ND	1.00									
o-Xylene	ND	1.00									
sec-Butylbenzene	ND	1.00									
Styrene	ND	1.00									
tert-Butylbenzene	ND	1.00									
Tetrachloroethene	ND	1.00									
Toluene	ND	1.00									

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203167  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31070</b>		SampType: <b>MBLK</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date: <b>3/20/2012</b>		Run ID: <b>5973J_120320B</b>	
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31070</b>		TestNo: <b>SW8260B</b>				Analysis Date: <b>3/20/2012</b>		SeqNo: <b>823717</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
Trichloroethene	ND	1.00									
Trichlorofluoromethane	ND	1.00									
Vinyl chloride	ND	1.00									
Surr: 1,2-Dichloroethane-d4	103.2	0	100	0	103	72.2	129	0	0		
Surr: 4-Bromofluorobenzene	110.2	0	100	0	110	73.5	125	0	0		
Surr: Dibromofluoromethane	110.3	0	100	0	110	58.8	148	0	0		
Surr: Toluene-d8	112.5	0	100	0	113	79.8	137	0	0		

Sample ID: <b>LCS-31070</b>		SampType: <b>LCS</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date:		Run ID: <b>5973J_120320B</b>	
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31070</b>		TestNo: <b>SW8260B</b>				Analysis Date: <b>3/21/2012</b>		SeqNo: <b>823733</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	46.71	1.00	40	0	117	69.9	130	0	0		
Benzene	36.99	0.300	40	0	92.5	77.9	125	0	0		
Chlorobenzene	41.17	1.00	40	0	103	82.5	114	0	0		
Toluene	38.55	1.00	40	0	96.4	74.6	119	0	0		
Trichloroethene	37.44	1.00	40	0	93.6	74.7	125	0	0		

Sample ID: <b>1203167-08AMS</b>		SampType: <b>MS</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date: <b>3/20/2012</b>		Run ID: <b>5973J_120320B</b>	
Client ID: <b>MW05_031712</b>		Batch ID: <b>31070</b>		TestNo: <b>SW8260B</b>				Analysis Date: <b>3/21/2012</b>		SeqNo: <b>823726</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	45.23	1.00	40	0	113	51.4	176	0	0		
Benzene	36.65	0.300	40	0	91.6	71.5	118	0	0		
Chlorobenzene	41.15	1.00	40	0	103	79.8	114	0	0		
Toluene	37.92	1.00	40	0	94.8	79.6	121	0	0		
Trichloroethene	39.19	1.00	40	0	98	73.6	120	0	0		

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203167  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>1203167-08AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/20/2012</b>	Run ID: <b>5973J_120320B</b>
Client ID: <b>MW05_031712</b>	Batch ID: <b>31070</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/21/2012</b>	SeqNo: <b>823727</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	40.92	1.00	40	0	102	51.4	176	45.23	10.0	20	
Benzene	34.04	0.300	40	0	85.1	71.5	118	36.65	7.38	20	
Chlorobenzene	38.97	1.00	40	0	97.4	79.8	114	41.15	5.44	20	
Toluene	36.85	1.00	40	0	92.1	79.6	121	37.92	2.86	20	
Trichloroethene	36.32	1.00	40	0	90.8	73.6	120	39.19	7.60	20	

Sample ID: <b>CCB-31070</b>	SampType: <b>CCB</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120320B</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31070</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/21/2012</b>	SeqNo: <b>823729</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1,1-Trichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1,2,2-Tetrachloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1,2-Trichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1-Dichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
1,1-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
1,2,3-Trichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2,3-Trichloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,2,4-Trichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2,4-Trimethylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dibromo-3-chloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dibromoethane	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dichloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,3,5-Trimethylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,3-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,3-Dichloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,4-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
2,2-Dichloropropane	ND	1.00	0	0	0	0	0	0	0	0	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203167  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>CCB-31070</b>	SampType: <b>CCB</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>		Prep Date:	Run ID: <b>5973J_120320B</b>					
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31070</b>	TestNo: <b>SW8260B</b>			Analysis Date: <b>3/21/2012</b>	SeqNo: <b>823729</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	ND	10.0	0	0	0	0	0	0	0	0	
2-Chlorotoluene	ND	1.00	0	0	0	0	0	0	0	0	
2-Hexanone	ND	10.0	0	0	0	0	0	0	0	0	
4-Chlorotoluene	ND	1.00	0	0	0	0	0	0	0	0	
4-Isopropyltoluene	ND	1.00	0	0	0	0	0	0	0	0	
4-Methyl-2-pentanone	ND	20.0	0	0	0	0	0	0	0	0	
Acetone	2.59	50.0	0	0	0	0	0	0	0	0	
Acrylonitrile	ND	5.00	0	0	0	0	0	0	0	0	
Benzene	ND	0.300	0	0	0	0	0	0	0	0	
Bromobenzene	ND	1.00	0	0	0	0	0	0	0	0	
Bromochloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Bromodichloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Bromoform	ND	1.00	0	0	0	0	0	0	0	0	
Bromomethane	ND	1.00	0	0	0	0	0	0	0	0	
Carbon disulfide	ND	2.00	0	0	0	0	0	0	0	0	
Carbon tetrachloride	ND	1.00	0	0	0	0	0	0	0	0	
Chlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
Chloroethane	ND	1.00	0	0	0	0	0	0	0	0	
Chloroform	ND	1.00	0	0	0	0	0	0	0	0	
Chloromethane	0.5	1.00	0	0	0	0	0	0	0	0	
cis-1,2-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
cis-1,3-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
Dibromochloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Dibromomethane	ND	1.00	0	0	0	0	0	0	0	0	
Dichlorodifluoromethane	ND	1.00	0	0	0	0	0	0	0	0	
Ethylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Hexachlorobutadiene	ND	1.00	0	0	0	0	0	0	0	0	
Isopropylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
m,p-Xylene	ND	2.00	0	0	0	0	0	0	0	0	
Methyl tert-butyl ether	ND	1.00	0	0	0	0	0	0	0	0	
Methylene chloride	0.13	20.0	0	0	0	0	0	0	0	0	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203167  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>CCB-31070</b>		SampType: <b>CCB</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date:		Run ID: <b>5973J_120320B</b>	
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31070</b>		TestNo: <b>SW8260B</b>		Analysis Date: <b>3/21/2012</b>		SeqNo: <b>823729</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
n-Propylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Naphthalene	ND	1.00	0	0	0	0	0	0	0	0	
o-Xylene	ND	1.00	0	0	0	0	0	0	0	0	
sec-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Styrene	ND	1.00	0	0	0	0	0	0	0	0	
tert-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Tetrachloroethene	ND	1.00	0	0	0	0	0	0	0	0	
Toluene	ND	1.00	0	0	0	0	0	0	0	0	
trans-1,2-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
trans-1,3-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
Trichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
Trichlorofluoromethane	ND	1.00	0	0	0	0	0	0	0	0	
Vinyl chloride	ND	1.00	0	0	0	0	0	0	0	0	
Surr: 1,2-Dichloroethane-d4	98.92	0	100	0	98.9	72.2	129	0	0	0	
Surr: 4-Bromofluorobenzene	104.5	0	100	0	104	73.5	125	0	0	0	
Surr: Dibromofluoromethane	112.1	0	100	0	112	58.8	148	0	0	0	
Surr: Toluene-d8	109.7	0	100	0	110	79.8	137	0	0	0	

Sample ID: <b>CCV-31070</b>		SampType: <b>CCV</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date:		Run ID: <b>5973J_120320B</b>	
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31070</b>		TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>		SeqNo: <b>823716</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	41.28	1.00	40	0	103	80	120	0	0	0	
1,2-Dichloropropane	37.68	1.00	40	0	94.2	80	120	0	0	0	
Chloroform	38.46	1.00	40	0	96.2	80	120	0	0	0	
Ethylbenzene	39.28	1.00	40	0	98.2	80	120	0	0	0	
Toluene	39.53	1.00	40	0	98.8	80	120	0	0	0	
Vinyl chloride	32.76	1.00	40	0	81.9	80	120	0	0	0	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank



**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203167  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8260\_W

Sample ID: <b>CCV-31070</b>	SampType: <b>CCV</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120320B</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31070</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/21/2012</b>	SeqNo: <b>823728</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	39.86	1.00	40	0	99.7	80	120	0	0		
1,2-Dichloropropane	34.31	1.00	40	0	85.8	80	120	0	0		
Chloroform	37.81	1.00	40	0	94.5	80	120	0	0		
Ethylbenzene	37.54	1.00	40	0	93.8	80	120	0	0		
Toluene	33.69	1.00	40	0	84.2	80	120	0	0		
Vinyl chloride	33.8	1.00	40	0	84.5	80	120	0	0		

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits

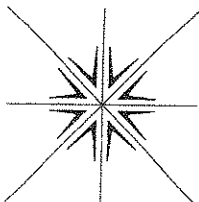
B - Analyte detected in the associated Method Blank

## KEY TO FLAGS

Rev. May 12, 2010

- A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards
- A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.
- A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.
- A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.
- A4 The product appears to be aged or degraded diesel.
- B The blank exhibited a positive result great than the reporting limit for this compound.
- CN See Case Narrative.
- D Result is based from a dilution.
- E Result exceeds the calibration range for this compound. The result should be considered as estimate.
- F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.
- G Result may be biased high due to biogenic interferences. Clean up is recommended.
- H Sample was analyzed outside recommended holding time.
- HT At clients request, samples was analyzed outside of recommended holding time.
- J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.
- K Diesel result is biased high due to amount of Oil contained in the sample.
- L Diesel result is biased high due to amount of Gasoline contained in the sample.
- M Oil result is biased high due to amount of Diesel contained in the sample.
- MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.
- MI Result is outside control limits due to matrix interference.
- MSA Value determined by Method of Standard Addition.
- O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.
- Q Detection levels elevated due to sample matrix.
- R RPD control limits were exceeded.
- RF Duplicate failed due to result being at or near the method-reporting limit.
- RP Matrix spike values exceed established QC limits; post digestion spike is in control.
- S Recovery is outside control limits.
- SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.
- \* The result for this parameter was greater than the maximum contaminant level of the TCLP regulatory limit.

# CHAIN OF CUSTODY RECORD



## Specialty Analytical

11711 SE Capps Road  
Clackamas, OR 97015  
Phone: 503-607-1331  
Fax: 503-607-1336

Contact Person/Project Manager Merideth D'Andrea  
Company MFA  
Address 2001 NW 19th Ave, Suite 200  
Portland OR 97209  
Phone 971 544 2139 Fax 971 544 2140  
Project No. 8006.31.01 Project Name Union Ridge  
Project Site Location OR  WA  Other   
Invoice To \_\_\_\_\_ P.O. No. \_\_\_\_\_

Collected By:

Signature Meaghan Gallagher

Printed Meaghan Gallagher

Signature Merideth D'Andrea

Printed Merideth D'Andrea

Turn Around Time

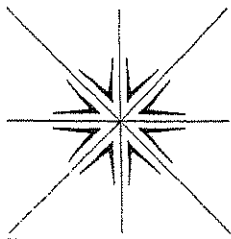
Normal 5-7 Business Days

Rush \_\_\_\_\_

Specify

Rush Analyses Must Be Scheduled With The Lab In Advance

Date	Time	Sample I.D.	Matrix	No. of Containers	Analyses						For Laboratory Use		
					1,1-DCE	cis-1,2-DCE	PCE	Trans-1,2-DCE	TCE	Vinyl Chloride	Lab Job No.	Comments	
3/16	1419	MW08-031612	GW	5	X	X	X	X	X	X	12031607		
3/16	1650	MW07-031612	GW	5	X	X	X	X	X	X			
3/17	0951	MW06-031712	GW	5	X	X	X	X	X	X		collected 3/17 Sample = MW06-031712	
3/17	1207	MW2-031712	GW	5	X	X	X	X	X	X			
3/17	1236	MW01-031712	GW	5	X	X	X	X	X	X			
3/17	1332	MW3-031712	GW	5	X	X	X	X	X	X			
3/17	1445	MW04-031712	GW	5	X	X	X	X	X	X			
3/17	1556	MW05-031712	GW	5	X	X	X	X	X	X			
Relinquished By: <u>Meaghan Gallagher</u>				Date	Time	Received By: <u>Karen Moore</u>				Relinquished By: <u>Karen Moore</u>	Date	Time	
Company: <u>MFA</u>				3/17	1630	Company: <u>MFA</u>					3/19/12	1340	
Unless Reclaimed, Samples Will Be Disposed of 60 Days After Receipt. Samples held beyond 60 days subject to storage fee(s)										Received For Lab By: <u>Nikki Bippes</u>		Date	Time
												3/19/12	1340



# Specialty Analytical

11711 SE Capps Road  
Clackamas, OR 97015  
(503) 607-1331  
Fax (503) 607-1336

---

March 28, 2012

Merideth D'Andrea  
Maul, Foster & Alongi  
400 East Mill Plain Blvd  
Suite 400  
Vancouver, WA 98660

TEL: (360) 694-2691  
FAX: (360) 906-1958

RE: Union Ridge / 8006.31.01  
Dear Merideth D'Andrea:

Order No.: 1203158

Specialty Analytical received 4 samples on 3/16/2012 for the analyses presented in the following report.

REVISED REPORT VERSION 1 . Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

  
Cindy Hillyard  
Project Manager

  
Technical Review

**Specialty Analytical**

**Date:** 28-Mar-12

---

**CLIENT:** Maul, Foster & Alongi  
**Project:** Union Ridge / 8006.31.01  
**Lab Order:** 1203158

**CASE NARRATIVE**

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Report Revision 1.

This report contains the original results with all data now reported to the Method Detection Limit at the request of the client.

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203158  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203158-01

**Client Sample ID:** MW-13\_031412  
**Collection Date:** 3/14/2012 1:40:00 PM

**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 10:40:00 A
cis-1,2-Dichloroethene	2.01		0.154	1.00	µg/L	1	3/20/2012 10:40:00 A
Tetrachloroethene	447		0.790	5.00	µg/L	5	3/21/2012 4:57:00 AM
trans-1,2-Dichloroethene	0.50	J	0.149	1.00	µg/L	1	3/20/2012 10:40:00 A
Trichloroethene	65.4		0.0870	1.00	µg/L	1	3/20/2012 10:40:00 A
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 10:40:00 A
Surr: 1,2-Dichloroethane-d4	108		0	72.2-129	%REC	1	3/20/2012 10:40:00 A
Surr: 4-Bromofluorobenzene	105		0	73.5-125	%REC	1	3/20/2012 10:40:00 A
Surr: Dibromofluoromethane	112		0	58.8-148	%REC	1	3/20/2012 10:40:00 A
Surr: Toluene-d8	105		0	79.8-137	%REC	1	3/20/2012 10:40:00 A

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203158  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203158-02

**Client Sample ID:** MW-09\_031412  
**Collection Date:** 3/14/2012 6:06:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 11:13:00 A
cis-1,2-Dichloroethene	0.48	J	0.154	1.00	µg/L	1	3/20/2012 11:13:00 A
Tetrachloroethene	53.9		0.158	1.00	µg/L	1	3/20/2012 4:32:00 PM
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/20/2012 11:13:00 A
Trichloroethene	62.6		0.0870	1.00	µg/L	1	3/20/2012 11:13:00 A
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 11:13:00 A
Surr: 1,2-Dichloroethane-d4	86.4		0	72.2-129	%REC	1	3/20/2012 11:13:00 A
Surr: 4-Bromofluorobenzene	106		0	73.5-125	%REC	1	3/20/2012 11:13:00 A
Surr: Dibromofluoromethane	108		0	58.8-148	%REC	1	3/20/2012 11:13:00 A
Surr: Toluene-d8	104		0	79.8-137	%REC	1	3/20/2012 11:13:00 A

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203158  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203158-03

**Client Sample ID:** MW-15\_031512  
**Collection Date:** 3/15/2012 3:12:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 11:49:00 A
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/20/2012 11:49:00 A
Tetrachloroethene	6.89		0.158	1.00	µg/L	1	3/20/2012 3:19:00 PM
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/20/2012 11:49:00 A
Trichloroethene	0.45	J	0.0870	1.00	µg/L	1	3/20/2012 11:49:00 A
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 11:49:00 A
Surr: 1,2-Dichloroethane-d4	98.3		0	72.2-129	%REC	1	3/20/2012 11:49:00 A
Surr: 4-Bromofluorobenzene	109		0	73.5-125	%REC	1	3/20/2012 11:49:00 A
Surr: Dibromofluoromethane	105		0	58.8-148	%REC	1	3/20/2012 11:49:00 A
Surr: Toluene-d8	109		0	79.8-137	%REC	1	3/20/2012 11:49:00 A



# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203158  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203158-04

**Client Sample ID:** MW-16\_031512  
**Collection Date:** 3/15/2012 7:13:00 PM

**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/20/2012 12:26:00 P
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/20/2012 12:26:00 P
Tetrachloroethene	7.10		0.158	1.00	µg/L	1	3/20/2012 3:56:00 PM
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/20/2012 12:26:00 P
Trichloroethene	0.68	J	0.0870	1.00	µg/L	1	3/20/2012 12:26:00 P
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/20/2012 12:26:00 P
Surr: 1,2-Dichloroethane-d4	98.4		0	72.2-129	%REC	1	3/20/2012 12:26:00 P
Surr: 4-Bromofluorobenzene	109		0	73.5-125	%REC	1	3/20/2012 12:26:00 P
Surr: Dibromofluoromethane	109		0	58.8-148	%REC	1	3/20/2012 12:26:00 P
Surr: Toluene-d8	101		0	79.8-137	%REC	1	3/20/2012 12:26:00 P

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203158  
**Project:** Union Ridge / 8006.31.01

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31051</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120320A</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31051</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823633</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.00									
1,1,1-Trichloroethane	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,1-Dichloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
1,1-Dichloropropene	ND	1.00									
1,2,3-Trichlorobenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									
1,2,4-Trichlorobenzene	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2-Dibromoethane	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dichloroethane	ND	1.00									
1,2-Dichloropropane	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,3-Dichloropropane	ND	1.00									
1,4-Dichlorobenzene	0.24	1.00									J
2,2-Dichloropropane	ND	1.00									
2-Butanone	ND	10.0									
2-Chlorotoluene	ND	1.00									
2-Hexanone	ND	10.0									
4-Chlorotoluene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
4-Methyl-2-pentanone	ND	20.0									
Acetone	5.06	50.0									J
Acrylonitrile	ND	5.00									
Benzene	ND	0.300									

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203158  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31051</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120320A</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31051</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823633</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	ND	1.00									
Bromochloromethane	ND	1.00									
Bromodichloromethane	ND	1.00									
Bromoform	ND	1.00									
Bromomethane	ND	1.00									
Carbon disulfide	ND	2.00									
Carbon tetrachloride	ND	1.00									
Chlorobenzene	ND	1.00									
Chloroethane	ND	1.00									
Chloroform	ND	1.00									
Chloromethane	0.64	1.00									J
cis-1,2-Dichloroethene	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Dibromochloromethane	ND	1.00									
Dibromomethane	ND	1.00									
Dichlorodifluoromethane	ND	1.00									
Ethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	1.00									
Isopropylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
Methyl tert-butyl ether	ND	1.00									
Methylene chloride	ND	20.0									
n-Butylbenzene	ND	1.00									
n-Propylbenzene	ND	1.00									
Naphthalene	ND	1.00									
o-Xylene	ND	1.00									
sec-Butylbenzene	ND	1.00									
Styrene	ND	1.00									
tert-Butylbenzene	ND	1.00									
Tetrachloroethene	ND	1.00									
Toluene	ND	1.00									

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203158  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31051</b>		SampType: <b>MBLK</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date:		Run ID: <b>5973J_120320A</b>		
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31051</b>		TestNo: <b>SW8260B</b>				Analysis Date: <b>3/20/2012</b>		SeqNo: <b>823633</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
trans-1,2-Dichloroethene	ND	1.00										
trans-1,3-Dichloropropene	ND	1.00										
Trichloroethene	ND	1.00										
Trichlorofluoromethane	ND	1.00										
Vinyl chloride	ND	1.00										
Surr: 1,2-Dichloroethane-d4	105.2	0	100	0	105	72.2	129	0	0			
Surr: 4-Bromofluorobenzene	115.2	0	100	0	115	73.5	125	0	0			
Surr: Dibromofluoromethane	112.5	0	100	0	112	58.8	148	0	0			
Surr: Toluene-d8	113	0	100	0	113	79.8	137	0	0			

Sample ID: <b>LCS-31051</b>		SampType: <b>LCS</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date: <b>3/20/2012</b>		Run ID: <b>5973J_120320A</b>		
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31051</b>		TestNo: <b>SW8260B</b>				Analysis Date: <b>3/20/2012</b>		SeqNo: <b>823632</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
1,1-Dichloroethene	44.15	1.00	40	0	110	69.9	130	0	0			
Benzene	36.18	0.300	40	0	90.4	77.9	125	0	0			
Chlorobenzene	44.15	1.00	40	0	110	82.5	114	0	0			
Toluene	42.69	1.00	40	0	107	74.6	119	0	0			
Trichloroethene	37.84	1.00	40	0	94.6	74.7	125	0	0			

Sample ID: <b>1203158-02AMS</b>		SampType: <b>MS</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date: <b>3/20/2012</b>		Run ID: <b>5973J_120320A</b>		
Client ID: <b>MW-09_031412</b>		Batch ID: <b>31051</b>		TestNo: <b>SW8260B</b>				Analysis Date: <b>3/20/2012</b>		SeqNo: <b>823641</b>		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
1,1-Dichloroethene	43.46	1.00	40	0	109	51.4	176	0	0			
Benzene	36.36	0.300	40	0	90.9	71.5	118	0	0			
Chlorobenzene	38.61	1.00	40	0	96.5	79.8	114	0	0			
Toluene	35.62	1.00	40	0	89	79.6	121	0	0			
Trichloroethene	95.97	1.00	40	63.65	80.8	73.6	120	0	0			

**Qualifiers:** ND - Not Detected at the Reporting Limit  
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 R - RPD outside accepted recovery limits

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**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203158  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>1203158-02AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/20/2012</b>	Run ID: <b>5973J_120320A</b>
Client ID: <b>MW-09_031412</b>	Batch ID: <b>31051</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823642</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	41.37	1.00	40	0	103	51.4	176	43.46	4.93	20	
Benzene	34.59	0.300	40	0	86.5	71.5	118	36.36	4.99	20	
Chlorobenzene	39.16	1.00	40	0	97.9	79.8	114	38.61	1.41	20	
Toluene	35.66	1.00	40	0	89.2	79.6	121	35.62	0.112	20	
Trichloroethene	93.69	1.00	40	63.65	75.1	73.6	120	95.97	2.40	20	

Sample ID: <b>CCB-31051</b>	SampType: <b>CCB</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120320A</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31051</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823644</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.00	0	0	0	0	0	0	0		
1,1,1-Trichloroethane	ND	1.00	0	0	0	0	0	0	0		
1,1,2,2-Tetrachloroethane	ND	1.00	0	0	0	0	0	0	0		
1,1,2-Trichloroethane	ND	1.00	0	0	0	0	0	0	0		
1,1-Dichloroethane	ND	1.00	0	0	0	0	0	0	0		
1,1-Dichloroethene	ND	1.00	0	0	0	0	0	0	0		
1,1-Dichloropropene	ND	1.00	0	0	0	0	0	0	0		
1,2,3-Trichlorobenzene	ND	1.00	0	0	0	0	0	0	0		
1,2,3-Trichloropropane	ND	1.00	0	0	0	0	0	0	0		
1,2,4-Trichlorobenzene	ND	1.00	0	0	0	0	0	0	0		
1,2,4-Trimethylbenzene	ND	1.00	0	0	0	0	0	0	0		
1,2-Dibromo-3-chloropropane	ND	1.00	0	0	0	0	0	0	0		
1,2-Dibromoethane	ND	1.00	0	0	0	0	0	0	0		
1,2-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0		
1,2-Dichloroethane	ND	1.00	0	0	0	0	0	0	0		
1,2-Dichloropropane	ND	1.00	0	0	0	0	0	0	0		
1,3,5-Trimethylbenzene	ND	1.00	0	0	0	0	0	0	0		
1,3-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0		
1,3-Dichloropropane	ND	1.00	0	0	0	0	0	0	0		
1,4-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0		
2,2-Dichloropropane	ND	1.00	0	0	0	0	0	0	0		

**Qualifiers:** ND - Not Detected at the Reporting Limit  
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S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203158  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>CCB-31051</b>	SampType: <b>CCB</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>		Prep Date:	Run ID: <b>5973J_120320A</b>					
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31051</b>	TestNo: <b>SW8260B</b>			Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823644</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	ND	10.0	0	0	0	0	0	0	0	0	
2-Chlorotoluene	ND	1.00	0	0	0	0	0	0	0	0	
2-Hexanone	ND	10.0	0	0	0	0	0	0	0	0	
4-Chlorotoluene	ND	1.00	0	0	0	0	0	0	0	0	
4-Isopropyltoluene	ND	1.00	0	0	0	0	0	0	0	0	
4-Methyl-2-pentanone	ND	20.0	0	0	0	0	0	0	0	0	
Acetone	3.32	50.0	0	0	0	0	0	0	0	0	
Acrylonitrile	ND	5.00	0	0	0	0	0	0	0	0	
Benzene	ND	0.300	0	0	0	0	0	0	0	0	
Bromobenzene	ND	1.00	0	0	0	0	0	0	0	0	
Bromochloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Bromodichloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Bromoform	ND	1.00	0	0	0	0	0	0	0	0	
Bromomethane	ND	1.00	0	0	0	0	0	0	0	0	
Carbon disulfide	ND	2.00	0	0	0	0	0	0	0	0	
Carbon tetrachloride	ND	1.00	0	0	0	0	0	0	0	0	
Chlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
Chloroethane	ND	1.00	0	0	0	0	0	0	0	0	
Chloroform	ND	1.00	0	0	0	0	0	0	0	0	
Chloromethane	0.62	1.00	0	0	0	0	0	0	0	0	
cis-1,2-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
cis-1,3-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
Dibromochloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Dibromomethane	ND	1.00	0	0	0	0	0	0	0	0	
Dichlorodifluoromethane	ND	1.00	0	0	0	0	0	0	0	0	
Ethylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Hexachlorobutadiene	ND	1.00	0	0	0	0	0	0	0	0	
Isopropylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
m,p-Xylene	ND	2.00	0	0	0	0	0	0	0	0	
Methyl tert-butyl ether	ND	1.00	0	0	0	0	0	0	0	0	
Methylene chloride	1.72	20.0	0	0	0	0	0	0	0	0	

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 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203158  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>CCB-31051</b>		SampType: <b>CCB</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date:		Run ID: <b>5973J_120320A</b>	
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31051</b>		TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>		SeqNo: <b>823644</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
n-Propylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Naphthalene	ND	1.00	0	0	0	0	0	0	0	0	
o-Xylene	ND	1.00	0	0	0	0	0	0	0	0	
sec-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Styrene	ND	1.00	0	0	0	0	0	0	0	0	
tert-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Tetrachloroethene	ND	1.00	0	0	0	0	0	0	0	0	
Toluene	ND	1.00	0	0	0	0	0	0	0	0	
trans-1,2-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
trans-1,3-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
Trichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
Trichlorofluoromethane	ND	1.00	0	0	0	0	0	0	0	0	
Vinyl chloride	ND	1.00	0	0	0	0	0	0	0	0	
Surr: 1,2-Dichloroethane-d4	103.2	0	100	0	103	72.2	129	0	0	0	
Surr: 4-Bromofluorobenzene	110.2	0	100	0	110	73.5	125	0	0	0	
Surr: Dibromofluoromethane	110.3	0	100	0	110	58.8	148	0	0	0	
Surr: Toluene-d8	112.5	0	100	0	113	79.8	137	0	0	0	

Sample ID: <b>CCV-31051</b>		SampType: <b>CCV</b>		TestCode: <b>8260_W</b>		Units: <b>µg/L</b>		Prep Date:		Run ID: <b>5973J_120320A</b>	
Client ID: <b>ZZZZZ</b>		Batch ID: <b>31051</b>		TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>		SeqNo: <b>823631</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	42.3	1.00	40	0	106	80	120	0	0	0	
1,2-Dichloropropane	40.43	1.00	40	0	101	80	120	0	0	0	
Chloroform	40.84	1.00	40	0	102	80	120	0	0	0	
Ethylbenzene	41.99	1.00	40	0	105	80	120	0	0	0	
Toluene	40.96	1.00	40	0	102	80	120	0	0	0	
Vinyl chloride	35.19	1.00	40	0	88	80	120	0	0	0	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
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**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203158  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8260\_W

Sample ID: <b>CCV-31051</b>	SampType: <b>CCV</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120320A</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31051</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/20/2012</b>	SeqNo: <b>823643</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	41.28	1.00	40	0	103	80	120	0	0		
1,2-Dichloropropane	37.68	1.00	40	0	94.2	80	120	0	0		
Chloroform	38.46	1.00	40	0	96.2	80	120	0	0		
Ethylbenzene	39.28	1.00	40	0	98.2	80	120	0	0		
Toluene	39.53	1.00	40	0	98.8	80	120	0	0		
Vinyl chloride	32.76	1.00	40	0	81.9	80	120	0	0		

**Qualifiers:** ND - Not Detected at the Reporting Limit  
J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
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B - Analyte detected in the associated Method Blank

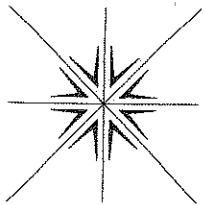


## KEY TO FLAGS

Rev. May 12, 2010

- A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards
- A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.
- A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.
- A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.
- A4 The product appears to be aged or degraded diesel.
- B The blank exhibited a positive result great than the reporting limit for this compound.
- CN See Case Narrative.
- D Result is based from a dilution.
- E Result exceeds the calibration range for this compound. The result should be considered as estimate.
- F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.
- G Result may be biased high due to biogenic interferences. Clean up is recommended.
- H Sample was analyzed outside recommended holding time.
- HT At clients request, samples was analyzed outside of recommended holding time.
- J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.
- K Diesel result is biased high due to amount of Oil contained in the sample.
- L Diesel result is biased high due to amount of Gasoline contained in the sample.
- M Oil result is biased high due to amount of Diesel contained in the sample.
- MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.
- MI Result is outside control limits due to matrix interference.
- MSA Value determined by Method of Standard Addition.
- O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.
- Q Detection levels elevated due to sample matrix.
- R RPD control limits were exceeded.
- RF Duplicate failed due to result being at or near the method-reporting limit.
- RP Matrix spike values exceed established QC limits; post digestion spike is in control.
- S Recovery is outside control limits.
- SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.
- \* The result for this parameter was greater than the maximum contaminant level of the TCLP regulatory limit.

# CHAIN OF CUSTODY RECORD



## Specialty Analytical

11711 SE Capps Road  
Clackamas, OR 97015  
Phone: 503-607-1331  
Fax: 503-607-1336

Contact Person/Project Manager Mariceth D'Andrea  
Company MFA  
Address 2001 NW 19th Ave, Ste 200  
Portland OR 97209  
Phone 971 544 2139 Fax 971 544 2140  
Project No. 8006.31.01 Project Name Union Ridge  
Project Site Location OR WA  Other \_\_\_\_\_  
Invoice To \_\_\_\_\_ P.O. No. \_\_\_\_\_

Collected By:  
Signature [Signature]  
Printed Meaghan Gallagher

Signature \_\_\_\_\_  
Printed \_\_\_\_\_

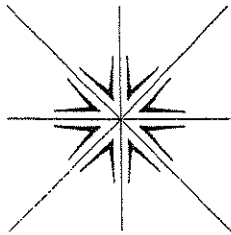
Turn Around Time  
 Normal 5-7 Business Days  
 Rush \_\_\_\_\_  
Specify \_\_\_\_\_

**Rush Analyses Must Be Scheduled With The Lab In Advance**

Date	Time	Sample I.D.	Matrix	No. of Containers	Analyses						For Laboratory Use		
					1,1-DCE	cis-1,2-DCE	PCE	Trans-1,2-DCE	TCE	Vinyl Chloride	Lab Job No.	Comments	Lab I.D.
3/14	1340	MW-13-031412	GW	5	X	X	X	X	X	X	1203158		
3/14	1800	MW-09-031412	GW	5	X	X	X	X	X	X	Specialty		
3/15	1512	MW15-031512	GW	5	X	X	X	X	X	X			
3/15	1913	MW16-031512	GW	5	X	X	X	X	X	X			

For Laboratory Use  
Lab Job No. 1203158  
Shipped Via Specialty  
Air Bill No. \_\_\_\_\_  
Temperature On Receipt 4 °C  
Specialty Analytical Containers? Y / N  
Specialty Analytical Trip Blanks? Y / N

Relinquished By: <u>[Signature]</u> Company: <u>MFA</u>	Date: <u>3/15</u> Time: <u>2100</u>	Received By: <u>[Signature]</u> Company: <u>[Signature]</u>	Relinquished By: <u>[Signature]</u> Company: <u>[Signature]</u>	Date: <u>3/16/12</u> Time: <u>15:10</u>
Unless Reclaimed, Samples Will Be Disposed of 60 Days After Receipt. Samples held beyond 60 days subject to storage fee(s)			Received For Lab By: <u>[Signature]</u>	Date: <u>3/16/12</u> Time: <u>15:10</u>



# Specialty Analytical

11711 SE Capps Road  
Clackamas, OR 97015  
(503) 607-1331  
Fax (503) 607-1336

March 28, 2012

Merideth D'Andrea  
Maul, Foster & Alongi  
400 East Mill Plain Blvd  
Suite 400  
Vancouver, WA 98660

TEL: (360) 694-2691  
FAX: (360) 906-1958

RE: Union Ridge / 8006.31.01  
Dear Merideth D'Andrea:

Order No.: 1203120

Specialty Analytical received 3 samples on 3/14/2012 for the analyses presented in the following report.

REVISED REPORT VERSION 1 . Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

  
Cindy Hillyard  
Project Manager

  
Technical Review

**Specialty Analytical**

**Date:** 28-Mar-12

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**CLIENT:** Maul, Foster & Alongi  
**Project:** Union Ridge / 8006.31.01  
**Lab Order:** 1203120

**CASE NARRATIVE**

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Report Revision 1.

This report contains the original results with all data now reported to the Method Detection Limit at the request of the client.

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203120  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203120-01

**Client Sample ID:** MW-14\_031212  
**Collection Date:** 3/12/2012 2:40:00 PM

**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/15/2012 6:02:00 PM
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/15/2012 6:02:00 PM
Tetrachloroethene	74.4		0.158	1.00	µg/L	1	3/15/2012 6:02:00 PM
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/15/2012 6:02:00 PM
Trichloroethene	40.8		0.0870	1.00	µg/L	1	3/15/2012 6:02:00 PM
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/15/2012 6:02:00 PM
Surr: 1,2-Dichloroethane-d4	93.4		0	72.2-129	%REC	1	3/15/2012 6:02:00 PM
Surr: 4-Bromofluorobenzene	111		0	73.5-125	%REC	1	3/15/2012 6:02:00 PM
Surr: Dibromofluoromethane	106		0	58.8-148	%REC	1	3/15/2012 6:02:00 PM
Surr: Toluene-d8	106		0	79.8-137	%REC	1	3/15/2012 6:02:00 PM

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203120  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203120-02

**Client Sample ID:** MW-10\_031312  
**Collection Date:** 3/13/2012 3:42:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/15/2012 6:35:00 PM
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/15/2012 6:35:00 PM
Tetrachloroethene	76.6		0.158	1.00	µg/L	1	3/15/2012 6:35:00 PM
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/15/2012 6:35:00 PM
Trichloroethene	17.4		0.0870	1.00	µg/L	1	3/15/2012 6:35:00 PM
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/15/2012 6:35:00 PM
Surr: 1,2-Dichloroethane-d4	105		0	72.2-129	%REC	1	3/15/2012 6:35:00 PM
Surr: 4-Bromofluorobenzene	109		0	73.5-125	%REC	1	3/15/2012 6:35:00 PM
Surr: Dibromofluoromethane	119		0	58.8-148	%REC	1	3/15/2012 6:35:00 PM
Surr: Toluene-d8	106		0	79.8-137	%REC	1	3/15/2012 6:35:00 PM

# Specialty Analytical

Date: 28-Mar-12

**CLIENT:** Maul, Foster & Alongi  
**Lab Order:** 1203120  
**Project:** Union Ridge / 8006.31.01  
**Lab ID:** 1203120-03

**Client Sample ID:** MW-11\_031312  
**Collection Date:** 3/13/2012 6:45:00 PM  
**Matrix:** GROUNDWATER

Analyses	Result	Qual	MDL	Limit	Units	DF	Date Analyzed
<b>VOLATILE ORGANICS BY GC/MS</b>		<b>SW8260B</b>		Analyst: <b>rkg</b>			
1,1-Dichloroethene	ND		0.0964	1.00	µg/L	1	3/15/2012 7:10:00 PM
cis-1,2-Dichloroethene	ND		0.154	1.00	µg/L	1	3/15/2012 7:10:00 PM
Tetrachloroethene	32.9		0.158	1.00	µg/L	1	3/16/2012 11:21:00 A
trans-1,2-Dichloroethene	ND		0.149	1.00	µg/L	1	3/15/2012 7:10:00 PM
Trichloroethene	1.49		0.0870	1.00	µg/L	1	3/16/2012 11:21:00 A
Vinyl chloride	ND		0.165	1.00	µg/L	1	3/15/2012 7:10:00 PM
Surr: 1,2-Dichloroethane-d4	104		0	72.2-129	%REC	1	3/15/2012 7:10:00 PM
Surr: 4-Bromofluorobenzene	116		0	73.5-125	%REC	1	3/15/2012 7:10:00 PM
Surr: Dibromofluoromethane	112		0	58.8-148	%REC	1	3/15/2012 7:10:00 PM
Surr: Toluene-d8	108		0	79.8-137	%REC	1	3/15/2012 7:10:00 PM

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203120  
**Project:** Union Ridge / 8006.31.01

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31006</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/15/2012</b>	Run ID: <b>5973J_120315A</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/15/2012</b>	SeqNo: <b>822654</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.00									
1,1,1-Trichloroethane	ND	1.00									
1,1,2,2-Tetrachloroethane	ND	1.00									
1,1,2-Trichloroethane	ND	1.00									
1,1-Dichloroethane	ND	1.00									
1,1-Dichloroethene	ND	1.00									
1,1-Dichloropropene	ND	1.00									
1,2,3-Trichlorobenzene	ND	1.00									
1,2,3-Trichloropropane	ND	1.00									
1,2,4-Trichlorobenzene	ND	1.00									
1,2,4-Trimethylbenzene	ND	1.00									
1,2-Dibromo-3-chloropropane	ND	1.00									
1,2-Dibromoethane	ND	1.00									
1,2-Dichlorobenzene	ND	1.00									
1,2-Dichloroethane	ND	1.00									
1,2-Dichloropropane	ND	1.00									
1,3,5-Trimethylbenzene	ND	1.00									
1,3-Dichlorobenzene	ND	1.00									
1,3-Dichloropropane	ND	1.00									
1,4-Dichlorobenzene	ND	1.00									
2,2-Dichloropropane	ND	1.00									
2-Butanone	ND	10.0									
2-Chlorotoluene	ND	1.00									
2-Hexanone	ND	10.0									
4-Chlorotoluene	ND	1.00									
4-Isopropyltoluene	ND	1.00									
4-Methyl-2-pentanone	ND	20.0									
Acetone	10.05	50.0									J
Acrylonitrile	ND	5.00									
Benzene	ND	0.300									

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank



**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203120  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31006</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/15/2012</b>	Run ID: <b>5973J_120315A</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/15/2012</b>	SeqNo: <b>822654</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromobenzene	ND	1.00									
Bromochloromethane	ND	1.00									
Bromodichloromethane	ND	1.00									
Bromoform	ND	1.00									
Bromomethane	ND	1.00									
Carbon disulfide	ND	2.00									
Carbon tetrachloride	ND	1.00									
Chlorobenzene	ND	1.00									
Chloroethane	ND	1.00									
Chloroform	ND	1.00									
Chloromethane	0.72	1.00									J
cis-1,2-Dichloroethene	ND	1.00									
cis-1,3-Dichloropropene	ND	1.00									
Dibromochloromethane	ND	1.00									
Dibromomethane	ND	1.00									
Dichlorodifluoromethane	ND	1.00									
Ethylbenzene	ND	1.00									
Hexachlorobutadiene	ND	1.00									
Isopropylbenzene	ND	1.00									
m,p-Xylene	ND	2.00									
Methyl tert-butyl ether	ND	1.00									
Methylene chloride	16.91	20.0									J
n-Butylbenzene	ND	1.00									
n-Propylbenzene	ND	1.00									
Naphthalene	ND	1.00									
o-Xylene	ND	1.00									
sec-Butylbenzene	ND	1.00									
Styrene	ND	1.00									
tert-Butylbenzene	ND	1.00									
Tetrachloroethene	ND	1.00									
Toluene	ND	1.00									

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203120  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>MBLK-31006</b>	SampType: <b>MBLK</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/15/2012</b>	Run ID: <b>5973J_120315A</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/15/2012</b>	SeqNo: <b>822654</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	ND	1.00									
trans-1,3-Dichloropropene	ND	1.00									
Trichloroethene	ND	1.00									
Trichlorofluoromethane	ND	1.00									
Vinyl chloride	ND	1.00									
Surr: 1,2-Dichloroethane-d4	93.79	0	100	0	93.8	72.2	129	0	0		
Surr: 4-Bromofluorobenzene	104.1	0	100	0	104	73.5	125	0	0		
Surr: Dibromofluoromethane	107.4	0	100	0	107	58.8	148	0	0		
Surr: Toluene-d8	102.8	0	100	0	103	79.8	137	0	0		

Sample ID: <b>LCS-31006</b>	SampType: <b>LCS</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/15/2012</b>	Run ID: <b>5973J_120315A</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/15/2012</b>	SeqNo: <b>822653</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	47.33	1.00	40	0	118	69.9	130	0	0		
Benzene	41.85	0.300	40	0	105	77.9	125	0	0		
Chlorobenzene	43.19	1.00	40	0	108	82.5	114	0	0		
Toluene	42.54	1.00	40	0	106	74.6	119	0	0		
Trichloroethene	39.01	1.00	40	0	97.5	74.7	125	0	0		

Sample ID: <b>1203120-02AMS</b>	SampType: <b>MS</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/15/2012</b>	Run ID: <b>5973J_120315A</b>						
Client ID: <b>MW-10_031312</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/15/2012</b>	SeqNo: <b>822663</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	41.53	1.00	40	0	104	51.4	176	0	0		
Benzene	37.75	0.300	40	0	94.4	71.5	118	0	0		
Chlorobenzene	44.1	1.00	40	0	110	79.8	114	0	0		
Toluene	39.09	1.00	40	0	97.7	79.6	121	0	0		
Trichloroethene	50.35	1.00	40	17.45	82.2	73.6	120	0	0		

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203120  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>1203120-02AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date: <b>3/15/2012</b>	Run ID: <b>5973J_120315A</b>						
Client ID: <b>MW-10_031312</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/15/2012</b>	SeqNo: <b>822664</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	38.86	1.00	40	0	97.2	51.4	176	41.53	6.64	20	
Benzene	36.99	0.300	40	0	92.5	71.5	118	37.75	2.03	20	
Chlorobenzene	40.76	1.00	40	0	102	79.8	114	44.1	7.87	20	
Toluene	37.21	1.00	40	0	93	79.6	121	39.09	4.93	20	
Trichloroethene	50.85	1.00	40	17.45	83.5	73.6	120	50.35	0.988	20	

Sample ID: <b>CCB-31006</b>	SampType: <b>CCB</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120315A</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/16/2012</b>	SeqNo: <b>822777</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1,1-Trichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1,2,2-Tetrachloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1,2-Trichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1-Dichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,1-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
1,1-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
1,2,3-Trichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2,3-Trichloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,2,4-Trichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2,4-Trimethylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dibromo-3-chloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dibromoethane	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dichloroethane	ND	1.00	0	0	0	0	0	0	0	0	
1,2-Dichloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,3,5-Trimethylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,3-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
1,3-Dichloropropane	ND	1.00	0	0	0	0	0	0	0	0	
1,4-Dichlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
2,2-Dichloropropane	ND	1.00	0	0	0	0	0	0	0	0	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203120  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>CCB-31006</b>	SampType: <b>CCB</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>		Prep Date:	Run ID: <b>5973J_120315A</b>					
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>			Analysis Date: <b>3/16/2012</b>	SeqNo: <b>822777</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2-Butanone	ND	10.0	0	0	0	0	0	0	0	0	
2-Chlorotoluene	ND	1.00	0	0	0	0	0	0	0	0	
2-Hexanone	ND	10.0	0	0	0	0	0	0	0	0	
4-Chlorotoluene	ND	1.00	0	0	0	0	0	0	0	0	
4-Isopropyltoluene	ND	1.00	0	0	0	0	0	0	0	0	
4-Methyl-2-pentanone	ND	20.0	0	0	0	0	0	0	0	0	
Acetone	5.82	50.0	0	0	0	0	0	0	0	0	
Acrylonitrile	ND	5.00	0	0	0	0	0	0	0	0	
Benzene	ND	0.300	0	0	0	0	0	0	0	0	
Bromobenzene	ND	1.00	0	0	0	0	0	0	0	0	
Bromochloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Bromodichloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Bromoform	ND	1.00	0	0	0	0	0	0	0	0	
Bromomethane	ND	1.00	0	0	0	0	0	0	0	0	
Carbon disulfide	ND	2.00	0	0	0	0	0	0	0	0	
Carbon tetrachloride	ND	1.00	0	0	0	0	0	0	0	0	
Chlorobenzene	ND	1.00	0	0	0	0	0	0	0	0	
Chloroethane	ND	1.00	0	0	0	0	0	0	0	0	
Chloroform	ND	1.00	0	0	0	0	0	0	0	0	
Chloromethane	0.7	1.00	0	0	0	0	0	0	0	0	
cis-1,2-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
cis-1,3-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
Dibromochloromethane	ND	1.00	0	0	0	0	0	0	0	0	
Dibromomethane	ND	1.00	0	0	0	0	0	0	0	0	
Dichlorodifluoromethane	ND	1.00	0	0	0	0	0	0	0	0	
Ethylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Hexachlorobutadiene	ND	1.00	0	0	0	0	0	0	0	0	
Isopropylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
m,p-Xylene	ND	2.00	0	0	0	0	0	0	0	0	
Methyl tert-butyl ether	ND	1.00	0	0	0	0	0	0	0	0	
Methylene chloride	ND	20.0	0	0	0	0	0	0	0	0	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203120  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8260\_W**

Sample ID: <b>CCB-31006</b>	SampType: <b>CCB</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>		Prep Date:	Run ID: <b>5973J_120315A</b>					
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>			Analysis Date: <b>3/16/2012</b>	SeqNo: <b>822777</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
n-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
n-Propylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Naphthalene	ND	1.00	0	0	0	0	0	0	0	0	
o-Xylene	ND	1.00	0	0	0	0	0	0	0	0	
sec-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Styrene	ND	1.00	0	0	0	0	0	0	0	0	
tert-Butylbenzene	ND	1.00	0	0	0	0	0	0	0	0	
Tetrachloroethene	ND	1.00	0	0	0	0	0	0	0	0	
Toluene	ND	1.00	0	0	0	0	0	0	0	0	
trans-1,2-Dichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
trans-1,3-Dichloropropene	ND	1.00	0	0	0	0	0	0	0	0	
Trichloroethene	ND	1.00	0	0	0	0	0	0	0	0	
Trichlorofluoromethane	ND	1.00	0	0	0	0	0	0	0	0	
Vinyl chloride	ND	1.00	0	0	0	0	0	0	0	0	
Surr: 1,2-Dichloroethane-d4	101.4	0	100	0	101	72.2	129	0	0	0	
Surr: 4-Bromofluorobenzene	104.6	0	100	0	105	73.5	125	0	0	0	
Surr: Dibromofluoromethane	111	0	100	0	111	58.8	148	0	0	0	
Surr: Toluene-d8	107	0	100	0	107	79.8	137	0	0	0	

Sample ID: <b>CCV-31006</b>	SampType: <b>CCV</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>		Prep Date:	Run ID: <b>5973J_120315A</b>					
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>			Analysis Date: <b>3/15/2012</b>	SeqNo: <b>822652</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	41.42	1.00	40	0	104	80	120	0	0	0	
1,2-Dichloropropane	36.59	1.00	40	0	91.5	80	120	0	0	0	
Chloroform	39.79	1.00	40	0	99.5	80	120	0	0	0	
Ethylbenzene	42.87	1.00	40	0	107	80	120	0	0	0	
Toluene	42.19	1.00	40	0	105	80	120	0	0	0	
Vinyl chloride	40.07	1.00	40	0	100	80	120	0	0	0	

**Qualifiers:** ND - Not Detected at the Reporting Limit  
 J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits  
 R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

**CLIENT:** Maul, Foster & Alongi  
**Work Order:** 1203120  
**Project:** Union Ridge / 8006.31.01

## ANALYTICAL QC SUMMARY REPORT

**TestCode:** 8260\_W

Sample ID: <b>CCV-31006</b>	SampType: <b>CCV</b>	TestCode: <b>8260_W</b>	Units: <b>µg/L</b>	Prep Date:	Run ID: <b>5973J_120315A</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>31006</b>	TestNo: <b>SW8260B</b>		Analysis Date: <b>3/16/2012</b>	SeqNo: <b>822776</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1-Dichloroethene	44.25	1.00	40	0	111	80	120	0	0		
1,2-Dichloropropane	38.66	1.00	40	0	96.7	80	120	0	0		
Chloroform	40.3	1.00	40	0	101	80	120	0	0		
Ethylbenzene	40.79	1.00	40	0	102	80	120	0	0		
Toluene	38.55	1.00	40	0	96.4	80	120	0	0		
Vinyl chloride	39.46	1.00	40	0	98.6	80	120	0	0		

**Qualifiers:** ND - Not Detected at the Reporting Limit  
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## KEY TO FLAGS

Rev. May 12, 2010

- A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards
- A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.
- A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.
- A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.
- A4 The product appears to be aged or degraded diesel.
- B The blank exhibited a positive result great than the reporting limit for this compound.
- CN See Case Narrative.
- D Result is based from a dilution.
- E Result exceeds the calibration range for this compound. The result should be considered as estimate.
- F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.
- G Result may be biased high due to biogenic interferences. Clean up is recommended.
- H Sample was analyzed outside recommended holding time.
- HT At clients request, samples was analyzed outside of recommended holding time.
- J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.
- K Diesel result is biased high due to amount of Oil contained in the sample.
- L Diesel result is biased high due to amount of Gasoline contained in the sample.
- M Oil result is biased high due to amount of Diesel contained in the sample.
- MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.
- MI Result is outside control limits due to matrix interference.
- MSA Value determined by Method of Standard Addition.
- O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.
- Q Detection levels elevated due to sample matrix.
- R RPD control limits were exceeded.
- RF Duplicate failed due to result being at or near the method-reporting limit.
- RP Matrix spike values exceed established QC limits; post digestion spike is in control.
- S Recovery is outside control limits.
- SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.
- \* The result for this parameter was greater than the maximum contaminant level of the TCLP regulatory limit.

