

a s s o c i a t e d
e a r t h s c i e n c e s
i n c o r p o r a t e d

December 29, 2014
Project No. TV130367F

Turnaround, Inc.
3415 A Street Northwest
Gig Harbor, Washington 98335

Attention: Mr. Miles Stover

Subject: August 2014 Ground Water Monitoring Report
Clear Lake Industrial Park
12785 State Route 9 and 12827 South Front Street
12713 Sawyer Court
Clear Lake, Washington

Dear Mr. Stover:

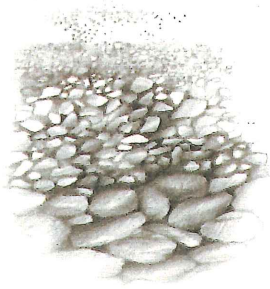
This letter accompanies a report by Associated Earth Sciences, Inc. (AESI) documenting the results of a recent ground water monitoring event for the Clear Lake Industrial Park and the east-adjointing property in August 2014. This sampling event represents the fifteenth instance of ground water sampling from the existing monitoring well network to characterize the release of chlordane to the site soil and ground water that was identified in 1994, and the third event of 2014. The findings and conclusions in this report are based on our interpretation of the information currently available and are subject to the limitations in the attached report.

We appreciate the opportunity to work with you on this project. If you have any questions regarding the scope of our study or our conclusions, please do not hesitate to contact us at (253) 722-2992.

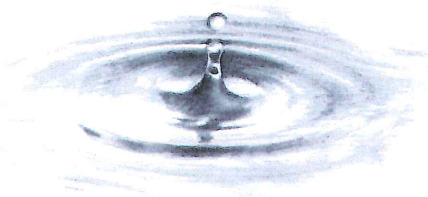
Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Tacoma, Washington

Elizabeth Rachman, L.G., L.Hg.
Senior Hydrogeologist

EAR/ID - TV130367F2 - Projects\20130367\TV\WP



Geotechnical Engineering



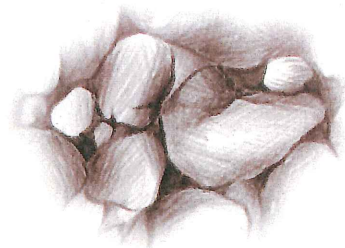
Water Resources



*Environmental Assessments
and Remediation*



Sustainable Development Services



Geologic Assessments

Associated Earth Sciences, Inc.

Serving the Pacific Northwest Since 1981

August 2014 Ground Water Monitoring Report

CLEAR LAKE INDUSTRIAL PARK

Clear Lake, Washington

Prepared for

Turnaround, Inc.

Project No. TV130367F

December 29, 2014

August 2014 GROUND WATER MONITORING REPORT

CLEAR LAKE INDUSTRIAL PARK

Clear Lake, Washington

Prepared for:

Turnaround, Inc.

3415 A Street Northwest

Gig Harbor, Washington 98335

Prepared by:

Associated Earth Sciences, Inc.

1552 Commerce Street, Suite 102

Tacoma, Washington 98402

253-722-2992

Fax: 253-722-2993

December 29, 2014

Project No. TV130367F

TABLE OF CONTENTS - CONTINUED

	<u>Page</u>
1.0 INTRODUCTION	1
1.1 Site Description	1
1.2 Project Background	1
2.0 MONITORING WELLS	2
3.0 GROUND WATER MONITORING PROGRAM	3
3.1 Ground Water Elevation Monitoring	3
3.2 Ground Water Sample Collection Procedure	3
3.3 Ground Water Sample Analysis	4
4.0 ANALYTICAL RESULTS	4
5.0 CONCLUSIONS	4
6.0 RECOMMENDATIONS	5

LIST OF TABLES

Table 1:	Well Survey Data.....	3
Table 2:	Summary of Historical Ground Water Analytical Results.....	Attached

LIST OF FIGURES

Figure 1:	Vicinity Map
Figure 2:	Site Plan
Figure 3:	Ground Water Flow Elevations and Flow Direction - August 1, 2014
Figure 4:	Historical Ground Water Data

LIST OF APPENDICES

Appendix A:	Laboratory Analytical Report
-------------	------------------------------

1.0 INTRODUCTION

The Clear Lake Industrial Park is located at 12785 State Route 9 and 12827 South Front Street in Clear Lake, Washington. The east-adjointing property, which is also considered part of the regulatory "site," is located at 12713 Sawyer Court in Clear Lake. Please refer to Figure 1, "Vicinity Map." Associated Earth Sciences, Inc. (AESI) has performed this ground water monitoring event at client request. Fourteen ground water sampling events have previously been performed by AESI and others from the existing monitoring well network at the site. The fifteenth ground water sampling event (and the third event in 2014) is summarized herein.

1.1 Site Description

The property is located within the city limits of Clear Lake, Skagit County, Washington. The site is located in Section 1, Township 34 North, Range 4 East on Tax Parcels P74820, P74823, P74826, P74833, and P23293. The site is situated on the northeast corner of the intersection of State Route 9 and South Front Street. The surrounding properties include:

- North of site:** Jackson Street, beyond which are several single-family residences.
- East of site:** Clear Lake.
- South of site:** Several single-family residences to the west, and Clear Lake to the east.
- Southwest of site:** South Front Street, beyond which is a single-family residence.
- West of site:** The intersection of South Front Street and State Route 9, beyond which is vacant land.
- Northwest of site:** From south to north the Clear Lake General Store, several single-family residences, and the Clear Lake Fire Department.

1.2 Project Background

Previous subsurface investigations at the site by others identified releases of chlordane to the soil and ground water at the site. Several subsurface investigations and remedial excavations have historically been performed by others at the site. Although the adversely-affected soils have been successfully removed from the subject property, residual ground water impacts remain on the site and east-adjointing property. The subject property was formerly enrolled into Washington State Department of Ecology's (Ecology's) Voluntary Cleanup Program (VCP) and a No Further Action (NFA) determination from Ecology was obtained for the subject property in 2004 after the placement of a Restrictive Covenant on the site that restricted exposure to the affected ground water. No such covenant was placed on the east-adjointing property, which was not included in the NFA. After a periodic review conducted by Ecology in 2011, the NFA was rescinded by Ecology since the institutional control in place (the Restrictive Covenant) was deemed ineffective in restricting exposure to the adversely-affected ground water on the east-adjointing property.

Subsequent subsurface characterization work was performed by others at the subject and east-adjointing properties in 2012 and 2013. The subject property has since been re-enrolled in the VCP program and the recent studies submitted to Ecology in an effort to reinstate the NFA by placing an additional Restrictive Covenant on the east-adjointing property.

A Remedial Investigation was performed by AESI in 2014, the results of which successfully defined the vertical and horizontal extents of the chlordane contaminated ground water and revealed that the chlordane is present in the ground water in discontinuous hot spots rather than one plume. In addition, chlordane concentrations in the ground water in the existing wells that were sampled were below the U.S. Environmental Protection Agency (EPA) and State Maximum Contaminant Level (MCL) of 2 micrograms per liter ($\mu\text{g/L}$). AESI also prepared a Disproportionate Cost Analysis to illustrate that the MCL should be accepted as the site-specific ground water cleanup level (rather than the Model Toxics Control Act [MTCA] Method B cleanup level of $0.25 \mu\text{g/L}$), and that the cost of active remediation or monitored natural attenuation without the use of an institutional control (Restrictive Covenant) outweighed the benefits of such an approach.

Ecology determined that there was no clear downward trend in chlordane concentrations at the site, despite the documented decreases in chlordane concentrations (e.g., from 17 to $0.326 \mu\text{g/L}$ since 1996 in MW-3). Furthermore, although Ecology concurred with the use of the MCL as the site-specific cleanup level, it suggested that active cleanup would be recommended at the site, even though the most recent concentrations were all below the MCL. Based on communications with the Ecology Project Manager, it appears that Ecology is concerned that the concentrations may increase to levels above $2 \mu\text{g/L}$ over the next few rounds of monitoring.

Therefore, at client request, AESI collected and analyzed ground water samples from nine of the thirteen existing on-site ground water monitoring wells. This report summarizes AESI's ground water monitoring activities from August 2014.

2.0 MONITORING WELLS

A release of chlordane to the soil and ground water was identified at the site during several subsurface investigations performed by others beginning in 1994. Fourteen ground water monitoring wells (MW-1 through MW-14) were installed and sampled at the subject and east-adjointing properties during various subsurface investigations performed by others from 1995 through the present. Monitoring well MW-5 was subsequently decommissioned since its integrity was suspected to have been compromised. Based on calculations of the historical ground water elevation data, the historical ground water flow directions have been measured to the northwest or north-northwest.

Well completion information for these wells is summarized in Table 1. The approximate locations of the monitoring wells are shown on the attached Figure 2, "Site Plan."

Table 1
Well Survey Data

Site ID	Completion Date	Borehole Depth ⁽²⁾ (feet)	Top of Casing Elevation (feet)
MW-1	4/25/1995	17	41.83
MW-2	4/25/1995	20	47.37
MW-3	4/19/1996 ⁽¹⁾	17.72 ⁽³⁾	47.14
MW-4	2/2/1999 ⁽¹⁾	20	44.49
MW-6	4/19/1996 ⁽¹⁾	Unknown	41.415
MW-7	2/2/1999 ⁽¹⁾	Unknown	41.585
MW-8	9/10/2012	12	45.70
MW-9	9/10/2012	12	44.775
MW-10	9/10/2012	12	43.15
MW-11	9/10/2012	15	46.42
MW-12	5/24/2013	20	46.035
MW-13	5/24/2013	20	44.79
MW-14	5/24/2013	20	43.225

⁽¹⁾ Completion dates are unknown. The date listed is the first known date the monitoring well was sampled.

⁽²⁾ Depths are below ground surface.

⁽³⁾ Construction details for the well are unknown. The depth listed is the depth of the well measured on June 17, 2014.

3.0 GROUND WATER MONITORING PROGRAM

The most recent ground water sampling event was performed in August 2014, and represents the fifteenth sampling event at the site since discovery of the release and the third one of 2014. Not all of the monitoring wells were sampled during each of the 13 events; monitoring wells MW-1 and MW-3 have been sampled the most often, likely due to the fact that the highest chlordane concentrations have historically been detected in those wells. Ground water condition and quality during both the wet and dry seasons have historically been represented.

3.1 Ground Water Elevation Monitoring

Monitoring of the ground water elevations has been performed on numerous occasions since 1995. All monitoring wells are screened within the shallow Quaternary alluvium aquifer. The reported flow direction has consistently been to the north, northwest, or northeast, away from Clear Lake (Figure 3).

3.2 Ground Water Sample Collection Procedure

Ground water sampling activities were performed on nine of the thirteen ground water monitoring wells at the site, including MW-1, MW-3, MW-4, MW8, MW-9, MW-11, MW-12, MW-13, and MW-14. The other wells have either been abandoned (MW-5) or have historically exhibited non-detect or low detection analytical results. Each ground water monitoring well was accessed and allowed to equilibrate prior to measurement and sample collection activities. Depth to water measurements were collected using an audible, electronic water level meter,

after which the sensor was allowed to descend to the bottom of the well. The length of the water column was used to determine the volume of water in the well for purging purposes. After the measurements were collected at each well, the water level meter was decontaminated using an Alconox® wash and rinsed with distilled water. Three well volumes of water were purged from each well prior to sampling. Ground water samples were obtained at each location using a peristaltic pump under low-flow conditions.

Samples were placed in laboratory-provided containers with the appropriate preservatives and stored in iced coolers. The samples were delivered to Friedman and Bruya, Inc. (F&BI) of Seattle, Washington, for analysis. F&BI subcontracted the analysis to Fremont Analytical (Fremont) of Seattle, Washington. Standard chain-of-custody procedures were followed from sample collection to delivery to the laboratories.

3.3 Ground Water Sample Analysis

All ground water samples collected in August 2014 were analyzed for chlordane using EPA Method 8081.

4.0 ANALYTICAL RESULTS

The ground water results from the ground water monitoring well sampling are summarized in Table 2, "Laboratory Analysis Results for Ground Water Samples," which is attached to this letter-report. The laboratory analytical report is included in Appendix A. A historical summary of laboratory analytical results from the monitoring well sampling events performed to-date is provided on Figure 4.

Chlordane concentrations were reported by the laboratory as alpha- and gamma-chlordane. The two concentrations were summed to determine the total chlordane concentration for each sample. Total chlordane concentrations detected in the ground water samples collected at the subject and east-adjointing properties during the August 2014 monitoring event ranged from non-detect to 1.034 µg/L. The highest total chlordane concentration detected during this investigation was in monitoring well MW-3, which is located on the east-adjointing property near a former drywell.

Total chlordane was not detected in one of the nine monitoring wells sampled; MW-13. Total chlordane in four of the monitoring wells (MW-1, MW-3, MW-8, and MW-11) was above the MTCA Method B cleanup level for chlordane (0.25 µg/L). However, all of the chlordane concentrations detected were below the State MCL of 2 µg/L, which is the Ecology-approved site-specific cleanup level. The laboratory analytical report is included in Appendix A.

5.0 CONCLUSIONS

The following summary is based on review of the laboratory analyses performed to date:

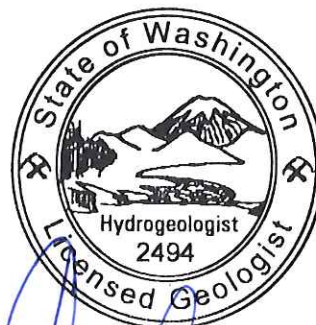
- The chlordane concentrations observed during this ground water monitoring event were all below 2 µg/L, which is the state (and federal) MCL used to determine threshold contaminant values in drinking water, and the Ecology-approved site-specific ground water cleanup level.
- To date, all three quarterly events in 2014 (February, June, and August) have shown chlordane concentrations to be below the MCL.
- Measured ground water flow directions continue to be generally to the north, away from Clear Lake.

6.0 RECOMMENDATIONS

One remaining quarterly monitoring event is planned for 2014 (November). If chlordane concentrations remain below the MCL for all four quarters of 2014, an NFA should be requested from Ecology.

We have enjoyed working with you on this study. If you should have any questions or require further assistance, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Tacoma, Washington



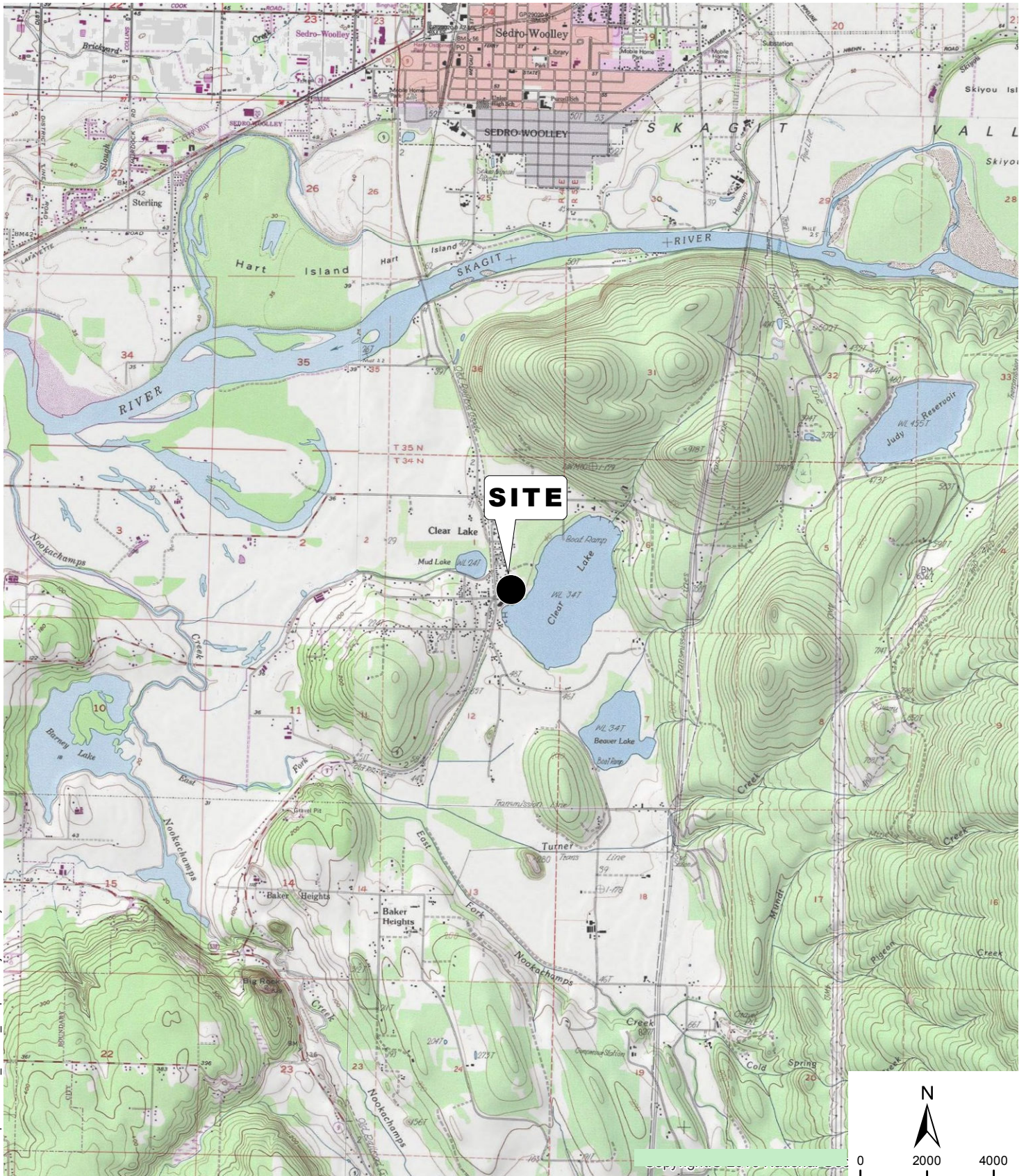
Elizabeth Ann Rachman

A handwritten signature in blue ink, appearing to read "Jon N. Sondergaard (ba)", written over a horizontal line.

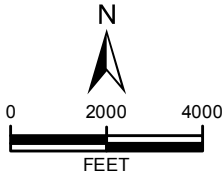
Jon N. Sondergaard, L.G., L.E.G.
Senior Principal Engineering Geologist

A handwritten signature in blue ink, appearing to read "Elizabeth Rachman", written over a horizontal line.

Elizabeth Rachman, L.G., L.Hg.
Senior Hydrogeologist



SITE



REFERENCE: USGS

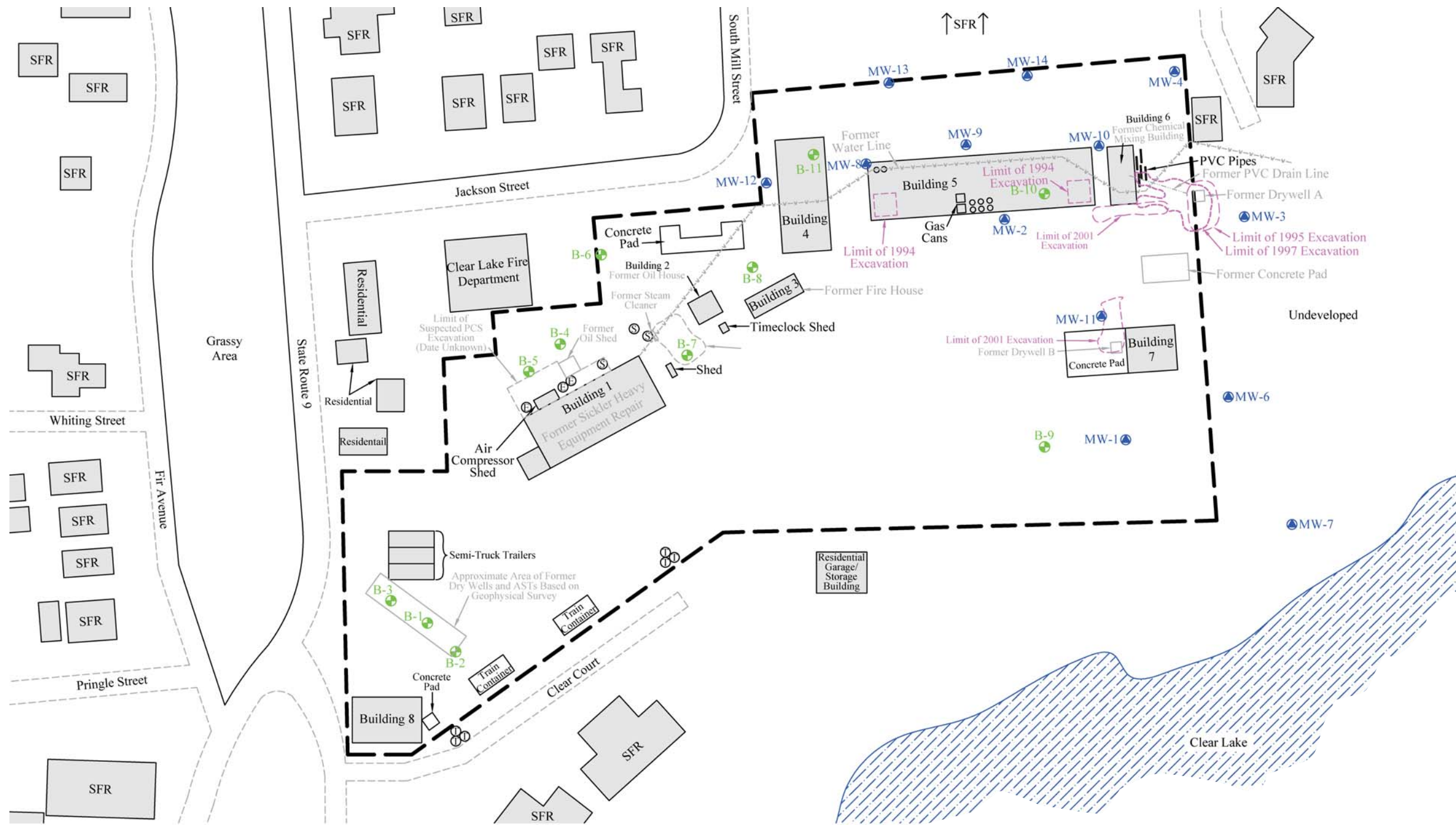
NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

Document Path: H:\GIS\Projects\Templates\VM_PIESA_Template\Project\vicinity.mxd



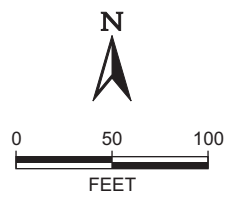
VICINITY MAP
CLEAR LAKE INDUSTRIAL PARK
CLEAR LAKE, WASHINGTON

FIGURE 1
 DATE 7/14
 PROJ. NO. TV130367F



- = (in pink) Chlordane Remedial Excavation
- = Pole-Mounted Transformer
- = 55-Gallon Drum
- = Single-Family Residence
- = Engines
- = Septic Cleanout Port
- = (in green) Test Probe Location by RGI 09/07/12
- = (in blue) Monitoring Well Location
- [MW-1 to MW-7 Installed by Others]
- [MW-8 to MW-11 Installed by RGI 09/10/12]
- [MW-12 to MW-14 Installed by RGI 05/24/13]

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.



REFERENCE: THE RILEY GROUP

Associated Earth Sciences, Inc.



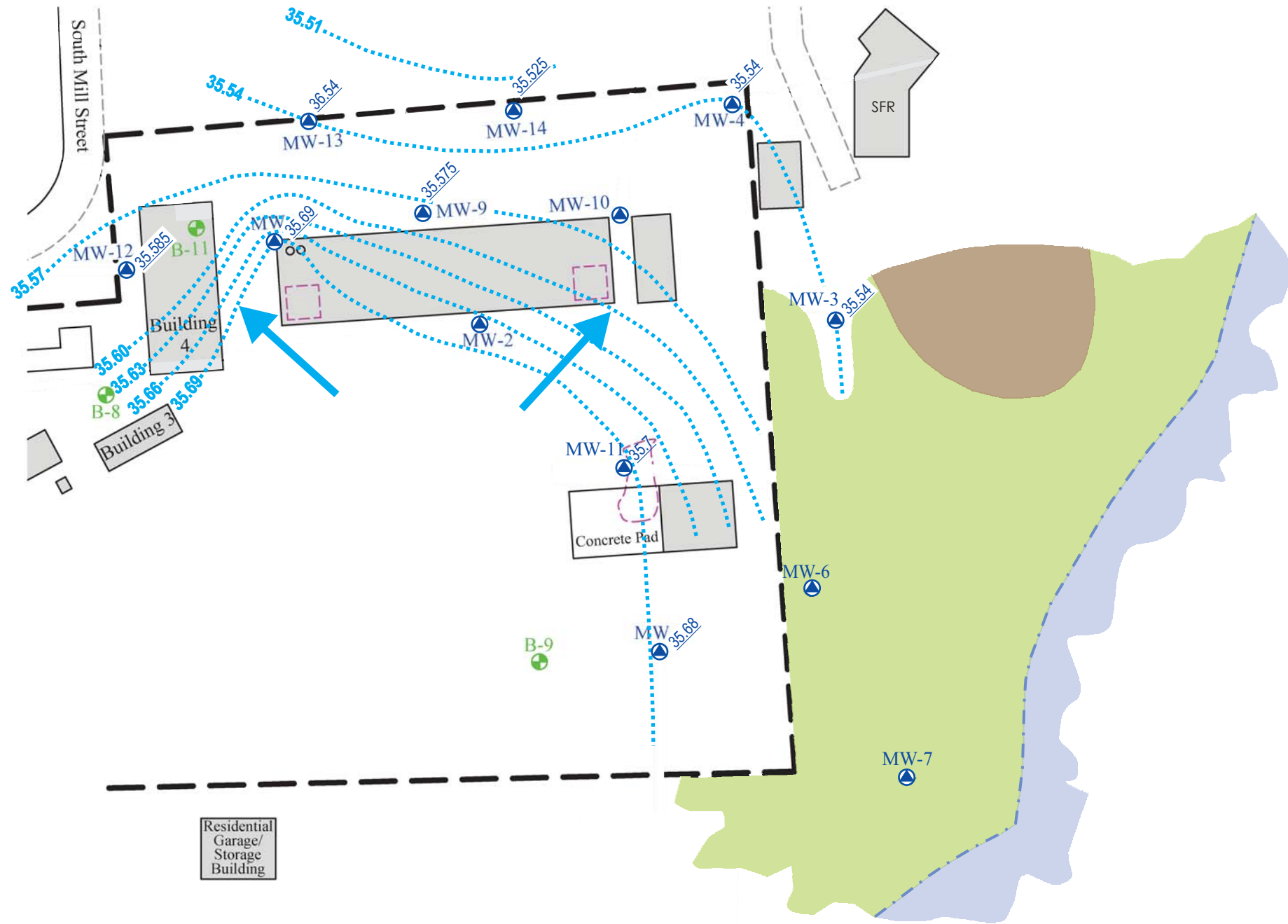
SITE PLAN
 CLEAR LAKE INDUSTRIAL PARK
 CLEAR LAKE, WASHINGTON

FIGURE 2

DATE 2/14

PROJ. NO. TV130367E

130367 Clear Lake Industrial PK \ 130367 Site.cdr

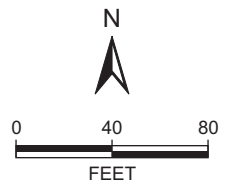


LEGEND:

- SITE BOUNDARY
- SFR SINGLE-FAMILY RESIDENCE
- CHLORDANE REMEDIAL EXCAVATION
- MONITORING WELL LOCATION BY OTHERS - GROUND WATER LEVEL MEASURED 6/17/14
- GROUND WATER FLOW CONTOUR MEASURED 6/17/14
- GROUND WATER FLOW DIRECTION
- TEST PROBE LOCATION BY OTHERS 9/7/12
- SHORELINE
- HEAVY VEGETATION
- AREA FILLED WITH LARGE PIECES OF CONCRETE COVERED BY A THIN LAYER OF SOIL AND GRASS

REFERENCE: THE RILEY GROUP

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.



GROUND WATER FLOW ELEVATIONS AND FLOW DIRECTION - AUGUST 1, 2014
 CLEAR LAKE INDUSTRIAL PARK
 CLEAR LAKE, WASHINGTON

FIGURE 3
 DATE 12/14
 PROJ. NO. TV130367F



Monitoring Well and Sample Date	Depth to Water Level	Groundwater Elevation	gamma Chlordane Concentration (ug/L)	alpha Chlordane Concentration (ug/L)	Total Chlordane Concentration (ug/L)
MW-1					
8/1/2014	6.15	35.68	0.149	0.253	0.402
6/17/2014	5.19	36.64	ND	ND	ND
2/4/2014	4.40	37.43	ND	0.106	0.106
5/28/2013	4.96	36.87	NR	NR	1.7
10/4/2012	6.39	35.44	---	---	---
9/11/2012	---	---	0.206	0.31	6.79
8/25/2010	6.42	35.41	NR	NR	1.5
7/23/2008	5.89	35.94	NR	NR	1.8
7/12/2006	6	35.83	NR	NR	1.3
7/22/2004	6.54	35.29	NR	NR	2.7
1/9/2003	7.55	34.28	NR	NR	2.7
12/4/2002	---	---	NR	NR	ND (<0.06)
10/8/2002	7.74	34.09	NR	NR	2.3
7/18/2002	6.69	35.14	NR	NR	1.5
4/15/2002	4.64	37.19	NR	NR	2.6
1/31/2002	4.72	37.11	NR	NR	2.5
10/3/2001	7.2	34.63	NR	NR	2
7/9/2001	5.93	35.9	NR	NR	1.8
4/9/2001	5.51	36.32	NR	NR	2
1/4/2001	6.41	35.42	NR	NR	1.4
10/19/2000	7.22	34.61	NR	NR	1.7
7/13/2000	6.29	35.54	NR	NR	0.25
3/30/2000	5.08	36.75	NR	NR	1.3
1/10/2000	4.56	37.27	NR	NR	1.8
10/14/1999	7.04	34.79	NR	NR	2.7
7/26/1999	6.14	35.69	NR	NR	3.8
2/2/1999	4.81	37.02	NR	NR	2.4
10/13/1998	8.1	33.73	NR	NR	3.3
12/17/1996	4.72	37.11	NR	NR	4.1
4/19/1996	6.07	35.76	NR	NR	1.2
12/14/1995	3.38	38.45	NR	NR	6.5
10/19/1995	8.12	33.71	---	---	---
4/25/1995	8.25	33.58	---	---	---
MW-3					
8/1/2014	6.60	35.54	0.402	0.632	1.034
6/17/2014	5.62	36.52	0.301	0.474	0.775
2/4/2014	4.88	37.26	0.134	0.192	0.326
5/28/2013	5.29	36.85	NR	NR	3.5
8/25/2010	6.78	35.36	NR	NR	1.2
7/23/2008	6.31	35.83	NR	NR	1.0
7/12/2006	6.39	35.75	NR	NR	4.9
7/22/2004	6.98	35.16	NR	NR	4.7
1/9/2003	7.75	34.39	NR	NR	4.4
12/4/2002	---	---	NR	NR	ND (<0.06)
10/8/2002	8.1	34.04	NR	NR	4.2
7/18/2002	7.15	34.99	NR	NR	4.2
4/15/2002	---	---	NR	NR	6.2
1/31/2002	5.03	37.11	NR	NR	8.8
10/3/2001	7.58	34.56	NR	NR	8.6
7/9/2001	6.36	35.78	NR	NR	7
4/9/2001	5.85	36.29	NR	NR	7.6
1/4/2001	6.64	35.5	NR	NR	5.1
10/19/2000	7.51	34.63	NR	NR	2.7
7/13/2000	6.8	35.34	NR	NR	2.6
3/30/2000	5.48	36.66	NR	NR	5.5
1/10/2000	4.94	37.2	NR	NR	9.5
10/14/1999	7.4	34.74	NR	NR	5.9
7/26/1999	6.5	35.64	NR	NR	7
2/2/1999	5.23	36.91	NR	NR	6.8
10/13/1998	8.5	33.64	NR	NR	8.3
12/17/1996	5.15	36.99	NR	NR	27
4/19/1996	6.5	35.64	NR	NR	17
12/14/1995	3.9	38.24	NR	NR	36
10/19/1995	8.41	33.73	---	---	---
4/25/1995	6.65	35.49	---	---	---

MW-4					
8/1/2014	8.95	35.54	0.0349	0.0279	0.0628
6/17/2014	7.99	36.50	ND	ND	ND
2/4/2014	7.19	37.30	ND	ND	ND
5/28/2013	7.77	36.72	NR	NR	0.1
10/4/2012	9.21	35.28	---	---	---
9/11/2012	---	---	ND	ND	1.75
8/25/2010	9.22	35.27	NR	NR	0.11
7/23/2008	8.7	35.79	NR	NR	0.08
7/12/2006	8.81	35.68	NR	NR	0.08
7/22/2004	9.34	35.15	NR	NR	0.22
1/9/2003	10.39	34.1	NR	NR	ND (<0.06)
12/4/2002	---	---	NR	NR	---
10/8/2002	10.53	33.96	NR	NR	ND (<0.06)
7/18/2002	9.53	34.96	NR	NR	ND (<0.06)
4/15/2002	7.39	37.1	NR	NR	ND (<0.06)
1/31/2002	7.49	37	NR	NR	ND (<0.06)
10/3/2001	10	34.49	NR	NR	ND (<0.06)
7/9/2001	8.76	35.73	NR	NR	ND (<0.1)
4/9/2001	8.33	36.16	NR	NR	ND (<0.06)
1/4/2001	9.22	35.27	NR	NR	ND (<0.06)
10/19/2000	10.08	34.41	NR	NR	0.36
7/13/2000	9.1	35.39	NR	NR	ND (<0.06)
3/30/2000	7.83	36.66	NR	NR	ND (<0.06)
1/10/2000	7.3	37.19	NR	NR	ND (<0.06)
10/14/1999	9.84	34.65	NR	NR	0.09
7/26/1999	8.92	35.57	NR	NR	ND (<0.06)
2/2/1999	7.58	36.91	NR	NR	ND (<0.0033)
10/13/1998	10.9	33.59	NR	NR	ND (<0.05)
12/17/1996	7.51	36.98	NR	NR	---
4/19/1996	8.87	35.62	NR	NR	---
12/14/1995	6.08	38.41	NR	NR	ND (<0.05)
MW-8					
8/1/2014	10.01	35.69	0.225	0.637	0.862
6/17/2014	9.04	36.66	0.341	0.839	1.180
2/3/2014	8.15	37.50	0.309	0.679	0.988
5/28/2013	8.86	36.84			ND (<0.045)
10/4/2012	10.35	35.35	---	---	---
9/11/2012	---	---	1.27	0.964	7.7
8/25/2010	---	---	---	---	---
7/23/2008	---	---	---	---	---
7/12/2006	---	---	---	---	---
7/22/2004	---	---	---	---	---
1/9/2003	---	---	---	---	---
4/15/2002	---	---	---	---	---
4/9/2001	---	---	---	---	---
3/30/2000	---	---	---	---	---
2/2/1999	---	---	---	---	---
4/19/1996	---	---	---	---	---
MW-9					
8/1/2014	9.20	35.575	0.0337	0.0207	0.0544
6/17/2014	8.25	36.525	ND	ND	ND
2/3/2014	7.34	37.375	ND	ND	ND
5/28/2013	8.04	36.735			ND (<0.044)
10/4/2012	9.46	35.315	---	---	---
9/11/2012	---	---	0.144	0.118	2.06
8/25/2010	---	---	---	---	---
7/23/2008	---	---	---	---	---
7/12/2006	---	---	---	---	---
7/22/2004	---	---	---	---	---
1/9/2003	---	---	---	---	---
4/15/2002	---	---	---	---	---
4/9/2001	---	---	---	---	---
3/30/2000	---	---	---	---	---
2/2/1999	---	---	---	---	---
4/19/1996	---	---	---	---	---

MW-11					
8/1/2014	10.72	35.70	0.212	0.312	0.524
6/17/2014	9.75	36.67	0.180	0.277	0.457
2/4/2014	8.88	37.54	0.125	0.184	0.309
5/28/2013	9.46	36.96	NR	NR	1.7
10/4/2012	10.99	35.43	---	---	---
9/11/2012	---	---	0.313	0.39	5.19
8/25/2010	---	---	---	---	---
7/23/2008	---	---	---	---	---
7/12/2006	---	---	---	---	---
7/22/2004	---	---	---	---	---
1/9/2003	---	---	---	---	---
4/15/2002	---	---	---	---	---
4/9/2001	---	---	---	---	---
3/30/2000	---	---	---	---	---
2/2/1999	---	---	---	---	---
4/19/1996	---	---	---	---	---
MW-12					
8/1/2014	10.45	35.585	ND	0.0186	0.0186
6/17/2014	9.43	36.605	ND	ND	ND
2/3/2014	8.60	37.385	ND	ND	ND
5/28/2013	9.28	36.755			ND (<0.050)
9/11/2012	---	---	---	---	---
8/25/2010	---	---	---	---	---
7/23/2008	---	---	---	---	---
7/12/2006	---	---	---	---	---
7/22/2004	---	---	---	---	---
1/9/2003	---	---	---	---	---
4/15/2002	---	---	---	---	---
4/9/2001	---	---	---	---	---
3/30/2000	---	---	---	---	---
2/2/1999	---	---	---	---	---
4/19/1996	---	---	---	---	---
MW-13					
8/1/2014	9.25	35.54	ND	ND	ND
6/17/2014	8.25	36.54	ND	ND	ND
2/3/2014	7.37	37.34	ND	ND	ND
5/28/2013	8.07	36.72			ND (<0.044)
9/11/2012	---	---	---	---	---
8/25/2010	---	---	---	---	---
7/23/2008	---	---	---	---	---
7/12/2006	---	---	---	---	---
7/22/2004	---	---	---	---	---
1/9/2003	---	---	---	---	---
4/15/2002	---	---	---	---	---
4/9/2001	---	---	---	---	---
3/30/2000	---	---	---	---	---
2/2/1999	---	---	---	---	---
4/19/1996	---	---	---	---	---

MW-14					
8/1/2014	7.70	35.525	ND	0.0188	0.0188
6/17/2014	6.73	36.495	ND	ND	ND
2/3/2014	5.83	37.305	ND	ND	ND
5/28/2013	6.51	36.715			ND (<0.042)
9/11/2012	---	---	---	---	---
8/25/2010	---	---	---	---	---
7/23/2008	---	---	---	---	---
7/12/2006	---	---	---	---	---
7/22/2004	---	---	---	---	---
1/9/2003	---	---	---	---	---
4/15/2002	---	---	---	---	---
4/9/2001	---	---	---	---	---
3/30/2000	---	---	---	---	---
2/2/1999	---	---	---	---	---
4/19/1996	---	---	---	---	---

Notes: Results above the State and Federal MCL level (site-specific cleanup level), if any, are **inbold**.

ug/L = micrograms per Liter (equivalent to parts per billion).

ND = non detect.

--- = not sampled.

APPENDIX A

Laboratory Analytical Report

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 14, 2014

Liz Rachman, Project Manager
Associated Earth Sciences, Inc.
1552 Commerce St., Suite 102
Tacoma, WA 98402

Dear Ms. Rachman:

Included are the results from the testing of material submitted on August 4, 2014 from the Clear Lake Ind Park TV130367F, F&BI 408033 project. There is 1 page included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
AE10814R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 4, 2014 by Friedman & Bruya, Inc. from the Associated Earth Sciences Clear Lake Ind Park TV130367F, F&BI 408033 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Associated Earth Sciences</u>
408033 -01	MW-1
408033 -02	MW-3
408033 -03	MW-4
408033 -04	MW-8
408033 -05	MW-9
408033 -06	MW-11
408033 -07	MW-12
408033 -08	MW-13
408033 -09	MW-14

The samples were sent to Fremont Analytical for chlordane analysis. The report is enclosed.



Fremont
Analytical

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 408033
Lab ID: 1408024

August 12, 2014

Attention Michael Erdahl:

Fremont Analytical, Inc. received 9 sample(s) on 8/4/2014 for the analyses presented in the following report.

Organochlorine Pesticides by EPA Method 8081

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal



Date: 08/12/2014

CLIENT: Friedman & Bruya
Project: 408033
Lab Order: 1408024

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1408024-001	MW-1	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-002	MW-3	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-003	MW-4	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-004	MW-8	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-005	MW-9	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-006	MW-11	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-007	MW-12	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-008	MW-13	08/01/2014 12:00 AM	08/04/2014 3:43 PM
1408024-009	MW-14	08/01/2014 12:00 AM	08/04/2014 3:43 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned



CLIENT: Friedman & Bruya
Project: 408033

I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



Analytical Report

WO#: 1408024

Date Reported: 8/12/2014

CLIENT: Friedman & Bruya

Project: 408033

Lab ID: 1408024-001

Collection Date: 8/1/2014

Client Sample ID: MW-1

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 8329		Analyst: NG
gamma-Chlordane	0.149	0.100		µg/L	1	8/11/2014 9:42:00 PM
alpha-Chlordane	0.253	0.100		µg/L	1	8/11/2014 9:42:00 PM
Surr: Decachlorobiphenyl	117	53.2-135		%REC	1	8/11/2014 9:42:00 PM
Surr: Tetrachloro-m-xylene	98.4	27.7-104		%REC	1	8/11/2014 9:42:00 PM

Lab ID: 1408024-002

Collection Date: 8/1/2014

Client Sample ID: MW-3

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 8329		Analyst: NG
gamma-Chlordane	0.402	0.100		µg/L	1	8/11/2014 10:21:00 PM
alpha-Chlordane	0.632	0.100		µg/L	1	8/11/2014 10:21:00 PM
Surr: Decachlorobiphenyl	114	53.2-135		%REC	1	8/11/2014 10:21:00 PM
Surr: Tetrachloro-m-xylene	94.3	27.7-104		%REC	1	8/11/2014 10:21:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408024

Date Reported: 8/12/2014

CLIENT: Friedman & Bruya

Project: 408033

Lab ID: 1408024-003

Collection Date: 8/1/2014

Client Sample ID: MW-4

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Organochlorine Pesticides by EPA Method 8081

Batch ID: 8329

Analyst: NG

gamma-Chlordane	0.0349	0.100	J	µg/L	1	8/11/2014 11:00:00 PM
alpha-Chlordane	0.0279	0.100	J	µg/L	1	8/11/2014 11:00:00 PM
Surr: Decachlorobiphenyl	99.9	53.2-135		%REC	1	8/11/2014 11:00:00 PM
Surr: Tetrachloro-m-xylene	90.8	27.7-104		%REC	1	8/11/2014 11:00:00 PM

Lab ID: 1408024-004

Collection Date: 8/1/2014

Client Sample ID: MW-8

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Organochlorine Pesticides by EPA Method 8081

Batch ID: 8329

Analyst: NG

gamma-Chlordane	0.255	0.100		µg/L	1	8/11/2014 11:19:00 PM
alpha-Chlordane	0.637	0.100		µg/L	1	8/11/2014 11:19:00 PM
Surr: Decachlorobiphenyl	115	53.2-135		%REC	1	8/11/2014 11:19:00 PM
Surr: Tetrachloro-m-xylene	99.0	27.7-104		%REC	1	8/11/2014 11:19:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408024

Date Reported: 8/12/2014

CLIENT: Friedman & Bruya

Project: 408033

Lab ID: 1408024-005

Collection Date: 8/1/2014

Client Sample ID: MW-9

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Organochlorine Pesticides by EPA Method 8081

Batch ID: 8329

Analyst: NG

gamma-Chlordane	0.0337	0.100	J	µg/L	1	8/11/2014 11:39:00 PM
alpha-Chlordane	0.0207	0.100	J	µg/L	1	8/11/2014 11:39:00 PM
Surr: Decachlorobiphenyl	80.6	53.2-135		%REC	1	8/11/2014 11:39:00 PM
Surr: Tetrachloro-m-xylene	102	27.7-104		%REC	1	8/11/2014 11:39:00 PM

Lab ID: 1408024-006

Collection Date: 8/1/2014

Client Sample ID: MW-11

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Organochlorine Pesticides by EPA Method 8081

Batch ID: 8329

Analyst: NG

gamma-Chlordane	0.212	0.100		µg/L	1	8/11/2014 11:58:00 PM
alpha-Chlordane	0.312	0.100		µg/L	1	8/11/2014 11:58:00 PM
Surr: Decachlorobiphenyl	115	53.2-135		%REC	1	8/11/2014 11:58:00 PM
Surr: Tetrachloro-m-xylene	94.4	27.7-104		%REC	1	8/11/2014 11:58:00 PM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408024

Date Reported: 8/12/2014

CLIENT: Friedman & Bruya

Project: 408033

Lab ID: 1408024-007

Collection Date: 8/1/2014

Client Sample ID: MW-12

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Organochlorine Pesticides by EPA Method 8081

Batch ID: 8329

Analyst: NG

gamma-Chlordane	ND	0.100		µg/L	1	8/12/2014 12:18:00 AM
alpha-Chlordane	0.0186	0.100	J	µg/L	1	8/12/2014 12:18:00 AM
Surr: Decachlorobiphenyl	133	53.2-135		%REC	1	8/12/2014 12:18:00 AM
Surr: Tetrachloro-m-xylene	112	27.7-104	S	%REC	1	8/12/2014 12:18:00 AM

NOTES:

S - Outlying surrogate recovery observed. All other field and laboratory samples were within range.

Lab ID: 1408024-008

Collection Date: 8/1/2014

Client Sample ID: MW-13

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Organochlorine Pesticides by EPA Method 8081

Batch ID: 8329

Analyst: NG

gamma-Chlordane	ND	0.100		µg/L	1	8/12/2014 12:38:00 AM
alpha-Chlordane	ND	0.100		µg/L	1	8/12/2014 12:38:00 AM
Surr: Decachlorobiphenyl	120	53.2-135		%REC	1	8/12/2014 12:38:00 AM
Surr: Tetrachloro-m-xylene	95.6	27.7-104		%REC	1	8/12/2014 12:38:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Analytical Report

WO#: 1408024

Date Reported: 8/12/2014

CLIENT: Friedman & Bruya

Project: 408033

Lab ID: 1408024-009

Collection Date: 8/1/2014

Client Sample ID: MW-14

Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

Organochlorine Pesticides by EPA Method 8081

Batch ID: 8329

Analyst: NG

gamma-Chlordane	ND	0.100		µg/L	1	8/12/2014 12:57:00 AM
alpha-Chlordane	0.0188	0.100	J	µg/L	1	8/12/2014 12:57:00 AM
Surr: Decachlorobiphenyl	122	53.2-135		%REC	1	8/12/2014 12:57:00 AM
Surr: Tetrachloro-m-xylene	94.2	27.7-104		%REC	1	8/12/2014 12:57:00 AM

Qualifiers: B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 RL Reporting Limit

D Dilution was required
 H Holding times for preparation or analysis exceeded
 ND Not detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits



Date: 8/12/2014

Work Order: 1408024
 CLIENT: Friedman & Bruya
 Project: 408033

QC SUMMARY REPORT
Organochlorine Pesticides by EPA Method 8081

Sample ID: MB-8329	SampType: MBLK	Units: µg/L	Prep Date: 8/6/2014	RunNo: 16106							
Client ID: MBLKW	Batch ID: 8329		Analysis Date: 8/11/2014	SeqNo: 324867							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.0363	0.100									J
alpha-Chlordane	ND	0.100									
Surr: Decachlorobiphenyl	0.394		0.5000		78.9	53.2	135				
Surr: Tetrachloro-m-xylene	0.341		0.5000		68.3	27.7	104				

Sample ID: LCS-8329	SampType: LCS	Units: µg/L	Prep Date: 8/6/2014	RunNo: 16106							
Client ID: LCSW	Batch ID: 8329		Analysis Date: 8/11/2014	SeqNo: 324868							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.756	0.100	1.000	0	75.6	38	129				
alpha-Chlordane	0.777	0.100	1.000	0	77.7	41.6	127				
Surr: Decachlorobiphenyl	0.597		0.5000		119	53.2	135				
Surr: Tetrachloro-m-xylene	0.394		0.5000		78.8	27.7	104				

Sample ID: 1408024-001ADUP	SampType: DUP	Units: µg/L	Prep Date: 8/6/2014	RunNo: 16106							
Client ID: MW-1	Batch ID: 8329		Analysis Date: 8/11/2014	SeqNo: 324870							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.138	0.100						0	0	30	
alpha-Chlordane	0.229	0.100						0	0	30	
Surr: Decachlorobiphenyl	0.558		0.5000		112	53.2	135		0		
Surr: Tetrachloro-m-xylene	0.471		0.5000		94.1	27.7	104		0		

Qualifiers: B Analyte detected in the associated Method Blank D Dilution was required E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits ND Not detected at the Reporting Limit
 R RPD outside accepted recovery limits RL Reporting Limit S Spike recovery outside accepted recovery limits



Date: 8/12/2014

Work Order: 1408024
 CLIENT: Friedman & Bruya
 Project: 408033

QC SUMMARY REPORT
Organochlorine Pesticides by EPA Method 8081

Sample ID: 1408024-002AMS	SampType: MS	Units: µg/L	Prep Date: 8/6/2014	RunNo: 16106							
Client ID: MW-3	Batch ID: 8329		Analysis Date: 8/11/2014	SeqNo: 324872							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	1.23	0.100	1.000	0	123	34.7	126				
alpha-Chlordane	0.407	0.100	1.000	0	40.7	38.2	125				
Surr: Decachlorobiphenyl	0.547		0.5000		109	53.2	135				
Surr: Tetrachloro-m-xylene	0.487		0.5000		97.5	27.7	104				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



Client Name: FB	Work Order Number: 1408024
Logged by: Clare Griggs	Date Received: 8/4/2014 3:43:00 PM

Chain of Custody

1. Is Chain of Custody complete? Yes No Not Present
2. How was the sample delivered? Courier

Log In

3. Coolers are present? Yes No NA
4. Shipping container/cooler in good condition? Yes No
5. Custody seals intact on shipping container/cooler? Yes No Not Required
6. Was an attempt made to cool the samples? Yes No NA
7. Were all coolers received at a temperature of >0°C to 10.0°C? Yes No NA
8. Sample(s) in proper container(s)? Yes No
9. Sufficient sample volume for indicated test(s)? Yes No
10. Are samples properly preserved? Yes No
11. Was preservative added to bottles? Yes No NA
12. Is the headspace in the VOA vials? Yes No NA
13. Did all samples containers arrive in good condition(unbroken)? Yes No
14. Does paperwork match bottle labels? Yes No
15. Are matrices correctly identified on Chain of Custody? Yes No
16. Is it clear what analyses were requested? Yes No
17. Were all holding times able to be met? Yes No

Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes No NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

Item Information

Item #	Temp °C	Condition
Cooler	9.0	Good
Sample	6.7	Good

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

1408024

Page # 1 of 1

Send Report To Michael Erdahl
 Company Friedman and Bruya, Inc.
 Address 3012 16th Ave W
 City, State, ZIP Seattle, WA 98119
 Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER <i>Fremont Analytical</i>	
PROJECT NAME/NO. 408033	PO # D-121
REMARKS <p style="text-align: center;">Please Email Results</p>	

TURNAROUND TIME <input checked="" type="checkbox"/> Standard (2 Weeks) <i>1 week</i> <input type="checkbox"/> RUSH Rush charges authorized by: _____
SAMPLE DISPOSAL <input type="checkbox"/> Dispose after 30 days <input type="checkbox"/> Return samples <input type="checkbox"/> Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins and Furans by 8290	EPH	VPH	Nitrate	Sulfate	Alkalinity	Chlordane	Notes		
MW-1		8/1		water	1							X			
MW-3		↓		↓	1							X			
MW-4			1									X			
MW-8			1									X			
MW-9			1									X			
MW-11			1									X			
MW-12			1									X			
MW-13			1									X			
MW-14			1									X			

Friedman & Bruya, Inc.
 3012 16th Avenue West
 Seattle, WA 98119-2029
 Ph. (206) 285-8282
 Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	8/4/14	1930
Received by:	Erica Silva	FAI	8/4/14	15:43
Relinquished by:				
Received by:				

