GeoEngineers
8410 154th Avenue NE
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August 11, 2011

Washington State Department of Ecology
300 Desmond Drive SE
Lacey, Washington 98503

Attention: Michael Kuntz

Subject: Progress Report September 2010 to July 2011
Snelson Companies Property
601 West State Street
Sedro Woolley, WA
VCP Number NW1719
File No. 7408-002-07

Attached is the progress report describing remediation at the above referenced VCP site. This report is submitted for informational purposes only and **no request is being made at this time** for an opinion letter or written response from Ecology. Please contact Dana Carlisle of GeoEngineers (425-861-6040) if you have questions regarding this report or the remediation project at the site.

Yours very truly,

GeoEngineers, Inc.

Dana Carlisle PE
Principal

DLC:lw

Attachments: Remediation Progress Report

cc: Snelson Companies, Inc.
601 West State Street
Sedro-Woolley, Washington 98284

Attention: David Gaines

30 YEARS 2010

Remediation Progress Report
September 2010 to July 2011
Air Sparging System Operation and Groundwater Compliance Monitoring

Snelson Companies Property
601 West State Street
Sedro Woolley, Washington

for
Snelson Companies, Inc.

August 11, 2011

GeoEngineers
Earth Science + Technology

Remediation Progress Report
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30 YEARS 2010

Remediation Progress Report
September 2010 to July 2011

Air Sparging System Installation and Groundwater Monitoring
Snelson Companies Property
601 West State Street
Sedro-Woolley, Washington

File No. 7408-002-07

August 11, 2011

Prepared for:

Snelson Companies, Inc.
601 West State Street
Sedro-Woolley, Washington 98284

Attention: David Gaines

Prepared by:

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cc: Michael Kuntz, LPG, LPHG
Washington State Department of Ecology

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GeoEngineers

Table of Contents

EXECUTIVE SUMMARY

An air sparging remediation system has been installed at the site to treat residual gasoline range petroleum hydrocarbons. System and groundwater monitoring were performed periodically to evaluate system operation effectiveness. During the current reporting period, September 2010-July 2011, groundwater monitoring was performed on a quarterly schedule: fourth quarter 2010 (October) and first and second quarters 2011 (January and May). Based on favorable groundwater monitoring results from samples obtained while the system was operating, it was determined that the air sparging treatment was successful in reducing contaminant concentrations in groundwater. Therefore, the system was shut down on May 2, 2011.

Four post-treatment quarterly groundwater compliance sampling events (August and November 2011 and February and May 2012) are planned to evaluate the overall effectiveness of the remediation program. A post-treatment soil compliance monitoring effort and possibly indoor air monitoring will be completed in Summer 2012 after groundwater compliance monitoring has confirmed that groundwater is in compliance with MTCA Method A cleanup levels.

The following summarizes the record of sparging system operation and groundwater monitoring since its installation.

Month/Year	System Operation	Wells Operating	Cumulative Months of Operation Since Startup	Groundwater Sampling Post-Startup
November-09	Pilot Test	AS-1 and AS-2	1	
December-09	Pilot Test	AS-1 and AS-2	2	MW-7 (concentrations reduced to non-detect compared to pre-startup levels) and MW-8 (benzene concentrations lower compared to pre-startup levels, but still detected).
January-10	Pilot Test	AS-1 and AS-2	3	
February-10	Pilot Test	AS-1 and AS-2	4	
March-10	Pilot Test	AS-1 and AS-2	5	
April-10	Pilot Test	AS-1 and AS-2	6	
May-10	Pilot Test	AS-1 and AS-2	7	MP-6 and MP-7 sampled.
June-10	Full Scale with Intermittent Pulsing, see below	AS-1 through AS-14	8	
July-10	Full Scale with Intermittent Pulsing, see below	AS-1 through AS-14	9	MW-7 non-detect and concentrations in MW-8 further decline.

Month/Year	System Operation	Wells Operating	Cumulative Months of Operation Since Startup	Groundwater Sampling Post-Startup
August-10	Full Scale with Intermittent Pulsing, see below	AS-1 through AS-14	10	
September-10	Full Scale with Regular Pulsing	Manifold 1 (AS-2, 3, 4, 5, 9, 10 and 11) one week on and one week off, alternating with Manifold 2 (AS-1, 6, 7, 8, 12, 13 and 14) on opposite schedule one week on, one week off.	11	
October-10	Full Scale with Pulsing	Manifold 1 and Manifold 2 alternating one week on and one week off. All wells off for 3 weeks before sampling.	12	MW-7 and MW-8 non-detect in October 19, 2010 sample.
January-11	Full Scale with Pulsing	Manifold 1 and Manifold 2 alternative one week on and one week off. All wells off for 3 weeks before sampling.	15	MW-7 and MW-8 non-detect in January 27, 2011 sample.
May 2, 2011	System shut down to begin post-treatment groundwater compliance sampling program.		18	
May 25, 2011				MW-7 and MW-8non-detect in May 2011.

This Executive Summary should be used only in the context of the full report for which it is intended.

1.0 INTRODUCTION

Snelson Companies is performing soil and groundwater remediation of petroleum contamination from an historic underground storage tank (UST) release at their property as an independent cleanup action with oversight and opinion by Ecology through the Voluntary Cleanup Program (VCP). The property is located at 601 West State Street in Sedro-Woolley, Washington. The VCP Project Number is NW1719 and Ecology's Facility/Site number for this property is 66379684. The general site location is shown in the attached Figure 1, Vicinity Map. Figure 2 shows the former UST area layout including all monitoring and remediation wells, the nearby warehouse building and the limits of the backfilled 1999/2001 remedial excavation to remove the USTs. The monitoring well locations and the approximate extent of gasoline-related contamination in soil before the in-situ treatment began also are shown in Figure 2. Figure 3 presents a detail of the remediation well and piping locations.

This report summarizes the air sparging remediation system operation between September 2010 and July 2011 and the results of quarterly groundwater monitoring during this reporting period. The following previously published key reference documents summarize the site conditions, results of site characterization and remedial investigation, the remediation feasibility study and the cleanup action plan and remediation system design:

- "Supplemental Site Characterization, Focused Feasibility Study (FS) and Cleanup Action Plan" by GeoEngineers for Snelson Companies, Inc., dated August 26, 2009.
- "Focused Feasibility Study and Cleanup Action Plan Addendum" by GeoEngineers for Snelson Companies, Inc., dated February 16, 2010.
- "Remediation Progress Report, May through August 2010, Air Sparging System Installation and Groundwater Monitoring' by GeoEngineers for Snelson Companies, Inc. dated October 11, 2010.

Before in-situ treatment began, the area of gasoline-impacted soil in the vicinity of the former USTs, based on previous studies at the site, was estimated to be approximately 60 feet by 100 feet in size and at depths extending from approximately 5 feet below ground surface (bgs) to 15 to 18 feet bgs. In recent years, MW-8 had been the only groundwater monitoring well at the site with petroleum-related contaminants detected at concentrations greater than Model Toxics Control Act (MTCA) Method A cleanup levels. Air sparging was identified as the selected cleanup remedy in the February 2010 Addendum report listed above; the Addendum report also included the full-scale air sparging system design. Ecology's favorable opinion concurring with the selection of air sparging as a cleanup method is documented in Ecology's March 1, 2010 letter, "Opinion on Proposed Cleanup Action."

2.0 SCOPE OF SERVICES

Our scope of services summarized in this progress report included the following:

1. Provide input to Snelson regarding system optimization and pulsed operation of the sparging system.
2. Measure depth to water and obtain groundwater samples at MW-7 and MW-8 on a quarterly basis during the reporting period to evaluate the effectiveness of the air sparging operation. Submit the groundwater samples to an accredited chemical analytical laboratory for the following constituents of concern:
    - Gasoline-range petroleum hydrocarbons by Ecology Method NWTPH-Gx.
    - BTEX by EPA Method 8021.
    - Dissolved arsenic by EPA 6000/7000 series.
3. Measure groundwater dissolved oxygen in the monitoring points during the quarterly sampling events.
4. Measure well organic vapor concentrations in selected monitoring point well casings, ambient air, indoor air and confined space catch basins in the treatment area and evaluate the data to confirm that the sparging system is not generating volatiles in confined space or indoor air.
5. Recommend system shutdown criteria and schedule based on the results of groundwater monitoring.

3.0 SPARGING SYSTEM OPERATION AND MONITORING

- The system operated in a pulsed mode (between September 2010 and May 2, 2011) to maximize the circulation of subsurface oxygen delivered through sparging. Pulsing consisted of alternating periods of startup and shutdown on approximately one week cycles. The typical pulsing sequence was to alternate Manifold 1 (AS-2, 3, 4, 5, 9, 10 and 11) and Manifold 2 (AS-1, 6, 7, 8, 12, 13 and 14) with one week on, one week off, on opposite cycles. Sparging was shut down and left off at both manifolds for a minimum of a week to 10 days prior to each regularly scheduled quarterly groundwater monitoring event to allow groundwater to stabilize and not be affected by bubbling when sampling was to occur.
- System operational data (air flows and pressures) were recorded by Snelson personnel on approximately a weekly basis when the system was running. Typical air injection flow rates indicated by the instruments ranged from about 1 up to about 3 cubic feet per minute (cfm). Pressure was adjusted if needed to maintain the target flow range between 1 and 3 cfm. Because of the low air flow target rates for the sparging system at this site, system gauges were unreliable at times in accurately measuring airflow; however, other observations such as bubbling were used to confirm that air injection was influencing all wells within the sparging treatment zone. Regulator pressure at the manifolds was typically between 8 and 11 pounds per square inch (psi).
- Table 2 presents a summary of groundwater dissolved oxygen measurements from November 2009 when the air sparging system was started up, through May 25, 2011. The quarterly measurements between October 2010 and May 2011 were obtained after the

sparging system had been completely shut off for approximately three weeks to allow for representative groundwater sampling. Groundwater dissolved oxygen trends between 2009 and 2011 indicate that the sparging system generally resulted in increasing dissolved oxygen levels over the period of operation, facilitating hydrocarbon degradation.

- The system was shut down on May 2, 2011 after approximately 18 months of operation (two sparging wells for 6 months and 11 months of full scale operation with all sparging wells).
- Volatiles were not detected based on PID measurements inside the southwest corner of the warehouse (indoor air), within the ambient air breathing zone in the outdoor portion of the treatment area, and within storm drain catch basins confined space located adjacent to the treatment area ; the data are summarized in Table 2.

4.0 GROUNDWATER MONITORING

GeoEngineers conducted a round of groundwater sampling in MW-7 and MW-8 on October 19, 2010 and January 27 and May 25, 2011. Each sampling event occurred after the air sparging wells had been shut down for a minimum of 1 week to 10 days to allow groundwater conditions to stabilize and enable collection of representative groundwater samples.

Depths to groundwater were measured in MP-1 through MP-7, MW-7 and MW-8 during the quarterly events:

- In October 2010 groundwater was measured at depths between approximately 4 to 5 feet bgs in all the wells except MP-7 where groundwater was approximately 7.6 feet bgs.
- In January 2011 groundwater was measured at depths between approximately 1.5 and 2.5 bgs in all the wells except MP-7 where groundwater was approximately 4.7 feet bgs.
- In May 2011 groundwater was measured at depths between approximately 1.7 and 2.5 bgs in all the wells except MP-7 where groundwater was approximately 5 feet bgs.

Historically the groundwater gradient has been in the northwest to northeast directions (Figure 2). Groundwater elevation contours were not determined for the three monitoring events of this reporting period because the site surface topography is relatively flat, historically the groundwater gradient at the site has been relatively flat, and groundwater elevations were obtained for only two wells (MW-7 and MW-8).

During the monitoring events well casing volatiles in the monitoring points and two monitoring wells were measured with a PID and groundwater dissolved oxygen in the same wells was measured with a downhole instrument. These data are included in Table 2.

Groundwater chemical analytical data are presented in Table 1. Groundwater monitoring and sampling procedures are described in Appendix A. Chemical analytical data sheets, chain-of-custody records and our review of the laboratory quality control (QC) data are presented in Appendix B.

Based on favorable groundwater monitoring results from samples obtained as the system was in full-scale mode, it was determined that the air sparging treatment was successful in reducing contaminant concentrations in groundwater. Therefore, the system was shut down on May 2, 2011 to begin a post-treatment compliance period.

5.0 RECOMMENDATIONS

We recommend beginning quarterly post-treatment quarterly groundwater compliance sampling as detailed below, to be followed by post-treatment soil and indoor air compliance monitoring effort after the groundwater in the monitoring wells is in compliance with MTCA Method A cleanup levels for approximately four consecutive quarters. We may recommend restart of the air sparging system if groundwater compliance monitoring indicates a rebound of gasoline-related constituent concentrations in groundwater.

6.0 ACTIVITIES DURING NEXT REPORTING PERIOD – AUGUST 2011 THROUGH MAY 2012

The following activities are planned for the next reporting period:

- The air sparging system will remain off.
- Four quarterly groundwater monitoring events are scheduled for August and November 2011 and February and May 2012. Monitoring events will include measurements of depth to groundwater and mapping of the groundwater elevation contours and determination of gradient. The proposed compliance wells will be the existing monitoring well network (MW-1 and MW-5 through MW-10). Groundwater samples will be obtained from the compliance monitoring wells and submitted for chemical analysis of gasoline-range petroleum hydrocarbons by Ecology Method NWTPH-Gx and BETX compounds by EPA Method 8021B. In addition, analytical testing of groundwater samples for dissolved arsenic by EPA Method 6000 series will be completed.
- The next quarterly progress report presenting the summary of the four post-treatment groundwater compliance monitoring events will be available in mid-2012. A proposed plan for soil and indoor air compliance monitoring will be developed for Ecology review provided groundwater quality remains in compliance with cleanup standards during the post-treatment compliance monitoring period.

7.0 LIMITATIONS

We have prepared this report for the exclusive use of Snelson Companies Inc., and their authorized agents for the property located at 601 West State Street in Sedro-Woolley, Washington.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty or other conditions, express or implied, should be understood.

TABLES

GeoEngineers

Table 1

Summary of Groundwater Chemical Analytical Data

Monitoring Wells

Snelson Companies

Sedro-Woolley, Washington

Monitoring Well[1]	Date Sampled	BETX[2] (µg/L) B	E	T	X	Gasoline-range Hydrocarbons[3] (µg/L)	Diesel-range Hydrocarbons[4] (mg/L)	Heavy Oil-range Hydrocarbons[4] (mg/L)	Total Arsenic[7] (µg/L)	Dissolved Arsenic[5] (µg/L)	Total Lead[7] (µg/L)	Dissolved Lead[7] (µg/L)
MW-1	06/08/99	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	–	8.65	--	--
	03/01/00	<0.500	<0.500	<0.500	<1.00	<50.0	0.648	1.07	--	3.58	--	--
	07/27/00	<0.500	<0.500	<0.500	<1.00	<50.0	0.308	<0.500	--	12.2	--	--
	11/06/00	<0.500	<0.500	<0.500	<1.00	<50.0	<0.250	<0.500	--	2.38	--	--
	01/30/01	<0.500	<0.500	<0.500	<1.00	<50.0	<0.250	<0.500	--	19.0	--	--
	05/29/01	<0.500	<0.500	<0.500	<1.00	<50.0	0.304	<0.500	--	<1.00	--	--
	08/28/01	<1.00	<1.00	<1.00	<3.00	<50.0	0.570	1.40	--	22.0	--	--
	08/12/02	--	--	--	--	--	--	--	--	15.0	--	--
	01/31/06	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	8.65	--	--
	09/04/08	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	14.9	--	--
	11/04/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	19	<3.00	4.3	<1.00
	12/09/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
MW-2	06/08/99	<0.500	<0.500	<0.500	<1.00	<50	<0.236	<0.472	--	1.10	--	--
	03/01/00	<0.500	<0.500	<0.500	<1.00	<250	<0.629	<0.629	--	--	--	--
	01/31/06	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	1.10	--	--
	09/04/08	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	1.79	--	--
	08/24/09	--	--	--	--	--	--	--	--	<3.00	--	<1.00
MW-3	06/08/99	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	<1.00	--	--
	01/31/06	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	<1.00	--	--
	09/04/08	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	<1.00	--	--
MW-4	03/01/00[6]	<0.500	<0.500	<0.500	<1.00	<250	<0.630	<0.630	--	--	--	--
MW-5	03/01/00	23.1	<0.500	<0.500	<1.00	<50.0	1.93	<0.750	--	--	--	--
	07/27/00	45.3	<0.500	<0.500	<1.00	89.3	2.67	0.774	--	--	--	--
	11/06/00	29.5	<0.500	<0.500	<1.00	82.2	<0.250	<0.500	--	--	--	--
	01/30/01	17.8	<0.500	<0.500	<1.00	<50.0	<0.250	<0.500	--	--	--	--
	05/29/01	16.8	<0.500	<0.500	<1.00	<50.0	0.633	1.55	--	--	--	--
	08/29/01	24	<1.00	<1.00	<3.00	<50.0	<0.130	<0.250	--	--	--	--
	08/12/02[6]	13	<1.00	<1.00	<3.00	<50.0	<0.200	<0.250	--	--	--	--
	01/31/06	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	2.38	--	--
	09/04/08	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	22.4	--	--
	11/04/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	15	12	<1.1	<1.00
	12/09/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
MW-6	07/27/00	1.09	0.541	<0.500	<1.00	<50.0	1.58	0.691	--	--	--	--
	11/06/00	2.27	<0.500	<0.500	<1.00	61.5	<0.250	<0.500	--	--	--	--
	01/30/01	1.03	<0.500	<0.500	<1.00	53.5	<0.250	<0.500	--	--	--	--
	05/29/01	1.93	<0.500	0.730	<1.00	<50.0	<0.250	<0.500	--	--	--	--
	08/29/01	<1.00	<1.00	<1.00	<3.00	<50.0	<0.130	<0.250	--	--	--	--
	08/12/02[6]	<1.00	<1.00	<1.00	<3.00	<50.0	<0.200	<0.250	--	--	--	--
	01/31/06	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	6.68	--	--
	09/04/08	<0.500	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	10.8	--	--
MTCA Method A Cleanup Levels		5	700	1,000	1,000	800	0.500	0.500	5		15	

Monitoring Well[1]	Date Sampled	BETX[2] (µg/L) B	E	T	X	Gasoline-range Hydrocarbons[3] (µg/L)	Diesel-range Hydrocarbons[4] (mg/L)	Heavy Oil-range Hydrocarbons[4] (mg/L)	Total Arsenic[7] (µg/L)	Dissolved Arsenic[5] (µg/L)	Total Lead[7] (µg/L)	Dissolved Lead[7] (µg/L)
MW-7	09/04/08	**2.47**	<0.500	<0.500	<1.00	<50.0	<0.236	<0.472	--	**20.7**	--	--
	08/24/09	**1.8**	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
	11/03/09	**9.2**	<1.00	<1.00	<1.00	<100	--	--	**21**	**12**	<1.1	<1.00
	12/09/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
	07/29/10	<1.00	<1.00	<1.00	<3.00	<50.0	--	--	--	--	--	--
	10/19/10	<1.0	<1.0	<1.0	<1.0	<100	--	--	--	**4.7**	--	--
	01/27/11	<1.0	<1.0	<1.0	<3.0	<50	--	--	--	--	--	--
	05/25/11	<1.0	<1.0	<1.0	<3.0	<50	--	--	--	**3.5**	--	--
MW-8	09/04/08	**127**	**0.804**	<0.500	**6.25**	**436**	<0.236	<0.472	--	**14.8**	--	--
	08/24/09	**50**	<1.00	<1.00	**1.7**	<100	--	--	--	--	--	--
	11/03/09	**37**	<1.00	<1.00	**1.3**	<100	--	--	**26**	**21**	<1.1	<1.00
	12/09/09	**40**	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
	07/29/10	**10**	<1.00	<1.00	<3.00	<50.0	--	--	--	--	--	--
	10/19/10	<1.0	<1.0	<1.0	<1.0	<100	--	--	--	<3.0	--	--
	01/27/11	<1.0	<1.0	<1.0	<3.0	<50	--	--	--	--	--	--
	05/25/11	<1.0	<1.0	<1.0	<3.0	<50	--	--	--	**2.5**	--	--
MW-9	08/24/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
	11/04/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	<3.3	<3.00	**2.4**	<1.00
	12/09/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
MW-10	08/24/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
	11/04/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	<3.3	<3.00	<1.1	<1.00
	12/09/09	<1.00	<1.00	<1.00	<1.00	<100	--	--	--	--	--	--
MP-6	05/20/10	<1.00	<1.00	<1.00	<3.00	**240**	--	--	--	**12**	--	--
MP-7	05/20/10	<1.00	<1.00	<1.00	<3.00	<50.0	--	--	--	4.4	--	--
MTCA Method A Cleanup Levels		5	700	1,000	1,000	800	0.500	0.500	5		15	

Notes:

[1] Approximate well locations shown in Figure 2.

[2] Analyzed by EPA Method 8021B.

[3] Analyzed by Northwest Method NWTPH-G or NWTPH-Gx.

[4] Analyzed by Northwest Method NWTPH-HCID, NWTPH-D extended or NWTPH-Dx.

[5] Analyzed by EPA 6000 and 7000 series methods. September 4, 2008 - Testing included the 13 priority pollutant metals; the 12 other metals listed in the laboratory reports were either not detected or not detected at concentrations greater than MTCA Method A cleanup levels.

[6] Sample also analyzed for methyl tert-butyl ether (MTBE). MTBE results = <3.0 µg/L.

[7] Analyzed by EPA Method 200.8.

MTCA = Model Toxics Control Act

µg/L = micrograms per liter; mg/L = milligrams per liter.

-- = Not Analyzed

Shading indicates a concentration exceeding the MTCA cleanup level.

Chemical analyses for September 2008 were conducted by TestAmerica of Bothell, Washington, and for November 2009 were conducted by OnSite Environmental Laboratory, Inc. of Redmond, Washington.

sharepoint\7408-002-07\Table 1 Groundwater Data.xlsx

Table 2

Summary of Air Sparging Monitoring Point Results

Snelson Companies

Sedro-Woolley, Washington

Location	Date	Depth of Measurement (Feet)	Dissolved Oxygen (mg/L)	Temperature (°C)	Depth to Water (Feet)	Bubbles Observed (Y/N)	VOCs (ppm)	CO2 (% Volume)	O2 (% Volume)
MP-1	11/05/09	14.11	0.0	15.3	2.02	No	<1.00	0.12	19.8
	11/13/09	14.11	0.0	14.4	1.65	Yes	<1.00	0.02	20.9
	11/19/09	14.50	0.0	13.3	1.61	Yes	20.0	0.08	20.9
	11/25/09	14.50	0.21	12.4	1.1	Yes	30.0	>0.55	20.9
	12/02/09	14.50	1.32	12.2	0.96	Yes	62.0	>0.55	20.9
	07/01/10	--	--	--	--	Yes	--	2.00	20.2
	07/29/10	--	0.40	--	3.73	--	--	--	--
	09/07/10	--	--	--	--	Yes		0.0	20.4
	10/19/10	--	0.73	--	3.99	--	10.00	--	--
	01/27/11	--	1.87	--	1.27	--	<1.00	--	--
	05/25/11	--	0.94	--	1.70	--	<1.00	--	--
MP-2	11/05/09	14.36	0.0	15.0	2.41	No	<1.00	0.06	20.9
	11/13/09	14.36	0.0	14	1.61	Yes	<1.00	0.04	20.8
	11/19/09	14.70	0.0	11.1	1.44	Yes	2.0	0.22	20.0
	11/25/09	14.70	0.15	11.8	1.19	Yes	2.0	>0.55	20.9
	12/02/09	14.70	0.75	11.3	1.06	Yes	4.0	>0.55	20.9
	07/01/10	--	--	--	--	Yes	--	0.0	20.5
	07/29/10	--	0.43	--	3.74	--	--	--	--
	09/07/10	--	--	--	--	Yes	--	0.0	19.9
	10/19/10	--	0.73	--	4.22	--	10.00	--	--
	01/27/11	--	1.72	--	1.36	--	<1.00	--	--
	05/25/11	--	3.61	--	1.97	--	<1.00	--	--
MP-3	11/05/09	14.42	0.0	14.8	2.35	No	<1.00	0.24	20.1
	11/13/09	14.42	0.0	13.6	2.11	Yes	<1.00	0.02	20.9
	11/19/09	14.50	0.0	12.7	1.41	Yes	11.0	>0.55	19.8
	11/25/09	14.50	0.30	12.3	1.27	Yes	18.0	>0.55	20.9
	12/02/09	14.50	1.60	13.7	1.11	Yes	12.0	>0.55	20.9
	07/01/10	--	--	--	--	Yes	--	0.0	20.0
	07/29/10	--	0.31	--	4.03	--	--	--	--
	09/07/10	--	--	--	--	Yes	--	0.0	20.2
	10/19/10	--	0.67	--	4.32	--	11.00	--	--
	01/27/11	--	3.08	--	1.45	--	<1.00	--	--
	05/25/11	--	3.65	--	1.99	--	<1.00	--	--
MP-4	11/05/09	14.45	0.0	14.9	2.62	No	<1.00	0.02	20.9
	11/13/09	14.45	0.0	14.3	2.2	Yes	<1.00	0.06	20.9
	11/19/09	14.80	0.0	13.2	1.59	Yes	<1.00	0.48	20.1
	11/25/09	14.80	0.25	13.2	1.41	Yes	<1.00	>0.55	20.9
	12/02/09	14.80	0.82	13.5	1.49	Yes	<1.00	>0.55	20.9
	07/01/10	--	--	--	--	Yes	--	0.0	20.7
	07/29/10	--	0.70	--	4.00	--	--	--	--
	09/07/10	--	--	--	--	Yes	--	5.0	20.9
	10/19/10	--	1.19	--	4.45	--	<1.00	--	--
	01/27/11	--	3.68	--	1.71	--	<1.00	--	--
	05/25/11	--	5.98	--	2.14	--	<1.00	--	--
MP-5	11/05/09	14.65	0.0	14.7	2.72	No	<1.00	0.02	20.9
	11/13/09	14.65	0.0	13.8	2.42	Yes	<1.00	0.04	20.7
	11/19/09	14.60	0.0	12.3	1.71	Yes	<1.00	0.12	20.2
	11/25/09	14.60	0.11	12.6	1.47	Yes	<1.00	0.04	20.9
	12/02/09	14.60	0.54	13.3	1.42	Yes	<1.00	0.34	20.9
	07/01/10	--	--	--	--	Yes	--	4.0	19.8
	07/29/10	--	0.23	--	4.21	--	--	--	--
	09/07/10	--	--	--	--	Yes	--	5.0	20.7
	10/19/10	--	0.66	--	4.70	--	<1.00	--	--
	01/27/11	--	4.90	--	2.00	--	<1.00	--	--
	05/25/11	--	0.93	--	2.36	--	<1.00	--	--
MP-6	11/05/09	13.20	0.0	14.6	3.12	No	<1.00	0.02	20.9
	11/13/09	13.20	0.0	13.4	2.91	Yes	<1.00	0.02	20.9
	11/19/09	14.70	0.0	13.1	2.21	Yes	<1.00	0.1	20.7
	11/25/09	14.70	0.32	12.7	2.11	Yes	2.0	0.16	20.9
	12/02/09	14.70	1.21	13	1.95	Yes	3.0	0.5	20.9
	07/01/10	--	--	--	--	Yes	--	6.0	18.2
	07/29/10	--	0.21	--	3.35	--	--	--	--
	09/07/10	--	--	--	--	Yes	--	0.0	19.8
	10/19/10	--	0.47	--	3.98	--	25	--	--
	01/27/11	--	2.80	--	1.36	--	<1.00	--	--
	05/25/11	--	2.05	--	1.70	--	<1.00	--	--

Location	Date	Depth of Measurement (Feet)	Dissolved Oxygen (mg/L)	Temperature (°C)	Depth to Water (Feet)	Bubbles Observed (Y/N)	VOCs (ppm)	CO2 (% Volume)	O2 (% Volume)
MP-7	07/01/10	--	--	--	--	Slight	--	--	--
	07/29/10	--	0.36	--	7.30	--	--	--	--
	09/07/10	--	--	--	--	No	--	--	--
	10/19/10	--	0.71	--	7.61	--	<1.00	--	--
	01/27/11	--	1.40	--	4.71	--	<1.00	--	--
	05/25/11	--	1.88	--	5.19	--	<1.00	--	--
MW-7	07/01/10	--	--	--	--	Yes	--	2.0	14.1
	07/29/10	--	0.22	16.4	3.91	--	<1.00	--	--
	09/07/10	--	--	--	--	Yes	--	3.0	17.2
	10/19/10	--	0.48	--	4.05	--	<1.00	--	--
	01/27/11	--	1.43	--	1.13	--	<1.00	--	--
	05/25/11	--	2.68	--	1.77	--	<1.00	--	--
MW-8	07/01/10	--	--	--	--	Yes	--	--	20.0
	07/29/10	--	0.21	15.1	4.27	--	<1.00	--	--
	09/07/10	--	--	--	--	Yes	--	0.0	20.1
	10/19/10	--	0.42	--	5.14	--	<1.00	--	--
	01/27/11	--	1.18	--	2.52	--	<1.00	--	--
	05/25/11	--	3.80	--	2.89	--	<1.00	--	--
Catch basin	11/05/09	--	--	--	--	--	<1.00	0.0	20.9
	11/13/09	--	--	--	--	--	<1.00	0.0	20.9
	11/19/09	--	--	--	--	--		0.02	20.9
	11/25/09	--	--	--	--	--	<1.00	0.0	20.9
	12/02/09	--	--	--	--	--	<1.00	0.00	20.9
	07/01/10	--	--	--	--	--	--	--	20.9
	09/07/10	--	--	--	--	--	--	--	20.9
	10/19/10	--	--	--	--	--	<1.00	--	--
	01/27/11	--	--	--	--	--	<1.00	--	--
	05/25/11	--	--	--	--	--	<1.00	--	--
Ambient air	11/05/09	--	--	--	--	--	<1.00	0.00	20.9
	11/13/09	--	--	--	--	--	<1.00	0.00	20.9
	11/19/09	--	--	--	--	--		0.02	20.9
	11/25/09	--	--	--	--	--	<1.00	0.00	20.9
	12/02/09	--	--	--	--	--	<1.00	0.00	20.9
	07/01/10	--	--	--	--	--	--	--	20.9
	07/29/10	--	--	--	--	--	<1.00	--	--
	09/07/10	--	--	--	--	--	--	--	20.9
	10/19/10	--	--	--	--	--	<1.00	--	--
	01/27/11	--	--	--	--	--	<1.00	--	--
	05/25/11	--	--	--	--	--	<1.00	--	--
Warehouse/storage building (indoor air)	11/05/09	--	--	--	--	--	<1.00	0.00	20.90
	11/13/09	--	--	--	--	--	<1.00	0.01	20.90
	11/19/09	--	--	--	--	--		0.03	20.90
	11/25/09	--	--	--	--	--	<1.00	0.00	20.90
	12/02/09	--	--	--	--	--	<1.00	0.00	20.90
	07/01/10	--	--	--	--	--	--	--	20.90
	07/29/10	--	--	--	--	--	<1.00	--	--
	09/07/10	--	--	--	--	--	--	--	20.90
	10/19/10	--	--	--	--	--	<1.00	--	--
	01/27/11	--	--	--	--	--	<1.00	--	--
	05/25/11	--	--	--	--	--	<1.00	--	--

Notes:

mg/L = milligrams per liter

C = degrees Celsius

Y/N = yes/no; visual observation if air bubbles were present

VOCs = volatile organic compounds

CO2 = carbon dioxide

O2 = oxygen

"--" = Not Analyzed or Not Measured

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FIGURES

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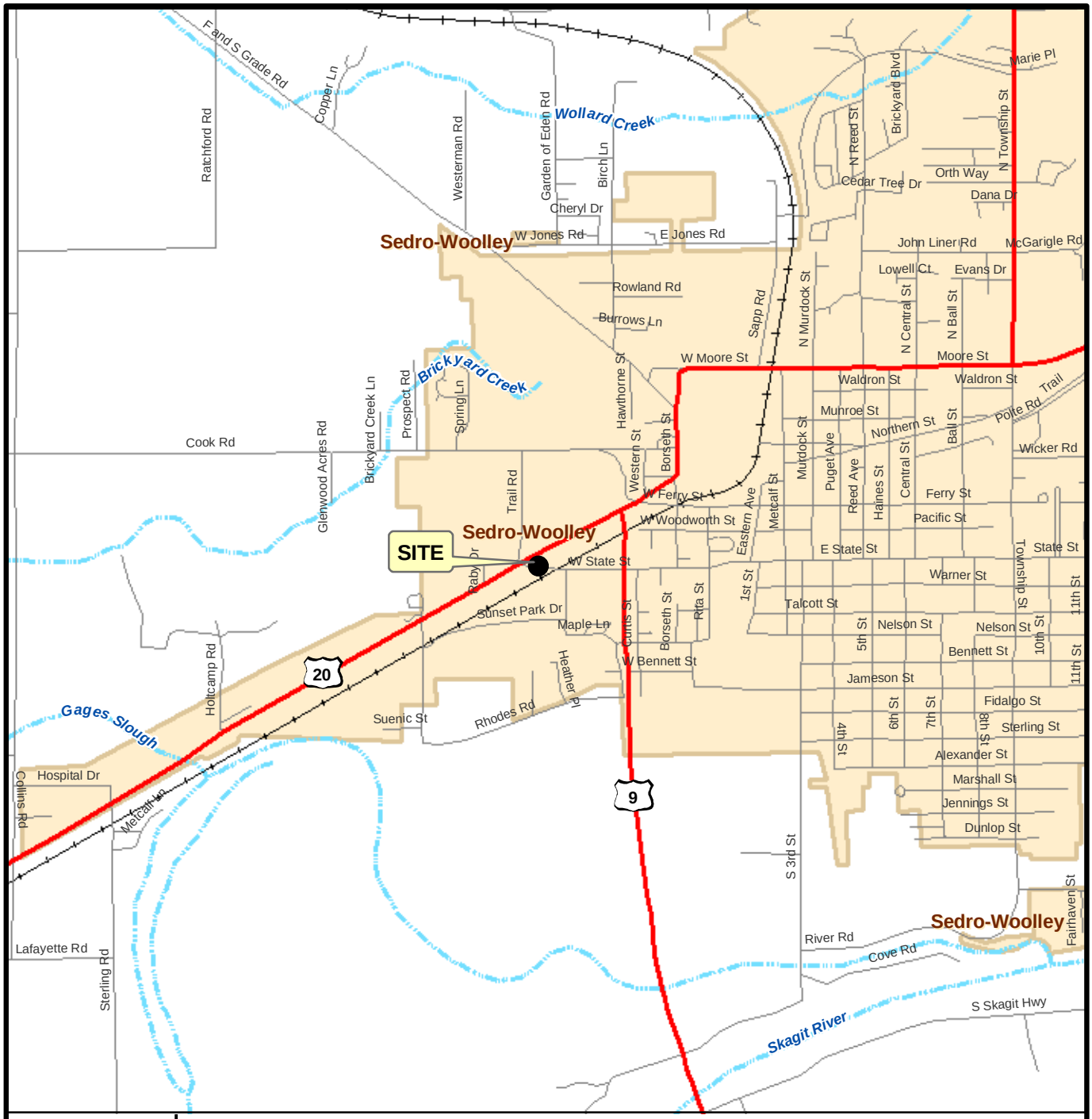
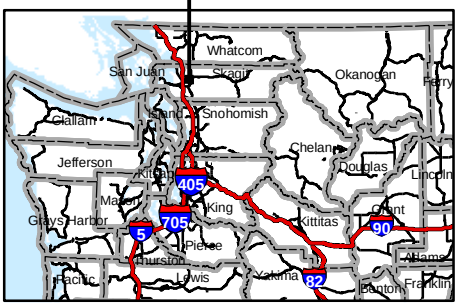




Lambert Conformal Conic
Washington State Plane North
North American Datum 1983

Data Sources: Interstates, state routes, and roads from TIGER 2000.
County boundaries, cities, and waterbodies from Department of Ecology.

Note: This drawing is for informational purposes.
It is intended to assist in showing features discussed in an attached document.

All locations are approximate.

0 1,000 2,000 Feet

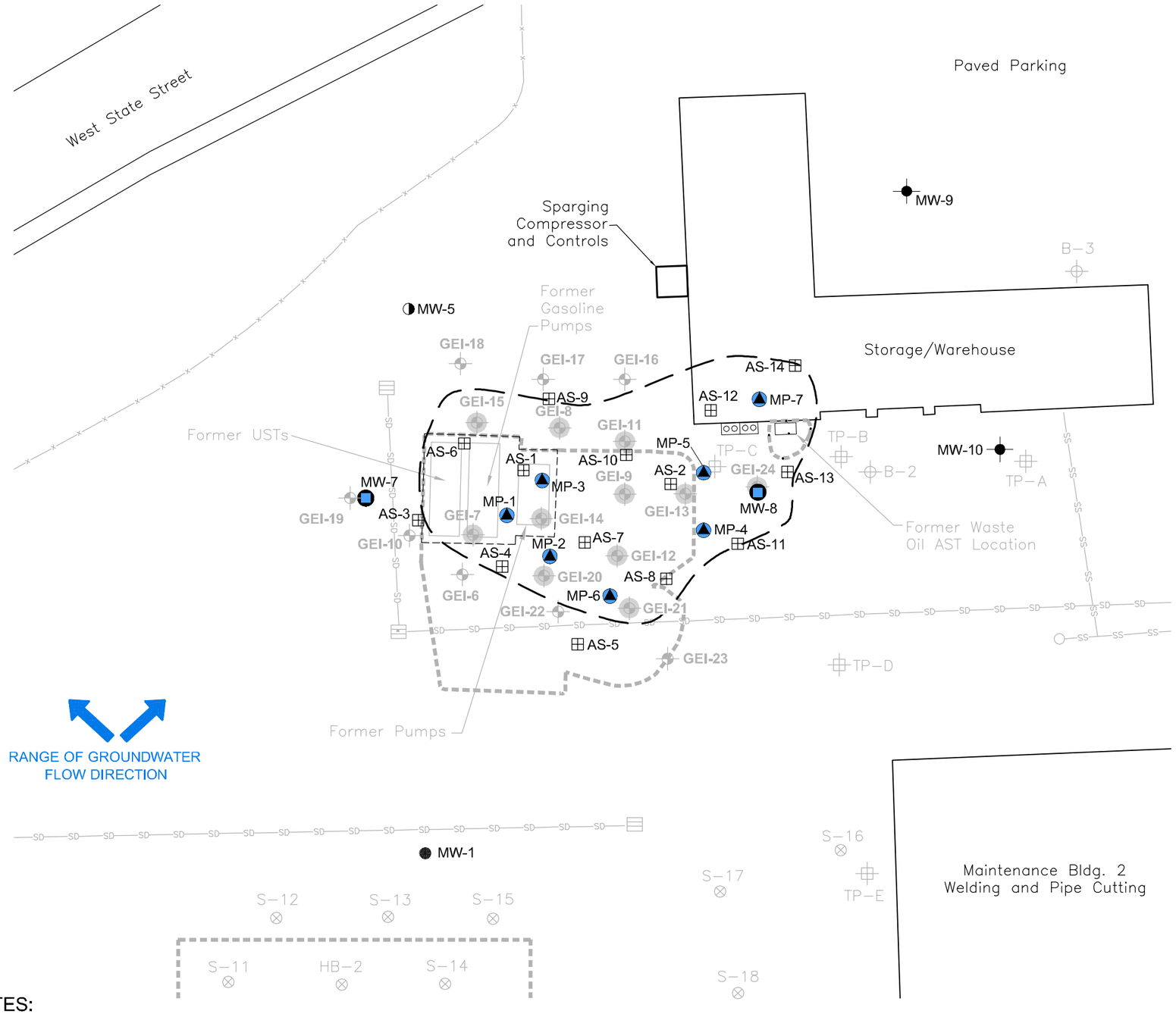
VICINITY MAP

Snelson Companies, Inc.
601 W State Street
Sedro Woolley, WA

GeoEngineers

FIGURE 1

Office: REDM Path: P:\7\7408002\04\CAD\7408002O4_F1.mxd MM2 Map Revised: May 09, 2008



LEGEND:

- Catch Basin
- Manhole
- AST — Aboveground Storage Tank
- UST — Underground Storage Tank
- Storm Drain Line
- Sanitary Sewer Line
- GEI-1 — Boring Completed in 2008
- TP-A — Test Pit Completed in February 1999
- HB-1 S-21 — Near Surface Sample Obtained in February 1999 or May 1999
- B-1 — Boring Completed in June 1999
- MW-1 — Monitoring Well Installed June 1999
- MW-5 — Monitoring Well Installed February 2000
- MW-7 — Monitoring Well Installed August 2008
- MW-9 — Monitoring Well Installed August 2009
- 1999 & 2001 Excavation Limits
- As of 2009 (Pre-Remediation) Contaminant of Concern Detected Above MTCA Method A Screening Levels, or Field Screening Evidence of Contamination
- MP-1 — Performance Monitoring Points (Installed November 2009 and May 2010)
- AS-1 — Air Sparging Wells (Installed November 2009 and May 2010)
- Approximate Extent of Soil and Groundwater Contamination

N W E S

30 0 30
FEET

NOTES:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

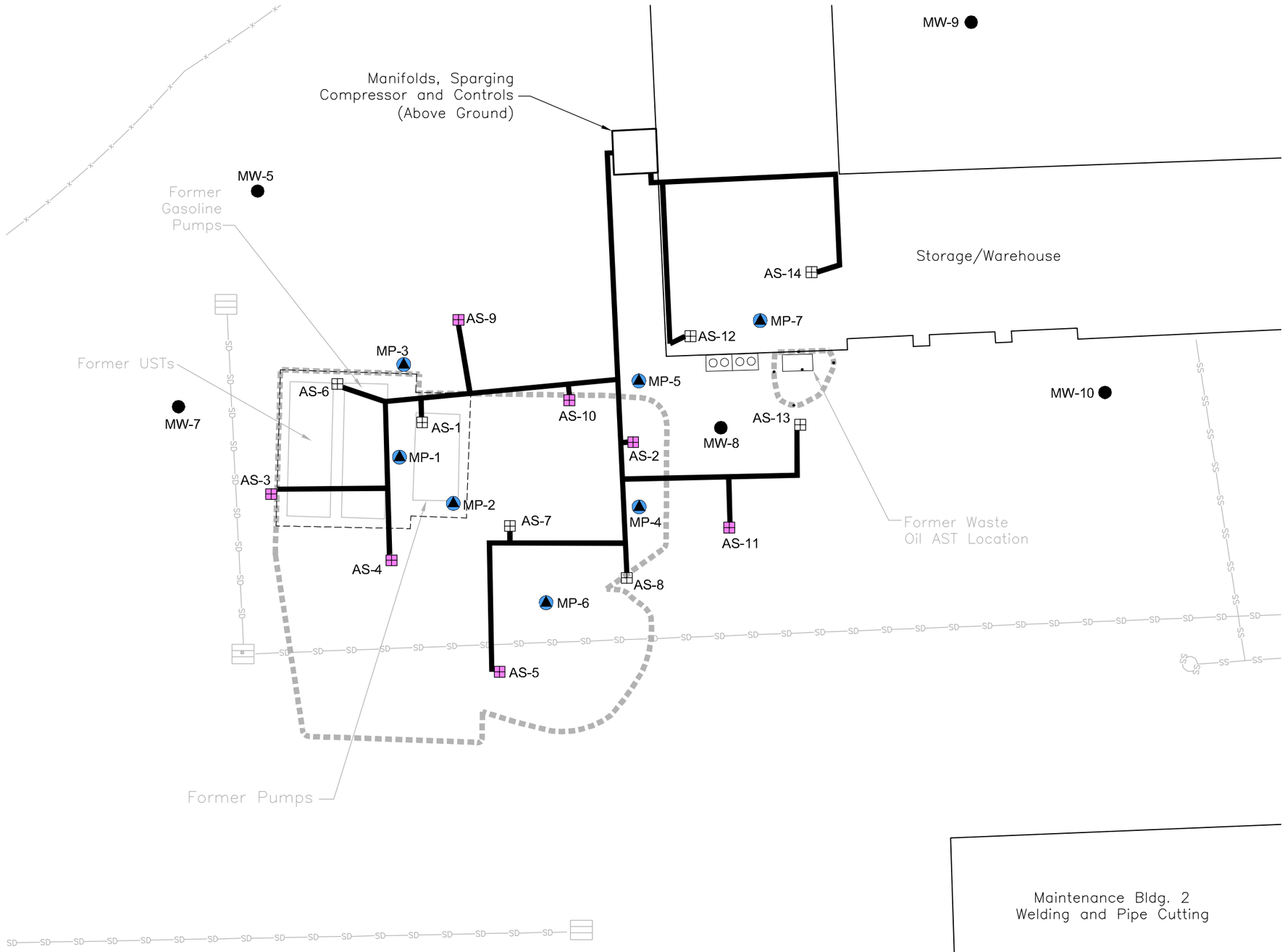
Reference: Undated site drawings provided by Seven Sisters. Revised for accuracy based on field measurements from May-June 2010.

Site Plan with Boring & Monitoring Well Locations

Snelson Companies, Inc.
Sedro Woolley, Washington

GeoEngineers

Figure 2



LEGEND:

- Catch Basin
- Manhole
- AST — Aboveground Storage Tank
- UST — Underground Storage Tank
- Storm Drain Line
- Sanitary Sewer Line
- MW-1 — Monitoring Well
- 1999 & 2001 Excavation Limits
- Air Sparge Piping Layout
- MP-1 — Performance Monitoring Point
- AS-3 — Air Sparging Well - Manifold 1
- AS-6 — Air Sparging Well - Manifold 2

N W E S

20 0 20
FEET

NOTES:

MW-1

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Undated site drawings provided by Seven Sisters. Revised for accuracy based on field measurements from May-June 2010.

Air Sparging Remediation System As-built

Snelson Companies, Inc.
Sedro Woolley, Washington

GeoEngineers

Figure 3

W:\Redmond\Projects\17\7408002\107\CAD\7408002O7 Fig 3.dwg\TAB:Fig 3 modified by tmichaud on Sep 29, 2010 - 12:26

APPENDICES

GeoEngineers

APPENDIX A
Field Procedures

APPENDIX A
FIELD PROCEDURES

Depth to Groundwater

The depths to the groundwater table relative to ground surface were measured using an electric water level indicator. The electric indicator was cleaned with a Liqui-Nox® solution wash and a distilled water rinse prior to use in each well.

Groundwater Sampling

Groundwater samples were obtained with a peristaltic pump, new plastic tubing, a flow-through cell and water parameter analyzer. Each well was purged until monitored field parameters such as dissolved oxygen, temperature and conductivity stabilized over time, indicating that groundwater from outside of the well casing was flowing into the well. The water samples were transferred in the field to laboratory-prepared sample containers and kept cool during transport to the testing laboratory. The sample containers were filled completely to eliminate headspace in the container. Chain-of-custody procedures were followed in transporting the water samples to the testing laboratory.

Performance Monitoring

In addition, dissolved oxygen was measured using low flow sampling methods, as described for groundwater sampling, above.

Periodic vapor measurements were obtained from ambient air within the adjacent warehouse building, the monitoring point well casings, and nearby by storm drain catch basins using a PID.

APPENDIX B
Chemical Analytical Program and Chemical Analytical Data

APPENDIX B
CHEMICAL ANALYTICAL PROGRAM AND CHEMICAL ANALYTICAL DATA

Sample Handling

Chain-of-custody procedures were followed during the transport of the water samples to the testing laboratory. The samples were held in cold storage pending extraction and/or analysis. The analytical results, analytical methods reference and laboratory quality assurance/quality control (QA/QC) records are included in this attachment.

Analytical Data Review

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report.

There were no quality control exceptions noted by the laboratory (ALS Environmental or OnSite Environmental, Inc.) in their reports. Based on our review of the data quality, it is our opinion that the data are appropriate for their intended use in this report.

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

October 28, 2010

Paul Craig
GeoEngineers, Inc.
8410 154th Avenue NE
Redmond, WA 98052

Re: Analytical Data for Project 7408-002-07
Laboratory Reference No. 1010-175

Dear Paul:

Enclosed are the analytical results and associated quality control data for samples submitted on October 20, 2010.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: October 28, 2010
Samples Submitted: October 20, 2010
Laboratory Reference: 1010-175
Project: 7408-002-07

Case Narrative

Samples were collected on October 19, 2010 and received by the laboratory on October 20, 2010. They were maintained at the laboratory at a temperature of 2°C to 6°C.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: October 28, 2010
Samples Submitted: October 20, 2010
Laboratory Reference: 1010-175
Project: 7408-002-07

NWTPH-Gx/BTEX

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-7**					
Laboratory ID:	10-175-01					
Benzene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Toluene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
m,p-Xylene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
o-Xylene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Gasoline	**ND**	100	NWTPH-Gx	10-22-10	10-22-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***92***	***74-121***				
Client ID:	**MW-8**					
Laboratory ID:	10-175-02					
Benzene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Toluene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
m,p-Xylene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
o-Xylene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Gasoline	**ND**	100	NWTPH-Gx	10-22-10	10-22-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***91***	***74-121***				

Date of Report: October 28, 2010
Samples Submitted: October 20, 2010
Laboratory Reference: 1010-175
Project: 7408-002-07

DISSOLVED ARSENIC
EPA 6020

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	EPA Method	Date Prepared	Date Analyzed	Flags
Lab ID:	10-175-01					
Client ID:	**MW-7**					
Arsenic	**4.7**	3.0	6020		10-21-10	
Lab ID:	10-175-02					
Client ID:	**MW-8**					
Arsenic	**ND**	3.0	6020		10-21-10	

Date of Report: October 28, 2010
Samples Submitted: October 20, 2010
Laboratory Reference: 1010-175
Project: 7408-002-07

NWTPH-Gx/BTEX
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1022W4					
Benzene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Toluene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Ethyl Benzene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
m,p-Xylene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
o-Xylene	**ND**	1.0	EPA 8021	10-22-10	10-22-10	
Gasoline	**ND**	100	NWTPH-Gx	10-22-10	10-22-10	
Surrogate:	***Percent Recovery***	***Control Limits***				
Fluorobenzene	***88***	***74-121***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	10-177-05										
	ORIG	DUP									
Benzene	**1.20**	**1.21**	NA	NA		NA		NA	1	30	
Toluene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Ethyl Benzene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
m,p-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
o-Xylene	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						***93***	***93***	***74-121***			

MATRIX SPIKES											
Laboratory ID:	10-177-05										
	MS	MSD	MS	MSD		MS	MSD				
Benzene	**50.1**	**48.6**	50.0	50.0	1.20	**98**	**95**	78-118	3	8	
Toluene	**49.5**	**48.1**	50.0	50.0	ND	**99**	**96**	81-119	3	8	
Ethyl Benzene	**50.1**	**48.8**	50.0	50.0	ND	**100**	**98**	81-121	3	8	
m,p-Xylene	**50.4**	**48.6**	50.0	50.0	ND	**101**	**97**	79-123	4	8	
o-Xylene	**49.1**	**48.2**	50.0	50.0	ND	**98**	**96**	79-121	2	8	
Surrogate:											
Fluorobenzene						***96***	***97***	***74-121***			

Date of Report: October 28, 2010
Samples Submitted: October 20, 2010
Laboratory Reference: 1010-175
Project: 7408-002-07

DISSOLVED ARSENIC
EPA 6020
METHOD BLANK QUALITY CONTROL

Date Analyzed: 10-21-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: MB1021D1

Analyte	Method	Result	PQL
Arsenic	6020	**ND**	3.0

Date of Report: October 28, 2010
Samples Submitted: October 20, 2010
Laboratory Reference: 1010-175
Project: 7408-002-07

DISSOLVED ARSENIC
EPA 6020
DUPLICATE QUALITY CONTROL

Date Analyzed: 10-21-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 10-175-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**4.67**	**4.77**	2	3.0	

Date of Report: October 28, 2010
Samples Submitted: October 20, 2010
Laboratory Reference: 1010-175
Project: 7408-002-07

DISSOLVED ARSENIC
EPA 6020
MS/MSD QUALITY CONTROL

Date Analyzed: 10-21-10

Matrix: Water
Units: ug/L (ppb)

Lab ID: 10-175-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	200	**221**	108	**218**	107	1	

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

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

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

Y - Sample extract treated with an acid/silica gel cleanup procedure.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: GEOENGINEERS ~~SNELSON SEARO WOOLY~~
Project Number: 7408-002-07
Project Name: ~~GEOENGINEERS~~ S.NELSON - SEARO - WOOLY
Project Manager: PAUL CRAIG
Sampled by: BRIAN ANDERSON

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 10-175

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx	Volatiles 8260B	Halogenated Volatiles 8260B	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081A	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA / MTCA Metals (circle one)	TCLP Metals	HEM (oil and grease) 1664	DISSOLVED ARSENIC BY EPA 6020/200.8						% Moisture
1	MW-7	10-19-10	1118	W	5		X														X						
2	MW-8	10-19-10	1146	W	5		X														X						

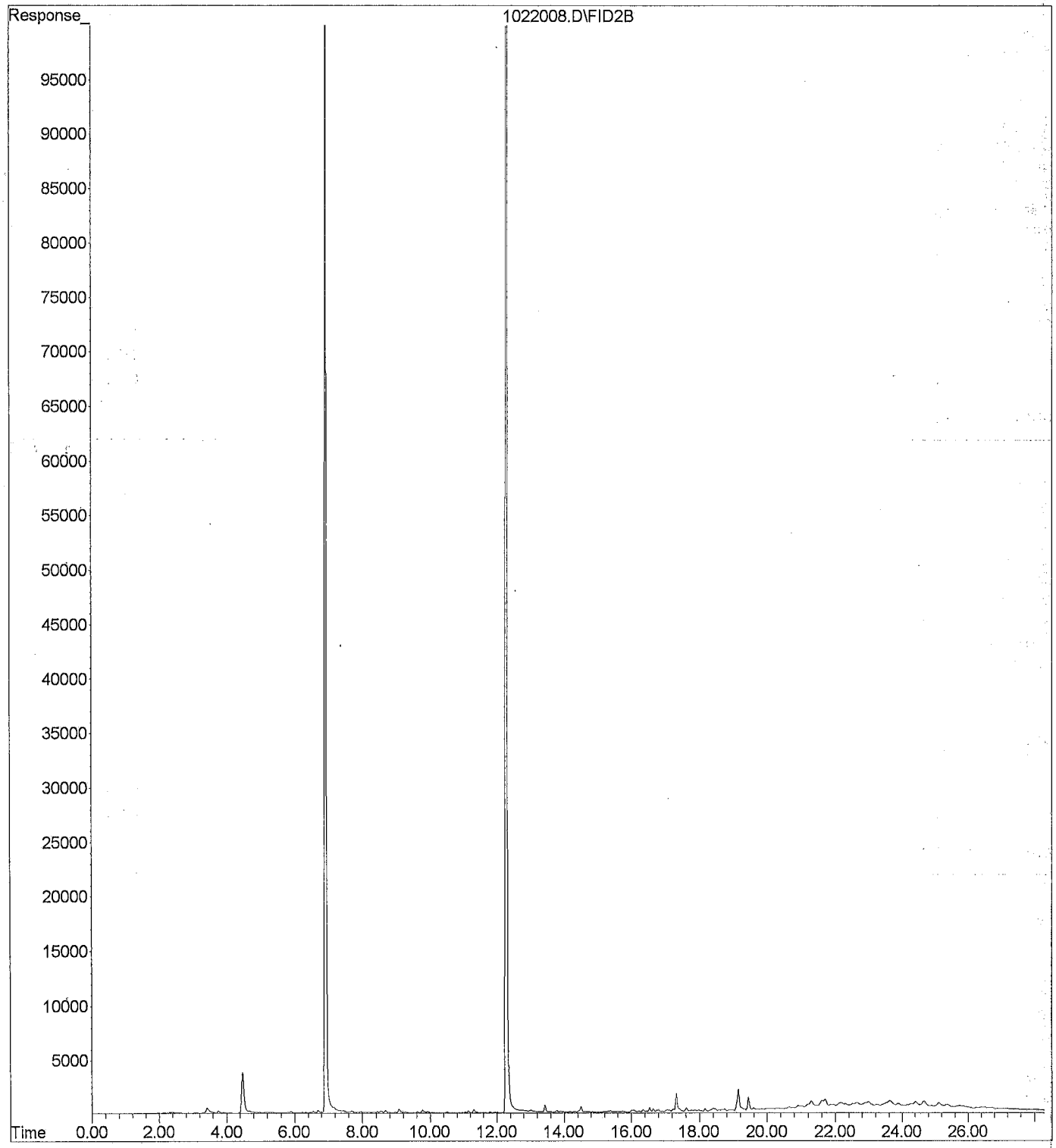
	Signature	Company	Date	Time
Relinquished	[signature]	GEOENGINEERS	10-20-2010	
Received	[signature]	OSE	10/20/10	1330
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
* METALS SAMPLES WERE FIELD FILTERED

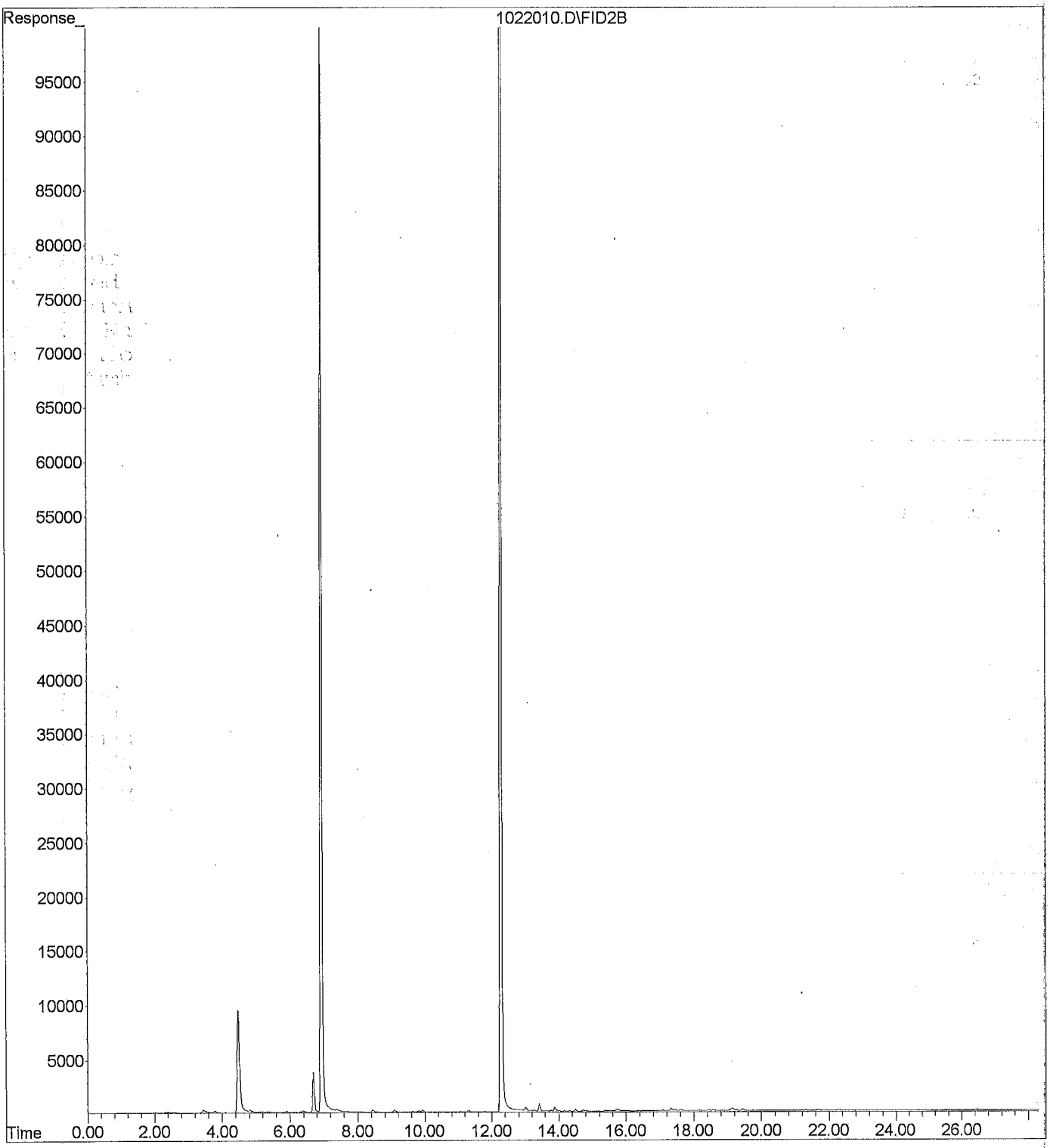
Chromatograms with final report ☐

Data Package: Level III ☐ Level IV ☐ Electronic Data Deliverables (EDDs) ☐ _____

File : X:\BTEX\DARYL\DATA\D101022\1022008.D
Operator :
Acquired : 22 Oct 2010 18:07 using AcqMethod 101014B.M
Instrument : Daryl
Sample Name: 10-175-01b
Misc Info : V2-23-04
Vial Number: 8



File : X:\BTEX\DARYL\DATA\D101022\1022010.D
Operator :
Acquired : 22 Oct 2010 19:16 using AcqMethod 101014B.M
Instrument : Daryl
Sample Name: 10-175-02b
Misc Info : V2-23-04
Vial Number: 10



ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Snelson Companies c/o Geoengineers, Inc. 8410 - 154th Ave NE Redmond, WA 98052	DATE: ALS JOB#: ALS SAMPLE#:	1/28/2011 1101127 -01
CLIENT CONTACT:	Paul Craig	DATE RECEIVED:	1/27/2011
CLIENT PROJECT:	Snelson, Sedro Woolley	COLLECTION DATE:	1/27/2011 10:56
CLIENT SAMPLE ID	MW-7	WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS RL	LIMITS MDL	LIMITS PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	ND	50	4.6	14	1	U	UG/L	01/27/2011	DLC
Benzene	SW8021	ND	1.0	0.12	1.0	1	U	UG/L	01/27/2011	DLC
Toluene	SW8021	ND	1.0	0.20	1.0	1	U	UG/L	01/27/2011	DLC
Ethylbenzene	SW8021	ND	1.0	0.10	1.0	1	U	UG/L	01/27/2011	DLC
Xylenes	SW8021	ND	3.0	0.91	3.0	1	U	UG/L	01/27/2011	DLC

SURROGATE	METHOD	RESULTS	LIMITS MIN	LIMITS MAX	RPD	SPIKE ADDED	QUAL	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	**93.0**	60	140		10.0		93.0	01/27/2011	DLC
TFT	SW8021	**97.3**	60	140		10.0		97.3	01/27/2011	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Snelson Companies c/o Geoengineers, Inc. 8410 - 154th Ave NE Redmond, WA 98052	DATE: ALS JOB#: ALS SAMPLE#:	1/28/2011 1101127 -02
CLIENT CONTACT:	Paul Craig	DATE RECEIVED:	1/27/2011
CLIENT PROJECT:	Snelson, Sedro Woolley	COLLECTION DATE:	1/27/2011 11:16
CLIENT SAMPLE ID	MW-8	WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS RL	LIMITS MDL	LIMITS PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	ND	50	4.6	14	1	U	UG/L	01/27/2011	DLC
Benzene	SW8021	ND	1.0	0.12	1.0	1	U	UG/L	01/27/2011	DLC
Toluene	SW8021	ND	1.0	0.20	1.0	1	U	UG/L	01/27/2011	DLC
Ethylbenzene	SW8021	ND	1.0	0.10	1.0	1	U	UG/L	01/27/2011	DLC
Xylenes	SW8021	ND	3.0	0.91	3.0	1	U	UG/L	01/27/2011	DLC

SURROGATE	METHOD	RESULTS	LIMITS MIN	LIMITS MAX	RPD	SPIKE ADDED	QUAL	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	**92.6**	60	140		10.0		92.6	01/27/2011	DLC
TFT	SW8021	**101**	60	140		10.0		101	01/27/2011	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

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ALS Laboratory Group A Campbell Brothers Limited Company

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CERTIFICATE OF ANALYSIS

CLIENT:	Snelson Companies c/o Geoengineers, Inc. 8410 - 154th Ave NE Redmond, WA 98052	DATE:	1/28/2011
		ALS JOB#:	1101127
		WDOE ACCREDITATION:	C601
CLIENT CONTACT:	Paul Craig		
CLIENT PROJECT:	Snelson, Sedro Woolley		

LABORATORY BLANK RESULTS

MBG-012511W

ANALYTE	METHOD	RESULTS	RL	LIMITS MDL	PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	ND	50	4.6	14	1	U	UG/L	01/25/2011	DLC

MB-012511W

ANALYTE	METHOD	RESULTS	RL	LIMITS MDL	PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
Benzene	EPA-8021	ND	1.0	0.12	0.35	1	U	UG/L	01/25/2011	DLC
Toluene	EPA-8021	ND	1.0	0.20	0.60	1	U	UG/L	01/25/2011	DLC
Ethylbenzene	EPA-8021	ND	1.0	0.10	0.32	1	U	UG/L	01/25/2011	DLC
Xylenes	EPA-8021	ND	3.0	0.91	2.7	1	U	UG/L	01/25/2011	DLC

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ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT: Snelson Companies c/o
Geoengineers, Inc.
8410 - 154th Ave NE
Redmond, WA 98052

CLIENT CONTACT: Paul Craig
CLIENT PROJECT: Snelson, Sedro Woolley

DATE: 1/28/2011
ALS JOB#: 1101127
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 1382 - Water by NWTPH-GX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	SPIKE ADDED	LIMITS MIN	LIMITS MAX	RPD	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range - BS	NWTPH-GX	**86.8**			500	59	114		01/25/2011	DLC
TPH-Volatile Range - BSD	NWTPH-GX	**90.3**	**3**		500	59	114	13	01/25/2011	DLC

ALS Test Batch ID: 1382 - Water by EPA-8021

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	SPIKE ADDED	LIMITS MIN	LIMITS MAX	RPD	ANALYSIS DATE	ANALYSIS BY
Benzene - BS	SW8021	**103**			20	83	120		01/25/2011	DLC
Benzene - BSD	SW8021	**104**	**0**		20	83	120	6.91	01/25/2011	DLC
Toluene - BS	SW8021	**101**			20	85	115		01/25/2011	DLC
Toluene - BSD	SW8021	**102**	**0**		20	85	115	10	01/25/2011	DLC
Ethylbenzene - BS	SW8021	**101**			20	85	113		01/25/2011	DLC
Ethylbenzene - BSD	SW8021	**101**	**0**		20	85	113	9.4	01/25/2011	DLC
Xylenes - BS	SW8021	**100**			60	85	116		01/25/2011	DLC
Xylenes - BSD	SW8021	**101**	**0**		60	85	116	10	01/25/2011	DLC

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
(206) 292-9059 Seattle
(425) 356-2626 Fax
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only) 110127

Date 1-27-10 Page 1 Of 1

PROJECT ID: SNELSON, SEDRO WOOLEY
REPORT TO COMPANY: GEOENGINEERS
PROJECT MANAGER: PAUL CRAIG
ADDRESS: GEOENGINEERS - REDMOND
PHONE: 425-861-6000 FAX: 425-861-6050
P.O. NUMBER: 7408-002-07 E-MAIL:

INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

LABORATORY COPY

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 EPA-8260	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM	PCB Pesticides by EPA 8081/8082	Metals-MTCA-5 RCRA-8 Pri Pol TAL	Metals Other (Specify)	TCLP-Metals VOA Semi-Vol Pest Herbs	OTHER (Specify)	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. MW-7	1-27-11	1056	W	1			X	X													2	
2. MW-8	1-27-11	1116	W	2			X	X													2	
3.																						
4.																						
5.																						
6.																						
7.																						
8.																						
9.																						
10.																						

SPECIAL INSTRUCTIONS

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: Brian Anderson, GEI, 1-27-11
   Received By: Shawn Rokuan ALS 1/28/11 1:20
2. Relinquished By:
   Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis
10 Standard 5 3 2 1 SAME DAY

Fuels & Hydrocarbon Analysis
5 Standard 3 1 SAME DAY

OTHER:
Specify:

* Turnaround request less than standard may incur Rush Charges

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Snelson Companies c/o Geoengineers, Inc. 8410 - 154th Ave NE Redmond, WA 98052	DATE: ALS JOB#: ALS SAMPLE#:	6/2/2011 1105136 -01
CLIENT CONTACT:	Paul Craig	DATE RECEIVED:	05/26/11
CLIENT PROJECT:	Snelson, Sedro Woolley	COLLECTION DATE:	5/25/2011
CLIENT SAMPLE ID	MW-7	WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	LIMITS RL	LIMITS MDL	PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	ND	50	4.6	14	1	U	UG/L	05/28/11	DLC
Benzene	EPA-8021	ND	1.0	0.12	1.0	1	U	UG/L	05/28/11	DLC
Toluene	EPA-8021	ND	1.0	0.20	1.0	1	U	UG/L	05/28/11	DLC
Ethylbenzene	EPA-8021	ND	1.0	0.10	1.0	1	U	UG/L	05/28/11	DLC
Xylenes	EPA-8021	ND	3.0	0.91	3.0	1	U	UG/L	05/28/11	DLC
Arsenic (Dissolved)	EPA-6020	**3.5**	1.8	0.59	1.8	1		UG/L	05/30/11	RAL

SURROGATE	METHOD	RESULTS	LIMITS MIN	LIMITS MAX	RPD	SPIKE ADDED	QUAL	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	**76.2**	60	140		10.0		76.2	05/28/11	DLC
TFT	EPA-8021	**84.8**	60	140		10.0		84.8	05/28/11	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Snelson Companies c/o Geoengineers, Inc. 8410 - 154th Ave NE Redmond, WA 98052	DATE: ALS JOB#: ALS SAMPLE#:	6/2/2011 1105136 -02
CLIENT CONTACT:	Paul Craig	DATE RECEIVED:	05/26/11
CLIENT PROJECT:	Snelson, Sedro Woolley	COLLECTION DATE:	5/25/2011
CLIENT SAMPLE ID	MW-8	WDOE ACCREDITATION:	C601

DATA RESULTS

ANALYTE	METHOD	RESULTS	RL	LIMITS MDL	PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	ND	50	4.6	14	1	U	UG/L	05/28/11	DLC
Benzene	EPA-8021	ND	1.0	0.12	1.0	1	U	UG/L	05/28/11	DLC
Toluene	EPA-8021	ND	1.0	0.20	1.0	1	U	UG/L	05/28/11	DLC
Ethylbenzene	EPA-8021	ND	1.0	0.10	1.0	1	U	UG/L	05/28/11	DLC
Xylenes	EPA-8021	ND	3.0	0.91	3.0	1	U	UG/L	05/28/11	DLC
Arsenic (Dissolved)	EPA-6020	**2.5**	1.8	0.59	1.8	1		UG/L	05/30/11	RAL

SURROGATE	METHOD	RESULTS	LIMITS MIN	LIMITS MAX	RPD	SPIKE ADDED	QUAL	%REC	ANALYSIS DATE	ANALYSIS BY
TFT	NWTPH-GX	**74.9**	60	140		10.0		74.9	05/28/11	DLC
TFT	EPA-8021	**91.7**	60	140		10.0		91.7	05/28/11	DLC

U - Analyte analyzed for but not detected at level above reporting limit.

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT:	Snelson Companies c/o Geoengineers, Inc. 8410 - 154th Ave NE Redmond, WA 98052	DATE: ALS SDG#: WDOE ACCREDITATION:	6/2/2011 1105136 C601
CLIENT CONTACT:	Paul Craig		
CLIENT PROJECT:	Snelson, Sedro Woolley		

LABORATORY BLANK RESULTS

MBG-052611W - Batch 1808 - Water by NWTPH-GX

ANALYTE	METHOD	RESULTS	RL	LIMITS MDL	PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range	NWTPH-GX	ND	50	4.6	14	1	U	UG/L	05/26/11	DLC

MB-052611W - Batch 1808 - Water by EPA-8021

ANALYTE	METHOD	RESULTS	RL	LIMITS MDL	PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
Benzene	EPA-8021	ND	1.0	0.12	1.0	1	U	UG/L	05/26/11	DLC
Toluene	EPA-8021	ND	1.0	0.20	1.0	1	U	UG/L	05/26/11	DLC
Ethylbenzene	EPA-8021	ND	1.0	0.10	1.0	1	U	UG/L	05/26/11	DLC
Xylenes	EPA-8021	ND	3.0	0.91	3.0	1	U	UG/L	05/26/11	DLC

MB-053011W - Batch 1804 - Water by EPA-6020

ANALYTE	METHOD	RESULTS	RL	LIMITS MDL	PQL	DILUTION FACTOR	QUAL	UNITS	ANALYSIS DATE	ANALYSIS BY
Arsenic (Dissolved)	EPA-6020	ND	1.8	0.59	1.8	1	U	UG/L	05/30/11	RAL

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental

CERTIFICATE OF ANALYSIS

CLIENT: Snelson Companies c/o
Geoengineers, Inc.
8410 - 154th Ave NE
Redmond, WA 98052

CLIENT CONTACT: Paul Craig
CLIENT PROJECT: Snelson, Sedro Woolley

DATE: 6/2/2011
ALS SDG#: 1105136
WDOE ACCREDITATION: C601

LABORATORY CONTROL SAMPLE RESULTS

ALS Test Batch ID: 1808 - Water by NWTPH-GX

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	SPIKE ADDED	LIMITS MIN	LIMITS MAX	RPD	ANALYSIS DATE	ANALYSIS BY
TPH-Volatile Range - BS	NWTPH-GX	**89.9**			500	59	114		05/26/11	DLC
TPH-Volatile Range - BSD	NWTPH-GX	**103**	**14**		500	59	114	13	05/26/11	DLC

ALS Test Batch ID: 1808 - Water by EPA-8021

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	SPIKE ADDED	LIMITS MIN	LIMITS MAX	RPD	ANALYSIS DATE	ANALYSIS BY
Benzene - BS	EPA-8021	**96.8**			20	83	120		05/26/11	DLC
Benzene - BSD	EPA-8021	**101**	**4**		20	83	120	6.91	05/26/11	DLC
Toluene - BS	EPA-8021	**92.6**			20	85	115		05/26/11	DLC
Toluene - BSD	EPA-8021	**96.9**	**5**		20	85	115	10	05/26/11	DLC
Ethylbenzene - BS	EPA-8021	**90.1**			20	85	113		05/26/11	DLC
Ethylbenzene - BSD	EPA-8021	**93.9**	**4**		20	85	113	9.4	05/26/11	DLC
Xylenes - BS	EPA-8021	**91.0**			60	85	116		05/26/11	DLC
Xylenes - BSD	EPA-8021	**94.9**	**4**		60	85	116	10	05/26/11	DLC

ALS Test Batch ID: 1804 - Water by EPA-6020

SPIKED COMPOUND	METHOD	%REC	RPD	QUAL	SPIKE ADDED	LIMITS MIN	LIMITS MAX	RPD	ANALYSIS DATE	ANALYSIS BY
Arsenic (Dissolved) - BS	EPA-6020	**100**			100	89.1	110		05/30/11	RAL
Arsenic (Dissolved) - BSD	EPA-6020	**102**	**2**		100	89.1	110	3.36	05/30/11	RAL

APPROVED BY

Laboratory Director

ADDRESS 8620 Holly Drive, Suite 100, Everett, WA 98208 | PHONE 425-356-2600 | FAX 425-356-2626
ALS Laboratory Group A Campbell Brothers Limited Company

ALS Environmental
8620 Holly Drive, Suite 100
Everett, WA 98208
Phone (425) 356-2600
(206) 292-9059 Seattle
(425) 356-2626 Fax
http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)
1105136

Date 5-25-11 Page 1 Of 1

PROJECT ID: SWELSON, SEDRO WOOLEY
REPORT TO COMPANY: GEOENGINEERS
PROJECT MANAGER: PAUL CRAIG
ADDRESS: GEOENGINEERS - REDMOND
PHONE: 425-861-6000 FAX: 425-861-6050
P.O. NUMBER: 7408-00207 E-MAIL:
INVOICE TO COMPANY:
ATTENTION:
ADDRESS:

ANALYSIS REQUESTED | OTHER (Specify)

SAMPLE I.D.	DATE	TIME	TYPE	LAB#	NWTPH-HCID	NWTPH-DX	NWTPH-GX	BTEX by EPA-8021	MTBE by EPA-8021 ☐ EPA-8260	Halogenated Volatiles by EPA 8260	Volatile Organic Compounds by EPA 8260	EDB / EDC by EPA 8260 SIM (water)	EDB / EDC by EPA 8260 (soil)	Semivolatile Organic Compounds by EPA 8270	Polycyclic Aromatic Hydrocarbons (PAH) by EPA-8270 SIM	PCB ☐ Pesticides ☐ by EPA 8081/8082	Metals-MTCA-5 ☐ RCRA-8 ☐ Pri Pol ☐ TAL	Metals Other (Specify) DISSOLVED ARSENIC (6000)/7060	TCLP-Metals ☐ VOA ☐ Semi-Vol ☐ Pest ☐ Herbs ☐	NUMBER OF CONTAINERS	RECEIVED IN GOOD CONDITION?
1. MW-7	5-25-11		W	1			X	X										X			
2. MW-8	5-25-11		W	2			X	X										X			
3.																					
4.																					
5.																					
6.																					
7.																					
8.																					
9.																					
10.																					

LABORATORY COPY

SPECIAL INSTRUCTIONS ~~X~~ METALS SAMPLES WERE FIELD FILTERED.

SIGNATURES (Name, Company, Date, Time)

1. Relinquished By: Brian Carlson / GEOENGINEERS, 5-26-11
   Received By: Shawn Kobuna AU 5/26/11 10:00
2. Relinquished By:
   Received By:

TURNAROUND REQUESTED in Business Days*

Organic, Metals & Inorganic Analysis: (10) Standard | 5 | 3 | 2 | 1 | SAME DAY

Fuels & Hydrocarbon Analysis: (5) Standard | 3 | 1 | SAME DAY

OTHER: Specify:

* Turnaround request less than standard may incur Rush Charges

Have we delivered World Class Client Service?
Please let us know by visiting **www. geoengineers.com/feedback**.

GeoEngineers