



October 10, 2009

Denis and Mary Rogers  
2809 Lake Avenue  
Snohomish, WA 98290-1006

**Subject: Groundwater Monitoring Event, September 2009  
Smokey Point Chevron, 2804 – 172<sup>nd</sup> Street NE, Marysville, WA**

Dear Mr. and Ms. Rogers:

GeoScience Management, Inc. (GSM) has conducted a groundwater monitoring event at the above-referenced site. The work consisted of collecting groundwater samples from all 18 existing 2-inch diameter groundwater wells on the former service station site as well as the adjacent Madison Development property. This letter report presents the results of the sampling and analysis of the water samples obtained from those wells. The property owners have entered the site into the Voluntary Cleanup Program (VCP) in Ecology's Toxic Cleanup Program. Mr. Dale Meyer is the VCP manager at Ecology for this project.

### **Site Description**

The site is located at 2804 – 172nd Street NE, Marysville, WA, 98271 (Figure 1). GSM has conducted previous environmental investigations at the former service station and adjacent Madison Development property, resulting in the installation of 18 groundwater monitoring wells. The underground storage tanks are scheduled to be removed from the service station site on October 2009.

### **Sampling Existing Groundwater Monitoring Wells**

Groundwater from the 18 existing monitoring wells was sampled on September 27, 2009. Prior to sampling, water levels were measured in each of the wells. The samples were collected using low-flow sampling techniques. Water was purged with a small electric submersible pump at a rate of less than 0.5 liters/minute. Groundwater parameters (temperature, pH, specific conductance) were recorded during purging. When groundwater parameters stabilized (final parameter readings within 10% of the previous reading), the sample was collected. The pump and tubing were cleaned between each sampling event using a laboratory-grade soap and tap water rinse. Depths-to water measurements and relative groundwater elevations are presented in Table 1. Groundwater sampling parameters are contained on the Groundwater Data Sampling Sheets included in Appendix A.

**Relative Groundwater Elevations.** Table 1 presents the depth-to-water measurements obtained during sampling, the surveyed top of casing (TOC) relative elevations, and the calculated relative groundwater elevations for the monitoring wells. The relative groundwater elevations and inferred groundwater contours are presented on Figure 3. Data indicates that groundwater flow is generally to the south from the UST complex. The data used for this investigation was obtained in late September 2009, which corresponds to seasonal low water levels.

## **Laboratory Analytical Results**

The groundwater samples were transported under standard chain-of-custody to ESN Northwest Analytical Laboratories, Inc., in Bellevue, Washington for laboratory analysis. All 18 groundwater samples, plus two blind-labeled duplicate samples were also analyzed for TPH as gasoline by Method NWTPH-Gx and for benzene, toluene, ethylbenzene and xylenes (BTEX), by EPA Method 8021b. Analytical results are presented in Table 2, and shown on Figure 2.

The laboratory results indicated that groundwater samples were below the MTCA Method A cleanup levels in wells MW-101, MW-102, MW-105, MW-106, MW-110, MW-1112, MW-117 and MW-118. TPH-G and/or one or more BTEX compounds exceeded the Method A cleanup levels in groundwater from wells MW-103, MW-104, MW-107, MW-108, MW-109, MW-113, MW-114, MW-115, and MW-116. The Cleanup Level under Method A of the Model Toxics Control Act (MTCA) are listed at the bottom of Table 2 for reference. The laboratory results and chain-of-custody record are included as Attachment B

## **Summary and Discussion**

Eighteen existing groundwater monitoring wells were sampled on September 27, 2009, and submitted to ESN NW Analytical Laboratories for analysis for Gas/BTEX. Nine of the 18 groundwater samples had one or more fuel-related compounds at concentrations which exceed the MTCA Method A cleanup levels. The other 9 wells did not contain contaminants at or above the Method A cleanup levels. In general, contaminant concentrations are lower than the previous sampling event conducted in December 2008, with several exceptions: 1) Benzene concentration in well MW-115 rose from 120 ppb in December 2008 to 180 ppb in September 2009; 2) Gas and benzene concentrations in well MW-103 rose from 21,000 ppb and 1,400 ppb in December 2008, to 44,000 ppb and 1,600 ppb in December 2009.

## **Limitations**

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

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

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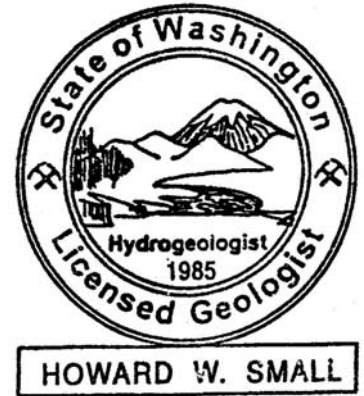
GSM appreciates the opportunity to provide you with consulting services. If you have any questions or require additional information, please call me at (360) 654-0677.

Sincerely,  
**GeoScience Management, Inc.**



Howard W. Small, L.H.G., C.P.G.  
Principal Geologist

- Attachments: Table 1 – Relative Groundwater Elevations  
Table 2 - Summary of Laboratory Analytical Results  
Figure 1 – Site Vicinity Map  
Figure 2 - Site Plan and Analytical Results  
Figure 3 – Groundwater Analytical Results Collected September 27, 2009  
Attachment A – Groundwater Sampling Data Sheets  
Attachment B - Laboratory Report by ESN Northwest, Inc.



# **TABLES**

## **Table 1 Relative Groundwater Elevations**

## **Table 2 Summary of Laboratory Analytical Results**

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**Table 1**  
**Relative Groundwater Elevations**  
**Smokey Point Chevron Station**  
**2804 - 172nd Street NE, Marysville, WA**

Sample ID	Collection Date	TOC Elevation (Feet)	Measured Depth to Groundwater (Feet)	Relative Groundwater Elevation (Feet)	Change since last Measurement (+) or (-) (Feet)
<b>Monitoring Wells</b>					
MW-101	9/27/2006	99.86	6.86	93.00	N/A
	12/6/2008	99.86	4.56	95.30	2.30
	9/27/2009	99.86	6.45	93.41	-1.89
MW-102	9/27/2006	99.28	6.47	92.81	N/A
	12/6/2008	99.28	3.93	95.35	2.54
	9/27/2009	99.28	5.85	93.43	-1.92
MW-103	9/27/2006	99.40	6.41	92.99	N/A
	12/6/2008	99.40	4.12	95.28	2.29
	9/27/2009	99.40	6.07	93.33	-1.95
MW-104	9/27/2006	99.57	6.57	93.00	N/A
	12/6/2008	99.57	4.28	95.29	2.29
	9/27/2009	99.57	6.19	93.38	-1.91
MW-105	9/27/2006	99.33	6.39	92.94	N/A
	12/6/2008	99.33	4.09	95.24	2.30
	9/27/2009	99.33	5.97	93.36	-1.88
MW-106	9/27/2006	98.87	5.97	92.90	N/A
	12/6/2008	98.87	4.39	94.48	1.58
	9/27/2009	98.87	5.10	93.77	-0.71
MW-107	9/27/2006	99.33	6.41	92.92	N/A
	12/6/2008	99.33	4.15	95.18	2.26
	9/27/2009	99.33	6.04	93.29	-1.89
MW-108	9/27/2006	99.29	6.37	92.92	N/A
	12/6/2008	99.29	4.11	95.18	2.26
	9/27/2009	99.29	6.00	93.29	-1.89
MW-109	9/27/2006	99.40	6.47	92.93	N/A
	12/6/2008	99.40	4.22	95.18	2.25
	9/27/2009	99.40	6.09	93.31	-1.87
MW-110	9/27/2006	99.20	6.23	92.97	N/A
	12/6/2008	99.20	4.00	95.20	2.23
	9/27/2009	99.20	5.87	93.33	-1.87
MW-111	9/27/2006	100.78	7.69	93.09	N/A
	12/6/2008	100.78	5.46	95.32	2.23
	9/27/2009	100.78	7.29	93.49	-1.83
MW-112	12/6/2008	99.5	4.21	95.29	N/A
	9/27/2009	99.5	6.11	93.39	-1.90
MW-113	12/6/2008	100.03	4.86	95.17	N/A
	9/27/2009	100.03	6.73	93.30	-1.87
MW-114	12/6/2008	99.62	4.71	94.91	N/A
	9/27/2009	99.62	6.55	93.07	-1.84
MW-115	12/6/2008	99.9	4.93	94.97	N/A
	9/27/2009	99.9	6.49	93.41	-1.56
MW-116	12/6/2008	100.17	5.30	94.87	N/A
	9/27/2009	100.17	7.17	93.00	-1.87
MW-117	12/6/2008	100.65	5.59	95.06	N/A
	9/27/2009	100.65	7.45	93.20	-1.86
MW-118	12/6/2008	100.20	4.91	95.29	N/A
	9/27/2009	100.20	6.78	93.42	-1.87
Notes: - Elevations surveyed by professional land surveyor, base point assumed 10.091 feet vertical elevation at top of northwest bolt on concrete base for yard light located east of pump islands.					

**Table 2**  
**Summary of Laboratory Results of Groundwater Analysis**  
**Smokey Point Chevron Site**  
**Marysville, WA**

Sample ID	Sample Date	TPH-G (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
<b>Monitoring Wells on Smokey Point Chevron Property</b>						
MW-101	9/27/2006	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
	12/6/2008	450	<b>7.1</b>	48	7.0	45
	9/27/2009	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
MW-102	9/27/2006	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
	12/6/2008	<b>990</b>	<b>17</b>	99	12	86
	9/27/2009	ND(<100)	1.3	1.7	ND(<1.0)	ND(<3.0)
MW-103	9/27/2006	<b>13,000</b>	<b>450</b>	<b>2,100</b>	330	<b>2,200</b>
	12/6/2008	<b>21,000</b>	<b>1,400</b>	<b>2,500</b>	<b>1,300</b>	<b>1,000</b>
	9/27/2009	<b>44,000</b>	<b>1,600</b>	<b>9,700</b>	<b>1,500</b>	<b>9,800</b>
MW-104	9/27/2006	<b>5,000</b>	<b>61</b>	<b>700</b>	120	830
	12/6/2008	<b>33,000</b>	<b>300</b>	<b>3,400</b>	490	<b>3,600</b>
	9/27/2009	<b>20,000</b>	<b>250</b>	<b>4,200</b>	770	<b>4,700</b>
MW-105	9/27/2006	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
	12/6/2008	630	<b>7.7</b>	55	9.0	61
	9/27/2009	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
MW-106 MW-106 dup	9/27/2006	360	ND(<1.0)	ND(<1.0)	52	6
	9/27/2006	360	ND(<1.0)	3.0	14	51
	12/6/2008	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
MW-107	9/27/2006	<b>8,300</b>	<b>170</b>	<b>930</b>	240	<b>1,200</b>
	12/6/2008	<b>37,000</b>	<b>950</b>	<b>3,800</b>	550	<b>3,400</b>
	9/27/2009	<b>16,000</b>	<b>500</b>	<b>4,900</b>	720	<b>3,600</b>
MW-108	9/27/2006	<b>1,200</b>	<b>52</b>	190	21	160
	12/6/2008	<b>68,000</b>	<b>3,450</b>	<b>7,400</b>	470	<b>3,100</b>
	9/27/2009	<b>29,000</b>	<b>1,700</b>	<b>12,000</b>	<b>1,200</b>	<b>6,900</b>
MW-109	9/27/2006	<b>2,500</b>	<b>47</b>	470	48	370
	12/6/2008	500	<b>13</b>	71	2.1	35
	9/27/2009	<b>11,000</b>	<b>560</b>	<b>2,600</b>	260	<b>2,100</b>
MW-110	9/27/2006	ND(<100)	ND(<1.0)	3.0	ND(<1.0)	ND(<3.0)
	12/6/2008	ND(<100)	1.3	ND(<1.0)	ND(<1.0)	ND(<3.0)
	9/27/2009	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
MW-111	9/27/2006	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
	12/6/2008	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
	9/27/2009	ND(<100)	1.0	1.3	ND(<1.0)	ND(<3.0)
<b>New Monitoring Wells on Madison Development Property</b>						
MW-112	12/6/2008	ND(<100)	1.5	1.2	ND(<1.0)	ND(<3.0)
	9/27/2009	ND(<100)	ND(<1.0)	ND(<1.0)	ND(<1.0)	ND(<3.0)
MW-113	12/6/2008	250	<b>50</b>	1.8	6.9	ND(<3.0)
	9/27/2009	130	<b>29</b>	4.7	5.6	7.2
MW-114	12/6/2008	250	<b>28</b>	ND(<1.0)	ND(<1.0)	ND(<3.0)
	9/27/2009	160	<b>15</b>	1.9	1.3	ND(<3.0)
MW-115	12/6/2008	540	<b>120</b>	1.1	14	ND(<3.0)
	9/27/2009	ND(<100)	<b>180</b>	ND(<1.0)	10	ND(<3.0)
MW-116	12/6/2008	380	<b>49</b>	ND(<1.0)	ND(<1.0)	ND(<3.0)
	9/27/2009	ND(<100)	<b>32</b>	ND(<1.0)	1.2	ND(<3.0)
MW-117	12/6/2008	100	<b>12</b>	1.6	ND(<1.0)	ND(<3.0)
	9/27/2009	ND(<100)	1.4	1.0	ND(<1.0)	ND(<3.0)
MW-118	12/6/2008	<b>2,400</b>	<b>290</b>	3.0	20	5.1
	9/27/2009	ND(<100)	4.1	21.0	2	14.0
<b>MTCA Method A Cleanup Level</b>		<b>800 /1000</b>	<b>5</b>	<b>700</b>	<b>1000</b>	<b>1000</b>
-- = Not Analyzed      ND = Not Detected      ug/kg = micrograms per liter (approximates parts per billion)						
<b>Bold</b> = Exceeds the Model Toxics Control Act (MTCA) Method A cleanup level.						
BTEX = Benzene, Toluene, Ethylbenzene, and Total Xylenes by EPA Method 8021.						
TPH-G = Total Petroleum Hydrocarbons as Gasoline by Northwest Method NWTPH-Gx.						

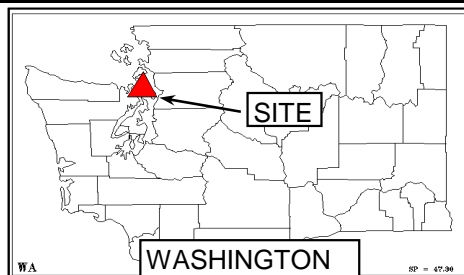
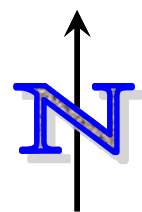
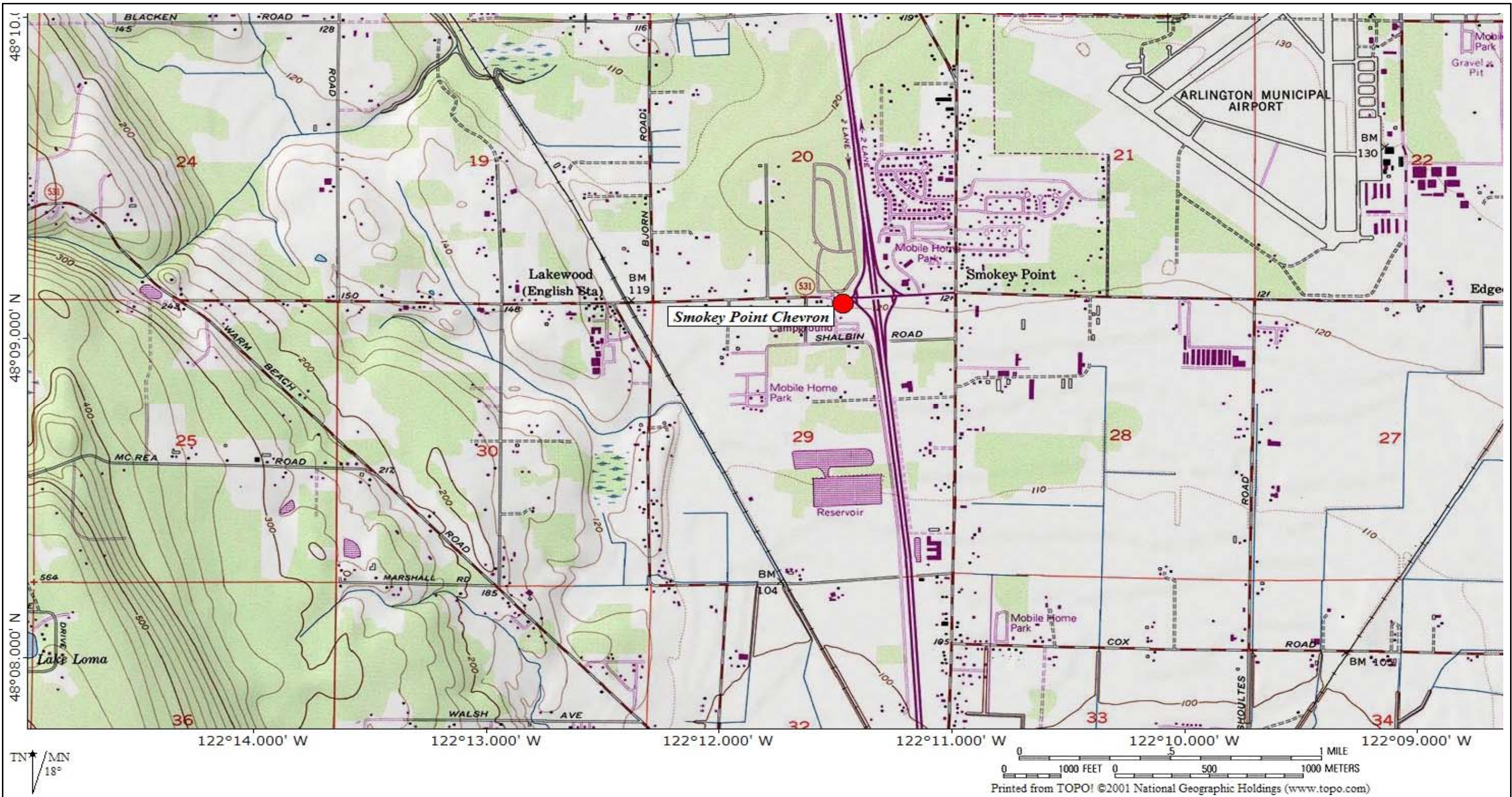
# **FIGURES**

**Figure 1**  
**Vicinity Map**

**Figure 2**  
**Relative Groundwater Elevations Contours and**  
**Groundwater Flow on September 27, 2009**

**Figure 3**  
**Groundwater Analytical Results**  
**Collected on September 27, 2009**

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**GeoScience Mangement, Inc.**  
 Environmental Consulting Services  
 809 156th Street NE  
 Arlington, WA 98223

**FIGURE 1**  
**VICINITY MAP**  
**UST DECOMMISSIONING AND SOIL EXCAVATION**  
**SMOKEY POINT CHEVRON PROPERTY**  
**2804 172ND STREET NE, MARYSVILLE, WA**

YARD LIGHT - BENCHMARK NW BOLT  
ON TOP OF CONCRETE FOOTING IS  
101.91 FEET (JUST OFF MAP)

ALLEY

APPROXIMATE  
PROPERTY BOUNDARY

LANDSCAPING

172ND STREET NE

SIDEWALK

ELECTRICAL  
TRANSFORMER

PLANTER

SIDEWALK

CONCRETE PATIO

SMOKEY POINT  
STORE BUILDING

NEW STORES

SIDEWALK

MW-113  
93.30

MW-115  
93.41

MW-116  
93.00

MW-101  
93.41

CANOPY  
PUMPS

MW-110  
93.33

MW-109  
93.31

MW-104  
93.38

MW-103  
93.33

MW-2

MW-108  
93.29

MW-107  
93.29

MW-102  
93.43

MW-1

UST  
UST  
UST

MW-3

MW-105  
93.36

MW-106  
93.77

MW-111  
93.49

MW-112  
93.39

MW-114  
93.07

ASPHALT

SIDEWALK

NEW STORES

SIDEWALK

DUMPSTER

LANDSCAPING

APPROXIMATE  
PROPERTY BOUNDARY

171st PLACE NE

EXPLANATION

MW-101 NEW MONITORING WELL LOCATION BY GSM.  
RELATIVE GROUNDWATER ELEVATION ON SEPT 27, 2009

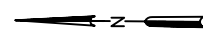
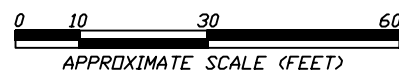
MW-2 APPROXIMATE LOCATION OF EXISTING MONITORING  
WELL INSTALLED BY OTHERS (3/4-INCH DIA.)

93.00  
INFERRED GROUNDWATER CONTOUR, WITH RELATIVE  
GROUNDWATER ELEVATION AND DIRECTION OF FLOW  
ON SEPTEMBER 27, 2009

JOHN L. SCOTT REAL ESTATE

BASE MAP WAS PREPARED FROM EMR REPORT, 1997, AEG REPORT, 2003, AND HAND MEASUREMENTS.

REVISION 03/01/2009

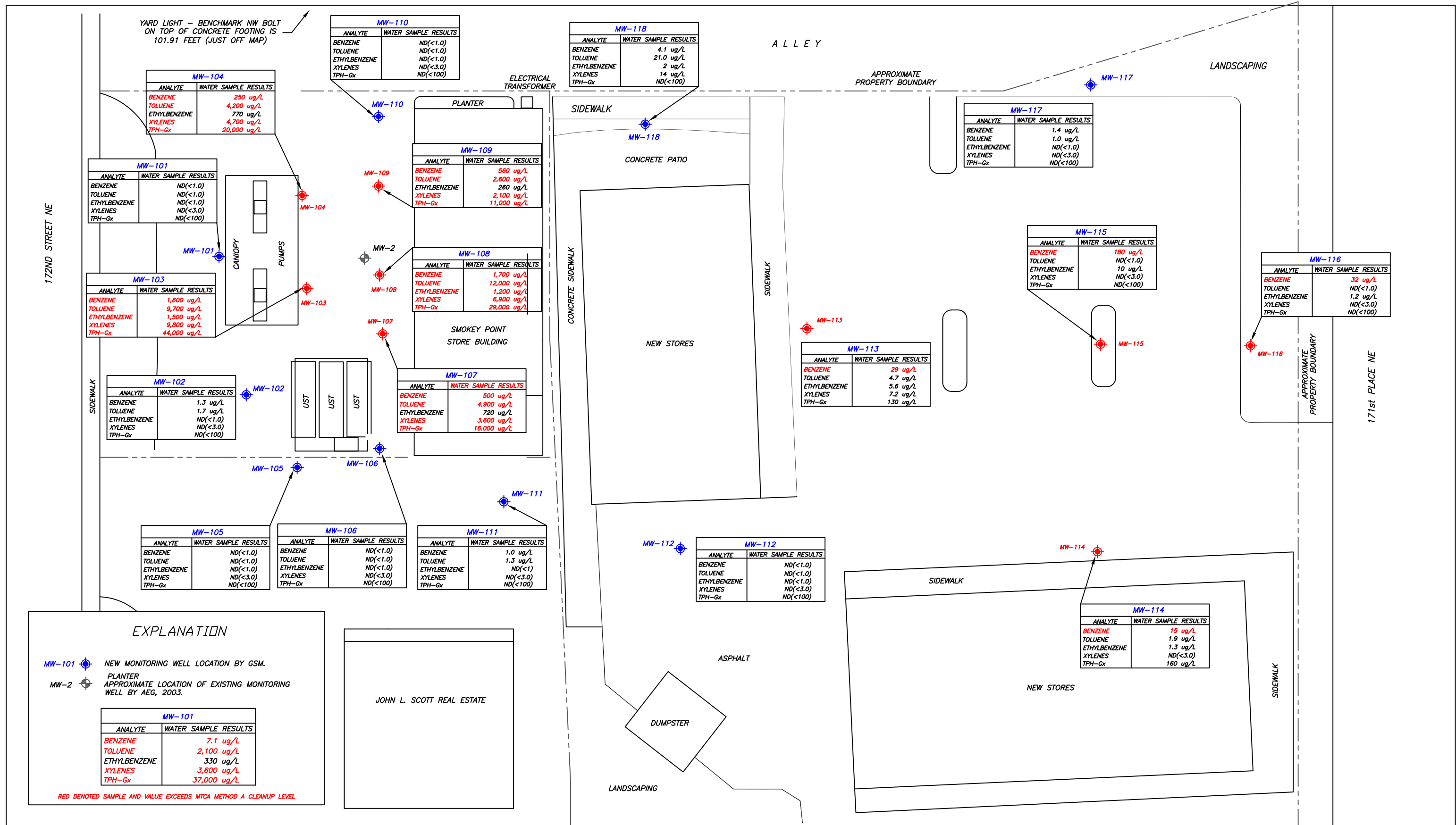


**GEOSCIENCE MANAGEMENT, INC.**  
ENVIRONMENTAL CONSULTING SERVICES  
809 156TH STREET NE  
ARLINGTON, WA 98223

DESIGN HWS  
DRAWN HWS  
DATE SEPTEMBER 2009  
JOB No. SMOKEY POINT CHEVRON

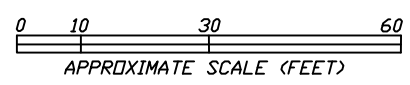
RELATIVE GROUNDWATER ELEVATIONS,  
INFERRED ELEVATION CONTOURS, AND  
DIRECTION OF FLOW ON SEPTEMBER 27, 2009  
SMOKEY POINT CHEVRON PROPERTY  
2804 172ND STREET NE, MARYSVILLE, WA

FIGURE  
2



BASE MAP WAS PREPARED FROM EMR REPORT, 1997, AEG REPORT, 2003, AND HAND MEASUREMENTS.

10/06/2009



**GEOSCIENCE MANAGEMENT, INC.**  
 ENVIRONMENTAL CONSULTING SERVICES  
 809 156TH STREET NE  
 ARLINGTON, WA 98223

DESIGN HWS  
 DRAWN HWS  
 DATE SEPTEMBER 2009  
 JOB No. SMOKEY POINT CHEVRON

GROUNDWATER ANALYTICAL RESULTS  
 SAMPLES COLLECTED SEPTEMBER 27, 2009  
 SMOKEY POINT CHEVRON PROPERTY  
 2804 172ND STREET NE, MARYSVILLE, WA

FIGURE  
 3

Denis and Mary Rogers  
Groundwater Monitoring, September 2009  
Smokey Point Chevron Property  
2804 – 172<sup>nd</sup> Street NE, Marysville, WA  
October 10, 2009

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# **ATTACHMENT A**

## **Groundwater Sampling Data Sheets**

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# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-101

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1515

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6.45</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    8.55 feet of water    X 0.17 gallons per foot = 1.45 gallons

**Volume Purged:**    2 gallons

**Purge Method:**       Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	Redox
<u>15:05</u>		<u>13.57</u>	<u>8.87</u>	<u>6.08</u>	<u>7.50</u>	<u>4.05</u>	<u>225</u>
<u>15:10</u>		<u>13.04</u>	<u>8.41</u>	<u>5.94</u>	<u>6.880</u>	<u>3.10</u>	<u>221</u>
<u>15:15</u>		<u>12.95</u>	<u>8.38</u>	<u>5.86</u>	<u>6.750</u>	<u>2.91</u>	<u>218</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-101 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-102

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1445

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>5.85</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    9.15 feet of water    X 0.17 gallons per foot = 1.56 gallons

**Volume Purged:**    2 gallons

**Purge Method:**     Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>14:35</u>		<u>13.1</u>	<u>12.43</u>	<u>6.15</u>	<u>8.89</u>	<u>4.05</u>	<u>110</u>
<u>14:40</u>		<u>12.85</u>	<u>12.01</u>	<u>6.02</u>	<u>8.35</u>	<u>3.45</u>	<u>111</u>
<u>14:45</u>		<u>12.75</u>	<u>11.95</u>	<u>5.89</u>	<u>8.24</u>	<u>3.35</u>	<u>112</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-102

**Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-103

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1630

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6.07</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    8.93 feet of water    X 0.17 gallons per foot = 1.52 gallons

**Volume Purged:**    2 gallons

**Purge Method:**       Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**       Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>16:20</u>		<u>13.98</u>	<u>11.50</u>	<u>6.08</u>	<u>9.51</u>	<u>3.78</u>	<u>245</u>
<u>16:25</u>		<u>13.41</u>	<u>10.85</u>	<u>5.97</u>	<u>8.10</u>	<u>2.35</u>	<u>250</u>
<u>16:30</u>		<u>13.13</u>	<u>10.37</u>	<u>5.95</u>	<u>8.05</u>	<u>2.13</u>	<u>245</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-103 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-104

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1600

**Weather:**  Clear  Overcast  Hot  Warm  Cold  
 Raining  Snowing  Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6.19</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**  Field Measurements  Well Log

**Well Diameter:**  2-inch (0.17 gal./ft.)  6-inch (1.5 gal./ft.)  Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)  8-inch (2.6 gal./ft.)

**Casing Volume:** 8.81 feet of water X 0.17 gallons per foot = 1.50 gallons

**Volume Purged:** 2 gallons

**Purge Method:**  Bailer  Pump  Other/Material: Low flow <0.5L/min

**Well Condition:**  Satisfactory  Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	Redox
<u>15:50</u>		<u>13.25</u>	<u>9.42</u>	<u>6.24</u>	<u>12.05</u>	<u>4.35</u>	<u>240</u>
<u>15:55</u>		<u>12.85</u>	<u>9.25</u>	<u>6.15</u>	<u>10.25</u>	<u>2.75</u>	<u>240</u>
<u>16:00</u>		<u>12.75</u>	<u>9.17</u>	<u>6.11</u>	<u>9.89</u>	<u>2.65</u>	<u>241</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**  Soap/water  Hexane  Methanol  Distilled Water  Other

**Analyses:** \_\_\_\_\_

**Collected Duplicate #1** \_\_\_\_\_

**Sample ID:** MW-104 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-105

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1400

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>1415</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    -1400 feet of water    X 0.17 gallons per foot = -238.00 gallons

**Volume Purged:**    2 gallons

**Purge Method:**       Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>13:50</u>		<u>14.25</u>	<u>8.45</u>	<u>6.45</u>	<u>6.75</u>	<u>6.50</u>	<u>145</u>
<u>13:55</u>		<u>13.86</u>	<u>8.31</u>	<u>6.21</u>	<u>6.62</u>	<u>5.50</u>	<u>145</u>
<u>14:00</u>		<u>13.75</u>	<u>8.26</u>	<u>6.15</u>	<u>6.55</u>	<u>5.37</u>	<u>145</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-105 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-106

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1430

**Weather:**  Clear  Overcast  Hot  Warm  Cold  
 Raining  Snowing  Other:  \_\_\_\_\_

## SAMPLING DATA

<u>5.1</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**  Field Measurements  Well Log

**Well Diameter:**  2-inch (0.17 gal./ft.)  6-inch (1.5 gal./ft.)  Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)  8-inch (2.6 gal./ft.)

**Casing Volume:** 9.9 feet of water X 0.17 gallons per foot = 1.68 gallons

**Volume Purged:** 2 gallons

**Purge Method:**  Bailer  Pump  Other/Material: Low flow <0.5L/min

**Well Condition:**  Satisfactory  Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	Redox
<u>14:20</u>		<u>13.5</u>	<u>11.42</u>	<u>6.21</u>	<u>8.65</u>	<u>6.5</u>	<u>65</u>
<u>14:25</u>		<u>13.0</u>	<u>11.25</u>	<u>6.08</u>	<u>7.51</u>	<u>4.35</u>	<u>62</u>
<u>14:30</u>		<u>12.78</u>	<u>11.18</u>	<u>6.02</u>	<u>7.45</u>	<u>4.05</u>	<u>62</u>

**Notes:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**  Soap/water  Hexane  Methanol  Distilled Water  Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-106 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-107

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1615

**Weather:**  Clear  Overcast  Hot  Warm  Cold  
 Raining  Snowing  Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6.04</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**  Field Measurements  Well Log

**Well Diameter:**  2-inch (0.17 gal./ft.)  6-inch (1.5 gal./ft.)  Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)  8-inch (2.6 gal./ft.)

**Casing Volume:** 8.96 feet of water X 0.17 gallons per foot = 1.52 gallons

**Volume Purged:** 2 gallons

**Purge Method:**  Bailer  Pump  Other/Material: Low flow <0.5L/min

**Well Condition:**  Satisfactory  Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	Redox
<u>16:05</u>		<u>12.95</u>	<u>11.41</u>	<u>6.15</u>	<u>8.50</u>	<u>3.10</u>	<u>270</u>
<u>16:10</u>		<u>12.58</u>	<u>10.95</u>	<u>6.01</u>	<u>7.98</u>	<u>1.21</u>	<u>261</u>
<u>16:15</u>		<u>12.55</u>	<u>10.84</u>	<u>5.95</u>	<u>7.88</u>	<u>1.05</u>	<u>261</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**  Soap/water  Hexane  Methanol  Distilled Water  Other

**Analyses:** \_\_\_\_\_

**Collected Duplicate #2** \_\_\_\_\_

**Sample ID:** MW-107 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-108

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1645

**Weather:**  Clear  Overcast  Hot  Warm  Cold  
 Raining  Snowing  Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**  Field Measurements  Well Log

**Well Diameter:**  2-inch (0.17 gal./ft.)  6-inch (1.5 gal./ft.)  Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)  8-inch (2.6 gal./ft.)

**Casing Volume:** 9 feet of water X 0.17 gallons per foot = 1.53 gallons

**Volume Purged:** 2 gallons

**Purge Method:**  Bailer  Pump  Other/Material: Low flow <0.5L/min

**Well Condition:**  Satisfactory  Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>16:35</u>		<u>13.57</u>	<u>10.15</u>	<u>6.13</u>	<u>9.45</u>	<u>3.81</u>	<u>295</u>
<u>16:40</u>		<u>13.1</u>	<u>10.05</u>	<u>6.02</u>	<u>8.98</u>	<u>1.75</u>	<u>290</u>
<u>16:45</u>		<u>13.03</u>	<u>10.01</u>	<u>5.97</u>	<u>8.86</u>	<u>1.55</u>	<u>292</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**  Soap/water  Hexane  Methanol  Distilled Water  Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-108 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-109

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1530

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6.09</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    8.91 feet of water    X 0.17 gallons per foot = 1.51 gallons

**Volume Purged:**    2 gallons

**Purge Method:**     Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	Redox
<u>15:20</u>		<u>14.05</u>	<u>8.68</u>	<u>6.45</u>	<u>8.50</u>	<u>3.89</u>	<u>204</u>
<u>15:25</u>		<u>13.50</u>	<u>8.36</u>	<u>6.15</u>	<u>7.52</u>	<u>3.79</u>	<u>203</u>
<u>15:30</u>		<u>13.35</u>	<u>8.25</u>	<u>6.02</u>	<u>7.51</u>	<u>3.69</u>	<u>204</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-109 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-110

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1500

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>5.87</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    9.13 feet of water    X 0.17 gallons per foot = 1.55 gallons

**Volume Purged:**    2 gallons

**Purge Method:**     Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>14:50</u>		<u>13.95</u>	<u>8.50</u>	<u>6.23</u>	<u>6.95</u>	<u>5.50</u>	<u>185</u>
<u>14:55</u>		<u>13.25</u>	<u>8.05</u>	<u>6.04</u>	<u>6.55</u>	<u>3.60</u>	<u>183</u>
<u>15:00</u>		<u>13.10</u>	<u>7.95</u>	<u>5.99</u>	<u>6.45</u>	<u>3.55</u>	<u>182</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-110 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-111

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1400

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>7.29</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>15</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    7.71 feet of water    X 0.17 gallons per foot = 1.31 gallons

**Volume Purged:**    2 gallons

**Purge Method:**       Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>13:50</u>		<u>12.95</u>	<u>8.45</u>	<u>6.05</u>	<u>7.36</u>	<u>4.5</u>	<u>185</u>
<u>13:55</u>		<u>12.75</u>	<u>8.30</u>	<u>5.94</u>	<u>4.85</u>	<u>3.30</u>	<u>186</u>
<u>14:00</u>		<u>12.70</u>	<u>8.25</u>	<u>5.86</u>	<u>4.75</u>	<u>3.15</u>	<u>185</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-111 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-112

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1230

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6.11</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>13</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    6.89 feet of water    X 0.17 gallons per foot = 1.17 gallons

**Volume Purged:**    2 gallons

**Purge Method:**     Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>12:20</u>		<u>14.05</u>	<u>9.75</u>	<u>6.35</u>	<u>7.55</u>	<u>5.25</u>	<u>160</u>
<u>12:25</u>		<u>13.35</u>	<u>9.65</u>	<u>6.15</u>	<u>6.75</u>	<u>3.50</u>	<u>160</u>
<u>12:30</u>		<u>13.05</u>	<u>9.55</u>	<u>6.04</u>	<u>6.65</u>	<u>3.30</u>	<u>159</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-112 **Signature:** Howard W. Small

# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-113

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1245

**Weather:**  Clear  Overcast  Hot  Warm  Cold  
 Raining  Snowing  Other:  \_\_\_\_\_

## SAMPLING DATA

<u>6.73</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>14.5</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**  Field Measurements  Well Log

**Well Diameter:**  2-inch (0.17 gal./ft.)  6-inch (1.5 gal./ft.)  Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)  8-inch (2.6 gal./ft.)

**Casing Volume:** 7.77 feet of water X 0.17 gallons per foot = 1.32 gallons

**Volume Purged:** 2 gallons

**Purge Method:**  Bailer  Pump  Other/Material: Low flow <0.5L/min

**Well Condition:**  Satisfactory  Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>12:35</u>		<u>11.90</u>	<u>12.10</u>	<u>6.04</u>	<u>10.05</u>	<u>4.65</u>	<u>175</u>
<u>12:40</u>		<u>11.85</u>	<u>11.55</u>	<u>5.89</u>	<u>8.25</u>	<u>2.85</u>	<u>175</u>
<u>12:45</u>		<u>11.80</u>	<u>11.40</u>	<u>5.76</u>	<u>8.20</u>	<u>2.60</u>	<u>175</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**  Soap/water  Hexane  Methanol  Distilled Water  Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-113 **Signature:** Howard W. Small







# Groundwater Sampling Data Sheet

**Project Name:** Smokey Point Chevron **Project Number:** \_\_\_\_\_

**Client:** Denis and Mary Rogers **Well ID:** MW-117

**Location:** 2804 172nd Street NE, Marysville, WA **Date:** 9/27/2009

**Personnel:** HWSmall **Time:** 1200

**Weather:**       Clear      Overcast       Hot       Warm       Cold   
 Raining      Snowing       Other:  \_\_\_\_\_

## SAMPLING DATA

<u>7.45</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to water	Units		Measuring point
<u>N/A</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Depth to product	Units		Measuring point
<u>14</u>	<u>Feet</u>	Below	<u>Top of PVC Casing, North Side</u>
Well depth	Units		Measuring point

**Based on:**     Field Measurements       Well Log

**Well Diameter:**     2-inch (0.17 gal./ft.)       6-inch (1.5 gal./ft.)       Other: \_\_\_\_\_  
 4-inch (0.66 gal./ft.)       8-inch (2.6 gal./ft.)

**Casing Volume:**    6.55 feet of water    X 0.17 gallons per foot = 1.11 gallons

**Volume Purged:**    2 gallons

**Purge Method:**     Bailer       Pump       Other/Material: Low flow <0.5L/min

**Well Condition:**     Satisfactory       Other: \_\_\_\_\_

Time	Total Volume Discharged (gal. or L)	Temperature C °	Specific Conductance (MicroSiemens/cm)	pH	TDS (g/L) Turbidity	Dissolved Oxygen (mg/L)	ReDox
<u>11:50</u>		<u>13.25</u>	<u>7.60</u>	<u>6.51</u>	<u>7.55</u>	<u>4.25</u>	<u>160</u>
<u>11:55</u>		<u>12.85</u>	<u>7.55</u>	<u>6.21</u>	<u>6.50</u>	<u>3.5</u>	<u>162</u>
<u>12:00</u>		<u>12.75</u>	<u>7.50</u>	<u>6.05</u>	<u>6.25</u>	<u>3.4</u>	<u>160</u>

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Sampler Decontamination:**     Soap/water       Hexane     Methanol       Distilled Water       Other

**Analyses:** \_\_\_\_\_  
 \_\_\_\_\_

**Sample ID:** MW-117 **Signature:** Howard W. Small



Denis and Mary Rogers  
Groundwater Monitoring, September 2009  
Smokey Point Chevron Property  
2804 – 172<sup>nd</sup> Street NE, Marysville, WA  
October 10, 2009

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# **ATTACHMENT B**

## **Analytical Laboratory Report**

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**ESN NORTHWEST CHEMISTRY LABORATORY**

GeoScience Management, Inc.  
 SMOKEY POINT CHEVRON PROJECT  
 Marysville, Washington

ESN Northwest  
 1210 Eastside Street SE Suite 200  
 Olympia, WA 98501  
 (360) 459-4670 (360) 459-3432 Fax  
 lab@esnnw.com

**Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260B) in Water**

Sample Number	Date Analyzed	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Gasoline (ug/L)	Surrogate Recovery (%)
Method Blank	9/30/2009	nd	nd	nd	nd	nd	119
LCS	9/30/2009	94%	106%	102%	97%	112%	107
MW-101	9/30/2009	nd	nd	nd	nd	nd	118
MW-102	9/30/2009	<b>1.3</b>	<b>1.7</b>	nd	nd	nd	115
MW-103	10/5/2009	<b>1600</b>	<b>9700</b>	<b>1500</b>	<b>9800</b>	<b>44000</b>	117
MW-104	10/5/2009	<b>250</b>	<b>4200</b>	<b>770</b>	<b>4700</b>	<b>20000</b>	112
MW-105	10/5/2009	nd	nd	nd	nd	nd	117
MW-106	10/5/2009	nd	<b>1.0</b>	nd	nd	nd	115
MW-106 Duplicate	10/5/2009	nd	nd	nd	nd	nd	116
MW-107	10/5/2009	<b>500</b>	<b>4900</b>	<b>720</b>	<b>3600</b>	<b>16000</b>	113
MW-108	10/5/2009	<b>1700</b>	<b>12000</b>	<b>1200</b>	<b>6900</b>	<b>29000</b>	116
MW-109	10/5/2009	<b>560</b>	<b>2600</b>	<b>260</b>	<b>2100</b>	<b>11000</b>	114
MW-110	10/5/2009	nd	nd	nd	nd	nd	112
MW-111	10/5/2009	<b>1.0</b>	<b>1.3</b>	nd	nd	nd	117
MW-112	10/5/2009	nd	nd	nd	nd	nd	112
MW-113	10/5/2009	<b>29</b>	<b>4.7</b>	<b>5.6</b>	<b>7.2</b>	<b>130</b>	116
MW-114	10/5/2009	<b>15</b>	<b>1.9</b>	<b>1.3</b>	nd	<b>160</b>	114
MW-115	10/5/2009	<b>180</b>	nd	<b>10</b>	nd	nd	116
MW-116	10/5/2009	<b>32</b>	nd	<b>1.2</b>	nd	nd	112
MW-117	10/5/2009	<b>1.4</b>	<b>1.0</b>	nd	nd	nd	113
MW-117 Duplicate	10/5/2009	<b>1.2</b>	nd	nd	nd	nd	112
MW-118	10/6/2009	<b>4.1</b>	<b>21</b>	<b>2.1</b>	<b>14</b>	nd	112
DUP-1	10/6/2009	<b>310</b>	<b>5200</b>	<b>1000</b>	<b>6100</b>	<b>32000</b>	110
DUP-2	10/6/2009	<b>490</b>	<b>4800</b>	<b>790</b>	<b>3900</b>	<b>18000</b>	114
MW-112 MS	10/5/2009	107%	121%	104%	106%	---	99
MW-112 MSD	10/5/2009	106%	121%	109%	107%	---	105
Method Detection Limits		1.0	1.0	1.0	3.0	100	

"nd" Indicates not detected at the listed detection limits.

"I" Indicates that the amount spiked was insignificant relative to the amount in the sample.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Chlorobenzene) & LCS: 65% TO 135%





Environmental Services Network

Olympia: (360) 959-4670  
Bellevue: (360) 957-9872

# CHAIN-OF-CUSTODY RECORD

CLIENT: GSM

ADDRESS: \_\_\_\_\_

PHONE: 206 730 0228

FAX: \_\_\_\_\_

CLIENT PROJECT #: \_\_\_\_\_

PROJECT MANAGER: \_\_\_\_\_

DATE: 9/28/2009 PAGE 2 OF 2

PROJECT NAME: Smoking Point Chevron

LOCATION: Kaysville, WA

COLLECTOR: Andrew Small

DATE OF COLLECTION: 9/28/2009

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES		NOTES	Total Number of Containers	Laboratory Note Number
					TPH-HD BTEX	TPH-Gasoline			
1. Dup-1	-	-	2 VOCs	Water	X	X		2	
2. Dup-2	-	-	11		X	X		2	
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									
17.									
18.									

RELINQUISHED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_

RELINQUISHED BY (Signature) Andrew Small 9/28/2009 12:45 RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_

**SAMPLE DISPOSAL INSTRUCTIONS**

ESN DISPOSAL @ \$2.00 each  Return  Pickup

LABORATORY NOTES:

TOTAL NUMBER OF CONTAINERS \_\_\_\_\_

CHAIN OF CUSTODY SEALS Y/N/A \_\_\_\_\_

SEALS INTACT? Y/N/A \_\_\_\_\_

RECEIVED GOOD COND./COLD \_\_\_\_\_

NOTES: \_\_\_\_\_

Turn Around Time: 24 HR 48 HR 5 DAY