SLR

November 4, 2009
Project 001.0173.00010

Mr. Tom Middleton
Washington Department of Ecology
P.O. Box 47775
Olympia, Washington 98504-7775

Re: Deep Groundwater Remediation System Installation and Performance Report, Former Arco Service Station #0855, Longview, Washington

Dear Mr. Middleton:

On behalf of Wakefield Family LLC (Wakefield), SLR International Corp. (SLR) has prepared this report to present the initial results of the secondary phase of the remedial action at the above-referenced site. The report describes the installation of a deep groundwater recovery/treatment system, presents the results of the system operations through September 2009, and presents the results of a groundwater sampling event that was conducted in September 2009. The former Arco Service Station #0855 property (the "property") is located at 4603 Ocean Beach Highway, near the western end of Longview, Washington (see Figure 1).

BACKGROUND

On June 26, 2007, Wakefield (the property owner) entered into the Washington Department of Ecology's (Ecology's) Voluntary Cleanup Program (VCP) to obtain Ecology's opinions regarding the results of the previous investigation activities at the site and the recommended remedial alternative. The recommended remedial alternative was presented in a Feasibility Study Report (SLR, 2007), and consisted of soil excavation, shallow groundwater and free product extraction, and natural attenuation of the remaining contamination with a contingency to potentially implement deeper groundwater extraction. On October 11, 2007, Ecology notified Wakefield that they agreed that the recommended alternative was the most feasible option for addressing the contamination at the site (Ecology, 2007).

During September, November, and December 2007, and March 2008, the primary phase of the site remedial action, consistent with the recommended remedial alternative, was completed. The objectives of the work were: 1) to remediate the soil that contained petroleum hydrocarbon concentrations greater than Model Toxics Control Act (MTCA)

Method A cleanup levels[1], 2) to remove the source of the impacted shallow groundwater, 3) to remove the primary source of the impacted deep groundwater, and 4) to extract the accessible impacted shallow groundwater. The remedial action consisted of demolishing all of the property structures, excavating the petroleum hydrocarbon-impacted soil that occurred at depths above 15 feet below ground surface (bgs), extracting hydrocarbon-impacted shallow groundwater from the open excavation, installing replacement shallow and deep groundwater monitoring wells within the areas of excavation, and conducting two groundwater sampling events.

Based on the analytical results from the final excavation floor and sidewall confirmation samples, the excavation activities effectively removed all of the soil that contained petroleum hydrocarbon concentrations greater than the MTCA Method A cleanup levels, except at three locations (SLR, 2008). The final floor samples from sample grid cells A3, B3, and C2, at 15 feet bgs, contained benzene, ethylbenzene, total xylenes, and/or gasoline-range organics (GRO) concentrations that exceeded the Method A cleanup levels. The excavation was not extended below 15 feet bgs at those three locations to ensure that a semi-confining unit (clayey silt) was not breached. The results of the two subsequent groundwater sampling events indicated that the shallow groundwater extraction activities removed the impacted groundwater within the excavation area and the soil excavation effectively eliminated the source of any additional shallow groundwater contamination. The groundwater sampling results also showed that the excavation and shallow groundwater extraction activities had limited short-term affects on the petroleum hydrocarbon concentrations in the deeper semi-confined groundwater zone (SLR, 2008).

SECONDARY PHASE OF SITE REMEDIAL ACTION

The secondary phase of the site remedial action consists of long-term groundwater monitoring to assess the natural attenuation of the remaining petroleum hydrocarbon concentrations in the shallow and deep groundwater zones. Since the primary phase of the remedial action had limited short-term affects on the deep groundwater concentrations, the secondary phase of the remedial action also included the installation and operation of a deep groundwater recovery/treatment system. The purpose of the system is to reduce the petroleum hydrocarbon concentrations in the deep groundwater zone to levels that will naturally attenuate to below the MTCA Method A cleanup levels within a reasonable period of time.

[1] Chapter 173-340 WAC, Model Toxics Control Act Cleanup Regulation, Method A Cleanup Levels. Amended February 12, 2001.

Installation of Deep Groundwater Recovery/Treatment System

Installation of Recovery Well

To extract petroleum hydrocarbon-impacted deep groundwater, a groundwater recovery well (designated RW-1) was installed on October 30, 2008. The well is located at the area of the highest petroleum hydrocarbon concentrations in the deep groundwater zone, near the western end of the former gasoline dispenser island (see Figure 2). The drilling and well installation activities were conducted by Cascade Drilling, Inc. (Cascade) of Woodinville, Washington, under the direction of an SLR geologist. The soil boring was drilled by using hollow-stem auger methods. During drilling, soil samples were collected on a continuous basis by using a split-spoon sampler, at depths between approximately 15 and 25.5 feet bgs. The purpose of the soil sampling was to identify the depth of the bottom of the semi-confining unit (clayey silt), the depth of the bottom of the underlying silty sand, and the top of the fine- to coarse-grained sand unit that occurs below the silty sand. The fine- to coarse-grained sand is the primary water producing unit of the upper part of the deep groundwater zone. The soil boring extended to a depth of approximately 35 feet bgs, approximately 11.5 feet below the top of the sand unit.

The recovery well was constructed with 6-inch-diameter, schedule 40 PVC well screen, riser pipe, and sediment collection sump. The top of the 5-foot-long screen (0.020-inch slots) was installed at a depth of approximately 6 inches below the top of the sand unit (approximately 24 feet bgs). A 2-foot-long sediment collection sump was installed below the screen. A flush-grade, traffic-rated, steel monument was installed to protect the well. The well construction details are presented on the soil boring log in Appendix A. Following installation, Cascade developed the well by using a combination of bailing and surging in order to minimize the amount of fine-grained material in the well screen and to increase groundwater flow into the well. The development water was stored on the property in properly labeled, 55-gallon drums until it was pumped through the groundwater treatment system described below.

Installation of Recovery/Treatment System

In June 2009, Wyser Construction, Inc., of Bothell, Washington, installed the deep groundwater recovery/treatment system under the direction of SLR personnel. An electronic submersible pump was installed in RW-1, and the bottom of the pump (the intake) was set near the top of the sediment collection sump (at the bottom of the screen). Two float switches were installed within the well to activate and deactivate the pump. The groundwater extracted by the pump is plumbed, via hose and underground piping, to a groundwater treatment system located in the southeastern corner of the property (see Figure 3). The treatment system consists of two canisters in series that are each filled with 1,000

pounds of activated carbon. A totalizing flow meter is located after the second carbon canister to record the pumping rate and the total volume of extracted groundwater. After the flow meter, the effluent line is plumbed into a 50-gallon equalization tank and the effluent from the tank discharges into the City of Longview sanitary sewer system. A plan view of the treatment system is shown on Figure 3.

Operation of Deep Groundwater Recovery/Treatment System

On June 17, 2009, the groundwater recovery/treatment system was activated. During system operation, SLR personnel monitored system performance in accordance with the requirements of a Permit for Utility Service from the City of Longview. From June 17 through September 28, 2009, a total of 592,675 gallons of water were recovered and treated by the system, and the groundwater pumping rates ranged from approximately 4 to 5 gallons per minute.

Treatment System Sample Analytical Results

At system activation, on a weekly basis for the first month of operation, and then on an every other week basis, treatment system samples were collected after the first carbon canister to monitor contaminant breakthrough and after the second carbon unit to monitor the system discharge concentrations. At system activation and on a monthly basis, an influent sample to the first carbon canister was also collected. All of the samples were submitted to Columbia Analytical Services, Inc. (CAS) in Kelso, Washington, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B and GRO by Ecology Method NWTPH-Gx. On June 18, 2009 (the system activation sample), the influent sample to the first carbon canister contained benzene and total xylenes concentrations of 500 and 2.6 micrograms per liter (µg/L), respectively. Toluene, ethylbenzene, and GRO were not detected at concentrations above the method reporting limits (MRLs). On July 15, 2009, the influent sample to the first carbon canister contained benzene, toluene, ethylbenzene, and total xylenes concentrations of 230, 0.7, 4.0, and 6.4 µg/L, respectively. GRO was not detected at a concentration above the MRL. On August 13, 2009, the influent sample to the first carbon canister contained benzene, toluene, ethylbenzene, and total xylenes concentrations of 140, 0.5, 3.0, and 5.0 µg/L, respectively. GRO was not detected at a concentration above the MRL. On September 9, 2009, the influent sample to the first carbon canister contained benzene, ethylbenzene, and total xylenes concentrations of 95, 1.9, and 3.8 µg/L, respectively. Toluene and GRO were not detected at concentrations above the MRLs. None of the effluent samples from either carbon canister contained BTEX or GRO concentrations above the MRLs. The treatment system sample analytical results are presented in Table 1, and copies of the laboratory reports are presented in Appendix B.

Groundwater Monitoring Data

Immediately prior to activating the recovery/treatment system on June 17, 2009, SLR personnel measured the depths to groundwater in all of the shallow and deep groundwater monitoring wells and in deep recovery well RW-1. On July 1, July 29, August 26, and September 28, 2009, SLR measured the depths to groundwater in all of the shallow and deep wells and in the recovery well while the system was operating. The purpose of the groundwater level monitoring was to assess the radius of pumping influence. The depth to groundwater measurements were converted to groundwater elevations by using the results of previous well elevation surveys. The groundwater monitoring data from June through September 2009, as well as the monitoring data from previous groundwater sampling events, are presented in Table 2.

On June 17, 2009, the depths to groundwater in the deep wells (including the recovery well) ranged from 6.07 to 7.25 feet and the depths to groundwater in the shallow wells ranged from 3.65 to 6.61 feet. Free product was not observed in any of the wells. The groundwater elevations in the deep wells ranged from -0.02 to 2.31 feet above the NAVD 88 datum. The groundwater elevations in the shallow wells ranged from 2.46 to 5.38 feet above the NAVD 88 datum. The groundwater elevations in the deep and shallow wells were inconsistent and could not be used to determine general deep and shallow groundwater flow directions beneath the site area. The groundwater elevations in the deep and shallow wells on June 17, 2009, are shown on Figures 2 and 4, respectively.

After activation of the recovery/treatment system, the depths to groundwater in RW-1 ranged from 20.05 to 23.20 feet (-11.97 to -15.12 feet above the NAVD 88 datum). The drawdown in the well was approximately 13.9 to 16.5 feet. From June 17 to September 28, 2009, the depths to groundwater in the deep wells typically decreased by 0.55 to 0.75 feet. The depths to groundwater in the deep well (DMW-9) located approximately 10 feet from RW-1 decreased by 0.97 feet. From June 17 to September 28, 2009, the depths to groundwater in the shallow wells typically decreased by 0.35 to 1.41 feet. The depths to groundwater in the shallow well (MW-13) located approximately 6 feet from RW-1 decreased by 4.10 feet. Free product was not observed in any of the wells. During each monitoring event, the groundwater elevations in the deep and shallow wells were inconsistent and could not be used to determine general deep and shallow groundwater flow directions beneath the site area. The groundwater elevations in the deep and shallow wells on September 28, 2009, are shown on Figures 5 and 6, respectively.

September 2009 Groundwater Sampling Event

On September 2 and 3, 2009, SLR conducted a groundwater sampling event to evaluate the affects of the deep groundwater recovery system and to monitor the natural attenuation of the remaining petroleum hydrocarbon concentrations in the shallow and deep groundwater. Prior to sampling, the deep groundwater recovery/treatment system was deactivated on September 2nd, and SLR measured the depths to groundwater in all of the monitoring wells by using an electronic water level probe. The depths to groundwater in the deep wells ranged from 5.19 to 7.79 feet and the depths to groundwater in the shallow wells ranged from 4.55 to 7.76 feet. The groundwater elevations in the deep wells ranged from 1.36 to 1.47 feet above the NAVD 88 datum. The groundwater elevations in the shallow wells ranged from 0.64 to 4.23 feet above the NAVD 88 datum. The groundwater elevations in the shallow and deep wells were inconsistent and could not be used to determine general shallow or deep groundwater flow directions beneath the site area. The groundwater monitoring data from the September 2009 sampling event are presented in Table 2.

SLR personnel collected groundwater samples from all of the shallow monitoring wells (MW-5, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, and MW-14) and all of the deep monitoring wells (DMW-3, DMW-4, DMW-5, DMW-6, DMW-7, DMW-8, DMW-9, and DMW-10) for laboratory analysis. SLR purged the shallow wells by using a peristaltic pump with dedicated tubing at a flow rate of approximately 0.33 liters per minute. The deep wells were purged by using disposable bailers. During purging, field parameters of temperature, conductivity, dissolved oxygen (DO), pH, and oxidation-reduction (redox) potential were measured. Each groundwater sample was collected following the stabilization of the field parameter measurements. At the time of sample collection, the dissolved ferrous iron concentration of the purge water was measured. The samples were submitted to Friedman & Bruya, Inc. (F&B) in Seattle, Washington for analysis. After completing the sampling activities, SLR reactivated the deep groundwater recovery/treatment system. The sampling purge water was pumped through the treatment system.

The groundwater samples were analyzed for BTEX and GRO. The analytical results showed that the groundwater sample from deep wells DMW-9 and DMW-10 contained benzene concentrations (2,800 and 9 µg/L, respectively) that exceeded the MTCA Method A cleanup level (5 µg/L). The sample collected from DMW-9 also contained a GRO concentration (14,000 µg/L) that exceeded the Method A cleanup level (800 µg/L). The groundwater samples from all of the other deep wells did not contain analyte concentrations above the MRLs. The groundwater samples from all of the shallow wells, except MW-10, did not contain analyte concentrations above the MRLs. The groundwater sample from MW-10 did not contain analyte concentrations greater than the Method A

cleanup levels or the MRLs. The groundwater sample analytical results (petroleum hydrocarbons only) from the September 2009 event, as well as from the previous sampling events, are presented in Table 3. Copies of the laboratory analytical reports are presented in Appendix C.

The groundwater samples were also analyzed for the following natural attenuation parameters: dissolved manganese by EPA Method 200.8, alkalinity by Standard Method SM 2320, dissolved methane by EPA Method RSK 175 Modified, sulfate by EPA Method 375.2, and nitrate by EPA Method 353.2. The sample analytical results showed that the greatest dissolved methane and alkalinity concentrations were at the remaining area of elevated petroleum hydrocarbon concentrations (at DMW-9). The groundwater sample analytical results and field measurements (DO, redox potential, and dissolved ferrous iron) for the natural attenuation parameters (from the September 2009 event as well as from the previous sampling events) are presented in Table 4. Copies of the laboratory analytical reports are presented in Appendix C.

CONCLUSIONS

From June 17 through September 28, 2009, the deep groundwater recovery/treatment system extracted and treated a total of 592,675 gallons of water. The system operated at pumping rates that ranged from approximately 4 to 5 gallons per minute. The treatment system influent sample analytical results (benzene concentrations ranging from 95 to 500 µg/L) indicate that the system was effectively recovering petroleum hydrocarbon-impacted groundwater. The treatment system sample analytical results showed that the carbon treatment system effectively adsorbed the extracted petroleum hydrocarbons prior to discharge to the sanitary sewer system.

The groundwater monitoring data showed that the greatest decreases in groundwater elevations in the deep and shallow monitoring wells were in the wells (DMW-9 and MW-13) located nearest to the recovery well. This indicates that the pumping operations are influencing both the deep and shallow groundwater zones in the area near the recovery well. The groundwater sample analytical results from the September sampling event showed that only the samples from deep wells DMW-9 and DMW-10 contained petroleum hydrocarbon concentrations greater than the MTCA Method A cleanup levels. The benzene and GRO concentrations in the September 2009 groundwater samples were typically less than the detected concentrations during the previous sampling event (in October 2008), which indicates that the system operations and natural attenuation are effectively remediating the remaining hydrocarbon concentrations in the groundwater. The relatively higher dissolved methane and alkalinity concentrations in the remaining area of deep groundwater contamination are consistent with previous results, and indicate that the impacted

groundwater occurs in a reducing (little or no oxygen) environment and that there is more biological activity where petroleum hydrocarbons are present.

If you have any questions or comments about this report, please contact Mike Staton at (425)471-0479.

Sincerely,

SLR International Corp

Michael D. Staton, L.G.
Principal Geologist

Attachments: Limitations
References
Tables 1 through 4
Figures 1 through 6
Appendix A – Soil Boring Log
Appendix B – Laboratory Analytical Reports – Treatment System Samples
Appendix C – Laboratory Analytical Reports – Groundwater Samples

cc: Kurt Peterson, Cascadia Law Group PLLC

LIMITATIONS

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

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

REFERENCES

SLR International Corp. 2007. *Feasibility Study Report, Former Arco Service Station #0855, Longview, Washington.* February 22.

SLR International Corp. 2008. *Remedial Action Report, Former Arco Service Station #0855, 4603 Ocean Beach Highway, Longview, Washington.* July 21.

Washington Department of Ecology. 2001. *Model Toxics Control Act Cleanup Regulation, Chapter 173-340 WAC.* Publication No. 94-06. Amended February 12.

Washington Department of Ecology. 2007. Letter to Wakefield Family LLC. October 11.

TABLES

Table 1
Groundwater Treatment System Sample Analytical Results
Former ARCO Service Station #0855
Longview, Washington

Date	Sample Location	Sample Name	Benzene[a] (µg/L)	Toluene[a] (µg/L)	Ethylbenzene[a] (µg/L)	Total Xylenes[a] (µg/L)	GRO[b] (µg/L)
06/18/09	Influent - First Carbon	INF1-61809	500	<1.0	<1.0	2.6	<250
	Effluent - First Carbon	EFF1-61809	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-61809	<0.5	<0.5	<0.5	<0.5	<250
06/25/09	Effluent - First Carbon	EFF1-62509	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-62509	<0.5	<0.5	<0.5	<0.5	<250
07/01/09	Effluent - First Carbon	EFF1-7109	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-7109	<0.5	<0.5	<0.5	<0.5	<250
07/08/09	Effluent - First Carbon	EFF1-7809	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-7809	<0.5	<0.5	<0.5	<0.5	<250
07/15/09	Influent - First Carbon	INF1-71509	230	0.7	4.0	6.4	<250
	Effluent - First Carbon	EFF1-71509	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-71509	<0.5	<0.5	<0.5	<0.5	<250
07/29/09	Effluent - First Carbon	EFF1-72909	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-72909	<0.5	<0.5	<0.5	<0.5	<250
08/13/09	Influent - First Carbon	INF1-81309	140	0.5	3.0	5.0	<250
	Effluent - First Carbon	EFF1-81309	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-81309	<0.5	<0.5	<0.5	<0.5	<250
08/26/09	Effluent - First Carbon	EFF1-82609	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-82609	<0.5	<0.5	<0.5	<0.5	<250
09/09/09	Influent - First Carbon	INF1-9909	95	<0.5	1.9	3.8	<250
	Effluent - First Carbon	EFF1-9909	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-9909	<0.5	<0.5	<0.5	<0.5	<250
09/28/09	Effluent - First Carbon	EFF1-92809	<0.5	<0.5	<0.5	<0.5	<250
	Effluent - Second Carbon	EFF2-92809	<0.5	<0.5	<0.5	<0.5	<250

Notes:
The deep groundwater recovery/treatment system was activated on June 17, 2009.
µg/L = micrograms per liter (ppb).
[a]Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260B.
[b]Gasoline-range organics (GRO) by Northwest Method NWTPH-Gx.

Table 2
Groundwater Monitoring Data
Former Arco Service Station #0855
Longview Washington

Well Number	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater[b] (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
Shallow Monitoring Wells					
MW-1	8.34	03/27/00	4.36	NP	3.98
		05/23/00	5.20	NP	3.14
		07/20/00	5.55	NP	2.79
		10/18/00	5.41	NP	2.93
		01/18/01	4.81	NP	3.53
		04/18/01	4.58	NP	3.76
		07/17/01	5.54	NP	2.80
		10/18/01	5.26	NP	3.08
		01/16/02	4.45	NP	3.89
		07/09/03	5.80	NP	2.54
	8.25[c]	05/25/05	4.12	NP	4.13
		12/07/05	3.77	NP	4.48
		08/16/06	6.58	NP	1.67
		Well abandoned in September 2007.			
MW-2	8.76	03/27/00	3.61	NP	5.15
		05/23/00	4.64	NP	4.12
		07/20/00	5.06	NP	3.70
		10/18/00	5.19	NP	3.57
		01/18/00	3.96	NP	4.80
		04/18/01	3.83	NP	4.93
		07/17/01	5.08	NP	3.68
		10/18/01	4.83	NP	3.93
		01/16/02	3.71	NP	5.05
		07/09/03	5.36	NP	3.40
	8.89[c]	05/25/05	4.15	NP	4.74
		12/07/05	4.09	NP	4.80
		08/16/06	5.96	NP	2.93
		Well abandoned in September 2007.			
MW-3	8.78	03/27/00	5.61	NP	3.17
		05/23/00	6.46	NP	2.32
		07/20/00	7.05	NP	1.73
		10/18/00	6.84	NP	1.94
		01/18/01	6.37	NP	2.41
		04/18/01	5.46	NP	3.32
		07/17/01	6.93	NP	1.85
		10/18/01	6.47	NP	2.31
		01/16/01	4.83	NP	3.95
		07/09/03	6.72	0.02	2.08*
	8.58[c]	05/25/05	4.65	Film	3.93
		12/07/05	4.45	0.01	4.14*
		08/16/06	6.91	0.24	1.86*
		Well abandoned in September 2007.			

Table 2
Groundwater Monitoring Data
Former Arco Service Station #0855
Longview Washington

Well Number	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater[b] (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
Shallow Monitoring Wells (continued)					
MW-4	8.78	11/15/00	6.88	NP	1.90
		01/18/01	6.78	NP	2.00
		04/18/01	6.90	NP	1.88
		07/17/01	7.50	NP	1.28
		10/18/01	6.92	NP	1.86
		01/16/02	6.15	NP	2.63
		07/09/03	7.04	NP	1.74
	8.69[c]	05/25/05	6.24	NP	2.45
		12/07/05	5.70	NP	2.99
		08/16/06	6.84	NP	1.85
		Well abandoned in September 2007.			
MW-5	8.78	11/15/00	6.54	NP	2.24
		01/18/01	6.07	NP	2.71
		04/18/01	5.46	NP	3.32
		07/17/01	6.79	NP	1.99
		10/18/01	6.50	NP	2.28
		01/16/02	5.49	NP	3.29
		07/09/03	6.86	NP	1.92
	8.67[c]	05/25/05	5.64	NP	3.03
		12/07/05	5.53	NP	3.14
		08/16/06	6.28	NP	2.39
		12/11/07	4.64	NP	4.03
		03/11/08	4.90	NP	3.77
		07/01/08	5.33	NP	3.34
		09/30/08	6.17	NP	2.50
		06/17/09	6.00	NP	2.67
		07/01/09	***6.25***	***NP***	***2.42***
		07/29/09	***6.80***	***NP***	***1.87***
		08/26/09	***6.98***	***NP***	***1.69***
		09/02/09	7.08	NP	1.59
		09/28/09	***7.03***	***NP***	***1.64***
MW-6	8.21	11/15/00	6.15	NP	2.06
		01/18/01	5.85	NP	2.36
		04/18/01	5.70	NP	2.51
		07/17/01	6.02	NP	2.19
		10/18/01	6.03	NP	2.18
		01/16/02	5.80	NP	2.41
		07/09/03	6.16	NP	2.05
	8.11[c]	05/25/05	4.00	NP	4.11
		12/07/05	5.70	NP	2.41
		08/16/06	6.40	NP	1.71
		Well destroyed in November 2007.			

Table 2
Groundwater Monitoring Data
Former Arco Service Station #0855
Longview Washington

Well Number	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater[b] (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
Shallow Monitoring Wells (continued)					
MW-7	8.45	11/15/00	6.52	NP	1.93
		01/18/01	6.24	NP	2.21
		04/18/01	5.98	NP	2.47
		07/17/01	6.44	NP	2.01
		10/18/01	6.39	NP	2.06
		01/16/02	6.31	NP	2.14
		07/09/03	7.00	NP	1.45
	8.26[c]	05/25/05	5.61	NP	2.65
		12/07/05	6.36[d]	NP	1.90
		08/16/06	6.40	NP	1.86
		Well abandoned in September 2007.			
MW-8	6.45	05/25/05	4.50	NP	1.95
		12/07/05	3.69	NP	2.76
		08/16/06	4.67	NP	1.78
		12/11/07	3.55	NP	2.90
		03/11/08	3.51	NP	2.94
		07/01/08	4.03	NP	2.42
		09/30/08	4.19	NP	2.26
		06/17/09	3.91	NP	2.54
		07/01/09	***3.89***	***NP***	***2.56***
		07/29/09	***4.12***	***NP***	***2.33***
		08/26/09	***4.47***	***NP***	***1.98***
		09/02/09	4.55	NP	1.90
		09/28/09	***4.51***	***NP***	***1.94***
MW-9	9.43	05/25/05	4.66	NP	4.77
		12/07/05	4.59	NP	4.84
		08/16/06	5.23	NP	4.20
		12/11/07	4.52	NP	4.91
		03/11/08	4.65	NP	4.78
		07/01/08	5.06	NP	4.37
		09/30/08	5.08	NP	4.35
		06/17/09	5.05	NP	4.38
		07/01/09	***5.01***	***NP***	***4.42***
		07/29/09	***5.20***	***NP***	***4.23***
		08/26/09	***5.05***	***NP***	***4.38***
		09/02/09	5.20	NP	4.23
		09/28/09	***4.97***	***NP***	***4.46***
MW-10	9.52	05/25/05	10.30	NP	-0.78
		12/07/05	5.90	NP	3.62
		08/16/06	7.18	NP	2.34
		12/11/07	4.22	NP	5.30
		03/11/08	6.02	NP	3.50
		07/01/08	6.53	NP	2.99
		09/30/08	4.51	NP	5.01
		06/17/09	6.61	NP	2.91
		07/01/09	***6.89***	***NP***	***2.63***
		07/29/09	***7.35***	***NP***	***2.17***
		08/26/09	***7.34***	***NP***	***2.18***
		09/02/09	7.76	NP	1.76
		09/28/09	***7.51***	***NP***	***2.01***

Table 2
Groundwater Monitoring Data
Former Arco Service Station #0855
Longview Washington

Well Number	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater[b] (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
Shallow Monitoring Wells (continued)					
MW-11	8.16	12/07/05	3.87	NP	4.29
		08/16/06	6.10	NP	2.06
		12/11/07	3.51	NP	4.65
		03/11/08	4.86	NP	3.30
		07/01/08	5.61	NP	2.55
		09/30/08	6.56	NP	1.60
		06/17/09	5.70	NP	2.46
		07/01/09	***6.02***	***NP***	***2.14***
		07/29/09	***6.72***	***NP***	***1.44***
		08/26/09	***7.37***	***NP***	***0.79***
		09/02/09	7.52	NP	0.64
		09/28/09	***7.01***	***NP***	***1.15***
MW-12	8.21	12/11/07	2.69	NP	5.52
		03/11/08	4.25	NP	3.96
		07/01/08	5.20	NP	3.01
		09/30/08	5.85	NP	2.36
		06/17/09	5.41	NP	2.80
		07/01/09	***5.57***	***NP***	***2.64***
		07/29/09	***6.11***	***NP***	***2.10***
		08/26/09	***6.21***	***NP***	***2.00***
		09/02/09	6.33	NP	1.88
		09/28/09	***5.76***	***NP***	***2.45***
MW-13	9.03	12/11/07	1.10	NP	7.93
		03/11/08	1.53	NP	7.50
		07/01/08	3.53	NP	5.50
		09/30/08	4.73	NP	4.30
		06/17/09	3.65	NP	5.38
		07/01/09	***4.68***	***NP***	***4.35***
		07/29/09	***6.07***	***NP***	***2.96***
		08/26/09	***6.97***	***NP***	***2.06***
		09/02/09	7.04	NP	1.99
		09/28/09	***7.75***	***NP***	***1.28***
MW-14	8.39	12/11/07	1.50	NP	6.89
		03/11/08	3.85	NP	4.54
		07/01/08	4.27	NP	4.12
		09/30/08	6.44	NP	1.95
		06/17/09	5.49	NP	2.90
		07/01/09	***6.00***	***NP***	***2.39***
		07/29/09	***6.52***	***NP***	***1.87***
		08/26/09	***6.85***	***NP***	***1.54***
		09/02/09	6.93	NP	1.46
		09/28/09	***6.90***	***NP***	***1.49***

Table 2
Groundwater Monitoring Data
Former Arco Service Station #0855
Longview Washington

Well Number	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater[b] (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
Deep Monitoring Wells					
DMW-1	8.55	12/07/05	6.73	NP	1.82
		08/16/06	6.28	NP	2.27
		Well abandoned in September 2007.			
DMW-2	8.29	12/07/05	6.10	NP	2.19
		08/16/06	6.71	NP	1.58
		Well abandoned in September 2007.			
DMW-3	6.66	12/07/05	12.15[d]	NP	-5.49
		08/16/06	4.55	NP	2.11
		12/11/07	4.60	NP	2.06
		03/11/08	5.68	NP	0.98
		07/01/08	5.52	NP	1.14
		09/30/08	5.03	NP	1.63
		06/17/09	6.68	NP	-0.02
		07/01/09	***6.41***	***NP***	***0.25***
		07/29/09	***5.38***	***NP***	***1.28***
		08/26/09	***5.15***	***NP***	***1.51***
		09/02/09	5.19	NP	1.47
		09/28/09	***6.81***	***NP***	***-0.15***
DMW-4	8.55	12/07/05	6.30	NP	2.25
		08/16/06	7.12	NP	1.43
		12/11/07	6.08	NP	2.47
		03/11/08	6.54	NP	2.01
		07/01/08	6.41	NP	2.14
		09/30/08	6.91	NP	1.64
		06/17/09	6.61	NP	1.94
		07/01/09	***6.76***	***NP***	***1.79***
		07/29/09	***7.00***	***NP***	***1.55***
		08/26/09	***7.05***	***NP***	***1.50***
		09/02/09	7.13	NP	1.42
		09/28/09	***7.20***	***NP***	***1.35***
DMW-5	8.14	12/07/05	5.88	NP	2.26
		08/16/06	6.57	NP	1.57
		12/11/07	5.75	NP	2.39
		03/11/08	6.14	NP	2.00
		07/01/08	5.01	NP	3.13
		09/30/08	6.52	NP	1.62
		06/17/09	6.23	NP	1.91
		07/01/09	***6.36***	***NP***	***1.78***
		07/29/09	***6.65***	***NP***	***1.49***
		08/26/09	***6.66***	***NP***	***1.48***
		09/02/09	6.75	NP	1.39
		09/28/09	***6.79***	***NP***	***1.35***

Table 2
Groundwater Monitoring Data
Former Arco Service Station #0855
Longview Washington

Well Number	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater[b] (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
Deep Monitoring Wells (continued)					
DMW-6	9.15	08/16/06	7.74	NP	1.41
		12/11/07	6.68	NP	2.47
		03/11/08	7.15	NP	2.00
		07/01/08	7.04	NP	2.11
		09/30/08	7.53	NP	1.62
		06/17/09	7.25	NP	1.90
		07/01/09	***7.37***	***NP***	***1.78***
		07/29/09	***7.62***	***NP***	***1.53***
		08/26/09	***7.67***	***NP***	***1.48***
		09/02/09	7.79	NP	1.36
		09/28/09	***7.80***	***NP***	***1.35***
DMW-7	8.12	08/16/06	6.68	NP	1.44
		12/11/07	5.68	NP	2.44
		03/11/08	6.11	NP	2.01
		07/01/08	6.02	NP	2.10
		09/30/08	6.61	NP	1.51
		06/17/09	6.07	NP	2.05
		07/01/09	***6.20***	***NP***	***1.92***
		07/29/09	***6.51***	***NP***	***1.61***
		08/26/09	***6.51***	***NP***	***1.61***
		09/02/09	6.74	NP	1.38
		09/28/09	***6.80***	***NP***	***1.32***
DMW-8	9.09	08/16/06	7.65	NP	1.44
		12/11/07	6.60	NP	2.49
		03/11/08	7.06	NP	2.03
		07/01/08	6.97	NP	2.12
		09/30/08	7.48	NP	1.61
		06/17/09	7.01	NP	2.08
		07/01/09	***7.13***	***NP***	***1.96***
		07/29/09	***7.44***	***NP***	***1.65***
		08/26/09	***7.45***	***NP***	***1.64***
		09/02/09	7.69	NP	1.40
		09/28/09	***7.76***	***NP***	***1.33***
DMW-9	8.86	12/11/07	5.39	NP	3.47
		03/11/08	6.84	NP	2.02
		07/01/08	6.85	NP	2.01
		09/30/08	7.20	NP	1.66
		06/17/09	6.55	NP	2.31
		07/01/09	***6.80***	***NP***	***2.06***
		07/29/09	***7.36***	***NP***	***1.50***
		08/26/09	***7.41***	***NP***	***1.45***
		09/02/09	7.44	NP	1.42
		09/28/09	***7.52***	***NP***	***1.34***

Table 2
Groundwater Monitoring Data
Former Arco Service Station #0855
Longview Washington

Well Number	Top of Casing Elevation[a] (feet)	Date Measured	Depth to Groundwater[b] (feet)	Free Product Thickness (feet)	Groundwater Elevation (feet)
Deep Monitoring Wells (continued)					
DMW-10	8.38	12/11/07	4.91	NP	3.47
		03/11/08	6.35	NP	2.03
		07/01/08	6.24	NP	2.14
		09/30/08	6.75	NP	1.63
		06/17/09	6.44	NP	1.94
		07/01/09	***6.61***	***NP***	***1.77***
		07/29/09	***6.83***	***NP***	***1.55***
		08/26/09	***6.89***	***NP***	***1.49***
		09/02/09	6.99	NP	1.39
		09/28/09	***7.03***	***NP***	***1.35***
Deep Recovery Well					
RW-1	8.08	06/17/09	6.13	NP	1.95
		07/01/09	***21.20***	***NP***	***-13.12***
		07/29/09	***21.85***	***NP***	***-13.77***
		08/26/09	***20.05***	***NP***	***-11.97***
		09/02/09	6.69	NP	1.39
		09/28/09	***23.20***	***NP***	***-15.12***

NOTES:

NP = Free prroduct was not present.

The deep groundwater recovery/treatment system was activated on June 17, 2009, after measuring the depths to groundwater in the wells.

Values in bold and italics were measured when the deep groundwater recovery system was operating.

[a] Top of well casing elevations were surveyed relative to NAVD 88 datum.

[b] Measurements in feet below top of well casing.

[c] Top of casing (TOC) elevation was re-surveyed in May 2005.

[d] Water in well was under pressure and rising when the cap was removed. The water level was recorded after the well cap was off for over 2 hours.

* Groundwater elevation corrected for product thickness by using the equation: Groundwater elevation = TOC elevation - depth to groundwater + (product thickness x 0.80).

Table 3
Groundwater Sample Analytical Results - Petroleum Hydrocarbons
Former Arco Service Station #0855
Longview, Washington

Well Number	Sample Date	Benzene[a] (µg/L)	Toluene[a] (µg/L)	Ethylbenzene[a] (µg/L)	Total Xylenes[a] (µg/L)	GRO[b] (µg/L)	DRO[c] (µg/L)
MTCA Method A Cleanup Levels[d]		**5**	**1,000**	**700**	**1,000**	**800**	**500**
Shallow Wells							
MW-1	03/27/00	ND	ND	ND	ND	ND	ND
	05/23/00	ND	ND	ND	ND	ND	NA
	07/20/00	ND	ND	ND	ND	ND	NA
	10/18/00	ND	ND	1.61	ND	404	NA
	01/18/01	ND	ND	ND	ND	95.6	NA
	04/18/01	ND	ND	ND	ND	NA	NA
	07/17/01	ND	2.63	1.46	ND	386	NA
	10/18/01	ND	ND	ND	ND	ND	NA
	01/16/02	ND	ND	ND	ND	104	NA
	07/09/03	<0.50	<0.50	<0.50	<1.0	<50	<250
	05/25/05	<1.0	<1.0	<1.0	<2.0	<100	<50
	11/30/05	<1.0	<1.0	<1.0	<3.0	<100	<50
	Well abandoned in September 2007.						
MW-2	03/27/00	**6.89**	49.5	599	**2,490**	**17,100**	ND
	05/23/00	**26.2**	16.2	614	**1,770**	**13,200**	NA
	07/20/00	**11.9**	11.8	304	330	**7,220**	NA
	10/18/00	3.67	1.23	13.9	7.55	743	NA
	01/18/00	ND	ND	41.1	5.62	691	NA
	04/18/01	ND	ND	8.73	ND	NA	NA
	07/17/01	ND	1.26	14	ND	430	NA
	10/18/01	2.11	ND	3.64	ND	304	NA
	01/16/02	1.16	0.81	37.1	6.71	370	NA
	07/09/03	0.86	<0.50	6.43	1.28	131	<250
	05/30/05	<1.0	<1.0	<1.0	<2.0	<100	52
	12/01/05	<1.0	<1.0	<1.0	<3.0	120	<50
	Well abandoned in September 2007.						
MW-3	03/07/00	**7,520**	**12,900**	**2,780**	**14,500**	**93,700**	ND
	05/23/00	**4,710**	**8,330**	**2,280**	**11,200**	**65,200**	NA
	07/20/00	**10,700**	**22,600**	**3,160**	**17,400**	**145,000**	NA
	10/18/00	**12,900**	**33,000**	**4,890**	**26,700**	**179,000**	NA
	01/18/01	**9,380**	**17,200**	**3,940**	**20,230**	**121,000**	NA
	04/18/01	**7,700**	**15,300**	**3,430**	**16,990**	NA	NA
	07/17/01	**10,100**	**21,400**	**4,120**	**20,900**	**940,000**	NA
	10/18/01	**7,200**	**19,700**	**3,340**	**17,300**	**139,000**	NA
	01/16/02	**13,600**	**26,600**	**3,920**	**20,800**	**177,000**	NA
	07/09/03	**11,800**	**20,100**	**4,560**	**21,200**	**124,000**	**3,750**
	05/25/05	Not sampled due to presence of free product.					
	11/28/05	Not sampled due to presence of free product.					
	Well abandoned in September 2007.						

Table 3
Groundwater Sample Analytical Results - Petroleum Hydrocarbons
Former Arco Service Station #0855
Longview, Washington

Well Number	Sample Date	Benzene[a] (µg/L)	Toluene[a] (µg/L)	Ethylbenzene[a] (µg/L)	Total Xylenes[a] (µg/L)	GRO[b] (µg/L)	DRO[c] (µg/L)
MTCA Method A Cleanup Levels[d]		**5**	**1,000**	**700**	**1,000**	**800**	**500**
Shallow Wells (continued)							
MW-4	11/15/00	**1,310**	53.6	**2,430**	**7,250**	**45,500**	NA
	01/18/01	**1,130**	ND	**2,030**	**2,764**	**29,400**	NA
	04/18/01	**1,280**	ND	**1,700**	**2,591**	NA	NA
	07/17/01	**1,610**	35	**2,870**	**1,870**	**34,900**	NA
	10/18/01	**1,040**	ND	**2,300**	**1,320**	**33,000**	NA
	01/16/02	**733**	ND	**920**	948	**19,300**	NA
	07/09/03	**906**	39.1	**1,350**	156	**14,100**	**798**
	05/24/05	**310**	2.90	410	185[e]	**9,600**	**2,300**
	12/01/05	**990**	140	**1,100**	**1,353**[e]	**11,000**	**2,900**[f]
	Well abandoned in September 2007.						
MW-5	11/15/00	ND	ND	ND	ND	ND	NA
	01/18/01	ND	ND	ND	ND	786	NA
	04/18/01	**9.42**	ND	6.76	10.1	NA	NA
	07/17/01	1.83	1.16	1.90	3.28	694	NA
	10/18/01	3.05	1.39	1.48	1.45	647	NA
	01/16/02	**52.3**	3.82	48	24.9	**2,800**	NA
	07/09/03	1.26	0.99	1.54	4.64	615	<250
	05/24/05	<1.0	<1.0	<1.0	<2.0	460	120
	11/28/05	<1.0	<1.0	<1.0	<3.0	420	230[f]
	12/11/07	<1.0	<1.0	<1.0	<3.0	140	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
MW-6	11/15/00	ND	ND	ND	ND	131	NA
	01/18/01	ND	ND	ND	ND	732	NA
	04/18/01	ND	ND	ND	ND	NA	NA
	07/17/01	ND	1.35	1.33	5.79	**892**	NA
	10/18/01	ND	ND	2.60	5.48	**1,000**	NA
	01/16/02	ND	0.72	1.58	2.78	**810**	NA
	07/09/03	<0.50	0.53	1.15	4.84	462	**958**
	05/25/05	<1.0	<1.0	<1.0	<2.0	370	270
	11/28/05	<1.0	<1.0	<1.0	<1.0	NA	<1.0
	Well destroyed in November 2007.						
MW-7	11/15/00	ND	ND	ND	1.35	113	NA
	01/18/01	ND	ND	ND	ND	242	NA
	04/18/01	ND	ND	ND	ND	NA	NA
	07/17/01	ND	ND	ND	ND	275	NA
	10/18/01	ND	ND	ND	ND	286	NA
	01/16/02	ND	ND	ND	ND	362	NA
	07/09/03	<0.50	<0.50	<0.50	1.48	232	**2,050**
	05/25/05	<1.0	<1.0	<1.0	<2.0	<100	220
	11/30/05	<1.0	<1.0	<1.0	<3.0	<100	140
	Well abandoned in September 2007.						

Table 3
Groundwater Sample Analytical Results - Petroleum Hydrocarbons
Former Arco Service Station #0855
Longview, Washington

Well Number	Sample Date	Benzene[a] (µg/L)	Toluene[a] (µg/L)	Ethylbenzene[a] (µg/L)	Total Xylenes[a] (µg/L)	GRO[b] (µg/L)	DRO[c] (µg/L)
MTCA Method A Cleanup Levels[d]		**5**	**1,000**	**700**	**1,000**	**800**	**500**
Shallow Wells (continued)							
MW-8	05/25/05	<1.0	<1.0	<1.0	<3.0	<100	<70
	11/29/05	<1.0	<1.0	<1.0	<3.0	<100	<50
	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/01/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/01/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
MW-9	05/25/05	<1.0	<1.0	<1.0	<3.0	<100	<50
	11/28/05	<1.0	<1.0	<1.0	<3.0	<100	<50
	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
MW-10	05/25/05	**45**	<1.0	110	<2.0	**1,000**	**1,200**
	11/30/05	**31**	<1.0	110	<3.0	**1,400**	**1,000[f]**
	12/11/07	**9.0**	3.0	65	<3.0	**3,100**	**1,000[g]**
	03/11/08	**16**	2.0	40	<3.0	**3,000**	**1,200[g]**
	07/03/08	**18**	2.0	53	41	**2,500**	**1,100[g]**
	10/02/08	<1.0	<1.0	<1.0	<3.0	**1,300**	NA
	09/03/09	<1.0	<1.0	2.0	<3.0	200	NA
MW-11	12/05/05	<1.0	<1.0	<1.0	<3.0	<100	<50
	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
MW-12	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
MW-13	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/03/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
MW-14	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/01/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA

Table 3
Groundwater Sample Analytical Results - Petroleum Hydrocarbons
Former Arco Service Station #0855
Longview, Washington

Well Number	Sample Date	Benzene[a] (µg/L)	Toluene[a] (µg/L)	Ethylbenzene[a] (µg/L)	Total Xylenes[a] (µg/L)	GRO[b] (µg/L)	DRO[c] (µg/L)
MTCA Method A Cleanup Levels[d]		**5**	**1,000**	**700**	**1,000**	**800**	**500**
Deep Wells/Wellpoint							
SSB-15	05/25/05	**9,600**	**1,200**	**2,400**	**11,600[e]**	**67,000 E**	**2,300**
DMW-1	12/07/05	**4,000**	160	**1,100**	**4,090[e]**	**22,000**	**2,900[f]**
	08/17/06	**4,100**	<1.0	**520**	**841[e]**	**16,000**	**930[f]**
	Well abandoned in September 2007.						
DMW-2	12/07/05	**11**	<1.0	40	46[f]	270	<50
	08/16/06	**10**	<1.0	5.6	<3.0	<100	<50
	Well abandoned in September 2007.						
DMW-3	12/07/05	<1.0	<1.0	<1.0	<3.0	<50	<50
	08/17/06	<1.0	<1.0	<1.0	<3.0	<100	<50
	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/01/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
DMW-4	12/05/05	**56**	<1.0	<1.0	<3.0	230	<50
	08/17/06	**5.7**	<1.0	<1.0	<3.0	210	<50
	12/11/07	**27**	3.0	2.0	4.0	260	<50
	03/11/08	**6.0**	<1.0	<1.0	<3.0	230	68[g]
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
DMW-5	12/05/05	**36**	<1.0	<1.0	<3.0	130	<50
	08/17/06	**74**	<1.0	<1.0	<3.0	170	<50
	12/11/07	**41**	<1.0	<1.0	<3.0	100	<50
	03/11/08	**10**	<1.0	<1.0	<3.0	<100	<50
	07/02/08	1.0	<1.0	<1.0	<3.0	<100	<50
	10/01/08	**42**	<1.0	<1.0	<3.0	110	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
DMW-6	08/16/06	<1.0	<1.0	<1.0	<3.0	<100	<50
	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
DMW-7	08/16/06	<1.0	<1.0	<1.0	<3.0	<100	<50
	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/01/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/01/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA

Table 3
Groundwater Sample Analytical Results - Petroleum Hydrocarbons
Former Arco Service Station #0855
Longview, Washington

Well Number	Sample Date	Benzene[a] (µg/L)	Toluene[a] (µg/L)	Ethylbenzene[a] (µg/L)	Total Xylenes[a] (µg/L)	GRO[b] (µg/L)	DRO[c] (µg/L)
MTCA Method A Cleanup Levels[d]		**5**	**1,000**	**700**	**1,000**	**800**	**500**
Deep Wells/Wellpoint (continued)							
DMW-8	08/16/06	<1.0	<1.0	<1.0	<3.0	<100	<50
	12/11/07	<1.0	<1.0	<1.0	<3.0	<100	<50
	03/11/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	07/02/08	<1.0	<1.0	<1.0	<3.0	<100	<50
	10/02/08	<1.0	<1.0	<1.0	<3.0	<100	NA
	09/03/09	<1.0	<1.0	<1.0	<3.0	<100	NA
DMW-9	12/11/07	**6,100**	**1,900**	**970**	**3,100**	**27,000**	**600[g]**
	03/11/08	**3,000**	150	380	880	**13,000**	450[g]
	07/03/08	**3,600**	3.0	320	610	**9,500**	**520[g]**
	10/02/08	**3,300**	4.0	140	270	**8,600**	NA
	09/03/09	**2,800**	4.0	320	1,100	**14,000**	NA
DMW-10	12/11/07	**60**	4.0	88	130	750	53[g]
	03/11/08	**75**	4.0	140	120	**1,000**	74[g]
	07/02/08	**89**	6.0	160	130	**1,100**	68[g]
	10/01/08	**90**	5.0	120	25	**820**	NA
	09/03/09	**9.0**	<1.0	2.0	<3.0	<100	NA

NOTES: Values in bold exceed the MTCA Method A cleanup levels.

All concentrations in micrograms per liter (µg/L).

ND = Not detected above the laboratory method reporting limit (MRL).

NA = Not analyzed.

[a] Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B or EPA Method 8260B.

[b] Gasoline-range organics (GRO) by Ecology Method NWTPH-Gx.

[c] Diesel-range organics (DRO) by Ecology Method NWTPH-Dx.

[d] Chapter 173-340 WAC, Model Toxics Control Act (MTCA) Cleanup Regulation, Method A Cleanup Levels. Amended February 12, 2001.

[e] Total xylenes calculated by using the formula: total xylenes concentration = (m, p-xylene concentration) + (o-xylene concentration).

[f] The laboratory reported that the DRO concentration is due to overlap from the gasoline range.

[g] The laboratory reported that the pattern of chromatogram peaks from the sample were not indicative of diesel.

Table 4
Groundwater Sample Analytical Results - Natural Attenuation Parameters
Former Arco Service Station #0855
Longview, Washington

Sample Location	Sample Date	Nitrate[a] (mg/L)	Sulfate[a] (mg/L)	Dissolved Methane[b] (mg/L)	Dissolved Oxygen[c] (mg/L)	Dissolved Manganese[d] (mg/L)	Dissolved Ferrous Iron[e] (mg/L)	Alkalinity[f] (mg/L $CaCO^3$)	Redox Potential[g] (mV)
Shallow Wells									
MW-5	12/12/07	12.2	969	0.6	0.2	2.9	5.0	10.3	119
	03/13/08	2.3	341	<0.007	0.4	2.5	3.3	19.3	-123
	07/02/08	0.5	275	0.5	0.1	1.4	NM	80.8	10.0
	10/02/08	0.6	288	0.5	1.7	1.9	2.9	106	92.8
	09/03/09	<0.1	202	0.3	0.6	1.4	4.6	49.4	-67.4
MW-8	12/12/07	<0.01	4.8	0.1	1.9	0.5	1.7	33.3	248
	03/13/08	<0.2	6.6	0.001	0.7	0.4	2.1	57.6	-140
	07/01/08	<0.1	14.0	2.0	0.2	0.4	NM	73.0	-78.9
	10/01/08	<0.1	15.9	1.1	1.3	0.5	3.6	74.1	-49.3
	09/03/09	<0.1	0.1	1.5	0.7	0.4	4.4	67.4	-110
MW-9	12/12/07	0.5	5.0	0.0008	4.0	0.004	<0.1	40.1	237
	03/13/08	0.5	8.5	3.3	3.2	0.01	0.6	39.7	-33.5
	07/02/08	1.2	36.4	<0.0007	2.2	0.02	NM	80.2	85.6
	10/02/08	0.3	8.0	0.004	2.8	0.4	0.6	51.6	135
	09/03/09	0.3	9.3	0.01	1.9	0.5	0.4	52.9	-123
MW-10	12/12/07	0.04	74.9	6.5	3.0	2.4	2.0	174	294
	03/13/08	<0.2	186	1.8	2.1	2.2	3.1	160	-117
	07/02/08	<0.2	199	7.3	0.1	3.3	NM	232	15.2
	10/02/08	<0.1	69.0	1.7	1.3	2.1	3.0	181	111
	09/03/09	<0.1	34.3	7.9	1.3	1.4	3.0	180	111
MW-11	12/12/07	0.8	643	0.1	0.6	1.8	3.8	28.4	200
	03/13/08	0.4	199	<0.0007	0.6	2.5	1.4	45.1	-81.5
	07/02/08	0.04	162	0.2	0.2	1.0	NM	89.4	25.4
	10/02/08	<0.1	89.5	0.4	1.5	1.8	2.4	138	27.1
	09/03/09	<0.1	82.6	0.6	0.7	1.6	4.4	126	-88.1
MW-12	12/12/07	37.0	1,500	0.2	0.7	5.3	3.8	6.9	178
	03/13/08	27.5	1,060	0.0009	0.8	6.8	<0.1	58.8	-147
	07/02/08	<0.1	204	0.5	0.2	8.3	NM	52.3	83.7
	10/02/08	0.4	1,280	0.3	0.9	11.3	<0.1	91.8	141
	09/03/09	<0.1	882	0.8	1.7	11.5	1.2	146	-117
MW-13	12/12/07	31.7	1,590	0.04	NM	8.7	<0.1	70.7	236
	03/13/08	21.5	1,540	0.005	0.6	9.1	<0.1	218	-113
	07/03/08	4.5	1,420	0.007	0.1	9.8	NM	133	21.9
	10/02/08	1.9	1,800	0.02	1.3	16.3	<0.1	152	376
	09/03/09	<0.1	805	0.1	0.6	11.3	0.2	96	-67
MW-14	12/12/07	16.7	1,190	0.07	2.5	9.4	0.2	16.0	215
	03/13/08	5.7	945	0.0009	2.4	7.1	1.2	57.8	-164
	07/02/08	1.0	891	<0.0007	0.3	2.4	NM	43.4	28.7
	10/01/08	0.3	879	<0.0007	1.6	1.9	<0.1	80.7	547
	09/03/09	<0.1	444	0.1	0.7	1.1	<0.1	45.4	-108
Deep Wells									
DMW-3	12/12/07	<0.05	31.8	1.6	3.8	2.8	1.0	220	256
	03/13/08	<0.2	23.4	2.5	2.0	2.6	3.0	197	-129
	07/02/08	<0.1	43.9	1.6	0.2	2.3	NM	214	-96.2
	10/01/08	<0.1	22.2	2.2	1.3	2.8	3.5	210	276
	09/03/09	<0.1	8.8	1.4	1.3	2.3	3.5	220	276

Table 4
Groundwater Sample Analytical Results - Natural Attenuation Parameters
Former Arco Service Station #0855
Longview, Washington

Sample Location	Sample Date	Nitrate[a] (mg/L)	Sulfate[a] (mg/L)	Dissolved Methane[b] (mg/L)	Dissolved Oxygen[c] (mg/L)	Dissolved Manganese[d] (mg/L)	Dissolved Ferrous Iron[e] (mg/L)	Alkalinity[f] (mg/L $CaCO^3$)	Redox Potential[g] (mV)
Deep Wells (continued)									
DMW-4	12/12/07	<0.01	22.4	10.1	0.1	2.2	3.6	174	105
	03/13/08	<0.2	297	0.0009	0.2	15.5	4.6	22.2	-137
	07/02/08	3.4	1,040	1.6	0.1	2.3	NM	65.8	-86.8
	10/02/08	<0.2	309	0.9	1.1	3.4	3.0	72.7	-18.4
	09/03/09	<0.1	24.4	4.2	1.5	1.7	4.4	178	-93.0
DMW-5	12/12/07	<0.01	13.0	13.7	0.1	2.3	3.4	177	102
	03/13/08	<0.2	10.3	8.2	0.2	2.9	3.6	180	-128
	07/02/08	<0.1	42.6	8.8	0.4	2.5	NM	221	-101
	10/01/08	<0.1	7.7	5.9	1.4	2.4	NM	166	48.6
	09/03/09	<0.05	33.6	4.2	1.7	1.6	2.8	126	-318
DMW-6	12/12/07	<0.01	8.0	11.7	0.2	1.7	2.2	104	121
	03/13/08	<0.2	7.5	9.5	0.2	4.3	2.2	112	-137
	07/02/08	<0.1	54.0	7.6	0.1	2.0	NM	149	-86.1
	10/02/08	<0.1	39.0	6.4	1.1	2.0	2.6	154	-25.6
	09/03/09	<0.1	<0.1	9.5	0.5	1.7	4.2	146	-117
DMW-7	12/12/07	<0.01	23.3	9.1	0.3	3.7	3.1	158	93.6
	03/13/08	<0.2	29.6	8.3	0.4	12.4	3.0	155	-172
	07/01/08	<0.1	53.3	5.6	0.2	5.6	NM	195	-88.1
	10/01/08	<0.2	34.7	5.2	1.5	6.4	3.0	203	6.9
	09/03/09	<0.05	18.0	5.9	2.2	3.5	4.2	174	-261.0
DMW-8	12/12/07	0.01	6.2	3.8	0.2	1.9	4.4	133	109
	03/13/08	<0.2	17.6	2.0	0.3	2.1	3.1	107	-160
	07/02/08	<0.1	37.0	1.6	0.2	1.8	NM	109	-5.9
	10/02/08	<0.1	26.8	2.0	1.2	2.0	2.6	151	1,103
	09/03/09	<0.05	23.2	3.1	1.7	1.9	3.6	142	-290
DMW-9	12/12/07	<0.01	55.7	27.4	0.2	1.9	5.7	270	113
	03/13/08	<0.5	32.2	19.8	0.2	3.4	3.7	355	-128
	07/03/08	<0.1	38.9	21.1	0.2	2.6	NM	406	-83.8
	10/02/08	<0.1	20.0	21.0	1.2	2.8	2.7	451	4.0
	09/03/09	<0.1	<0.1	20.6	0.7	2.1	4.2	330	-120
DMW-10	12/12/07	<0.01	24.2	11.3	0.09	3.0	3.6	191	92.5
	03/13/08	<0.2	7.7	8.1	0.1	5.4	3.1	227	-94.2
	07/02/08	<0.1	27.9	11.0	0.3	4.0	NM	266	-113
	10/01/08	<0.2	5.3	11.5	1.5	4.5	4.4	271	-0.6
	09/03/09	<0.05	32.7	2.9	1.1	2.1	2.8	117	-343

NOTES:

NM = Not measured.

mg/L = milligrams per liter (ppm).

[a] Nitrate by EPA Method 353.2.

[a] Sulfate by EPA Method 375.2.

[b] Dissolved methane by EPA Method RSK 175 Modified.

[c] Dissolved oxygen by EPA Method 360.1 (field instrument reading).

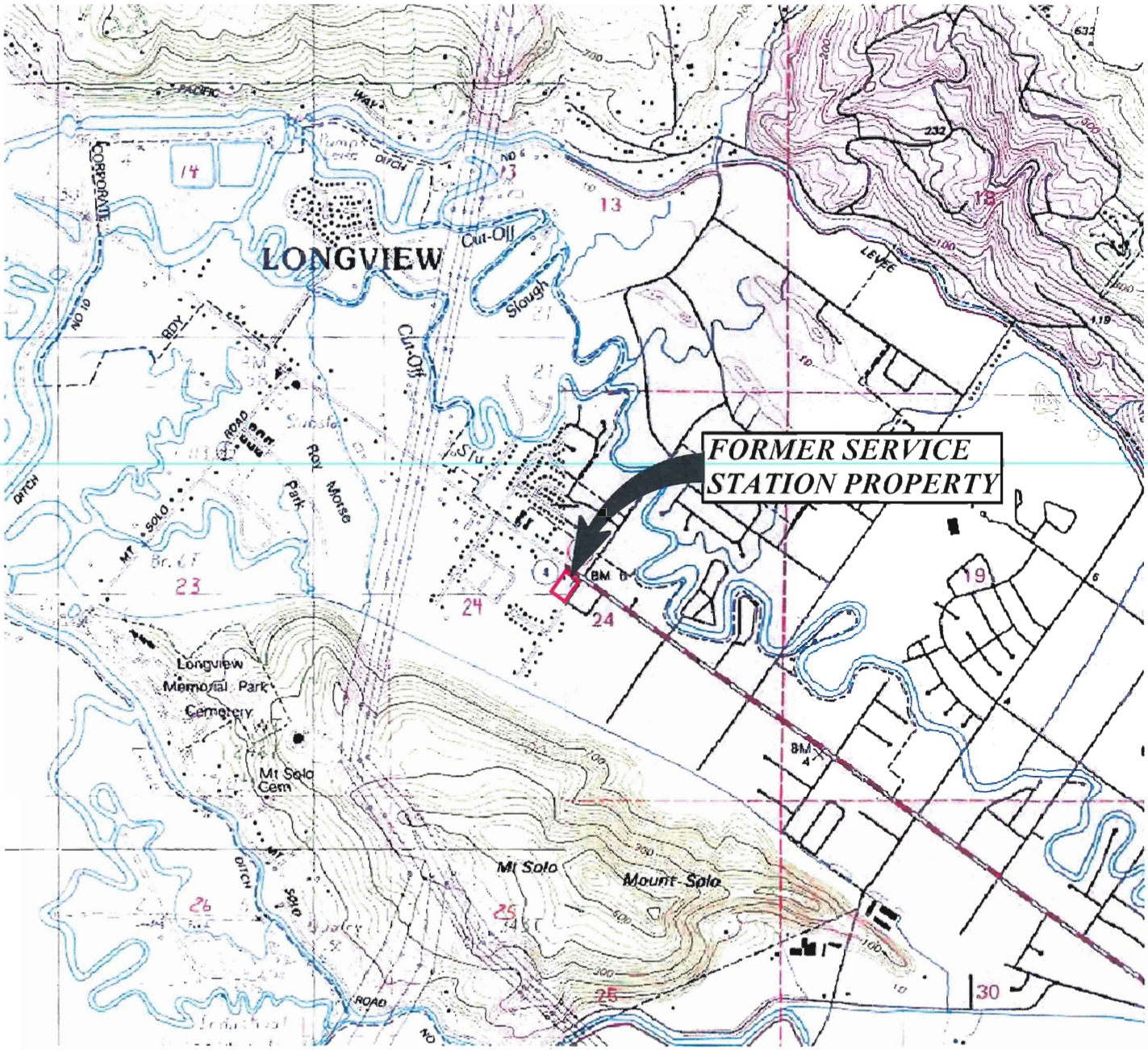
[d] Dissolved manganese by EPA Method 200.8.

[e] Dissolved ferrous iron by Standard Method SM 3500 (field test kit).

[f] Alkalinity by Standard Method SM 2320.

[g] Oxidation-reduction (redox) potential by EPA Method D1498-76 (field instrument reading).

FIGURES



0 2000 4000

SCALE IN FEET

SLR International Corp

22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021

T: 425-402-8800
F: 425-402-8488

DATE	10/09
DWN.	BDT
APPR.	MDS
REVIS.	
PROJECT NO.	001.0173.00010

FIGURE 1
FORMER ARCO SERVICE STATION #0855
LONGVIEW, WASHINGTON

PROPERTY LOCATION MAP

C:\DRIVE_E\Clients\SLR\001\001.0173.00010\01-01.dwg, 10/1/2009 7:44:44 PM, BDT

BOON DOX TAVERN

BOON DOX MARKET

TEXACO SERVICE STATION

DMW-7 (2.05)

LEGEND

DMW-5 — DEEP GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

RW-1 — DEEP GROUNDWATER RECOVERY WELL LOCATION AND DESIGNATION

(1.94) — DEEP GROUNDWATER ELEVATION (IN FEET ABOVE THE NAVD 88 DATUM)

OCEAN BEACH HIGHWAY

SIDEWALK

DMW-8 (2.08)

SIDEWALK

DMW-6 (1.90)

BUS LANE

DMW-4 (1.94)

PLANTER

DMW-5 (1.91)

DMW-9 (2.31)

FORMER DISPENSER ISLAND

FORMER UNDERGROUND DISPENSER LINES

RW-1 (1.95)

UNDEVELOPED MARSHY LAND

FORMER GASOLINE USTs

DMW-10 (1.94)

FORMER SERVICE STATION BUILDING

PROPERTY LINE

DRAINAGE DITCH

FORMER HEATING OIL UST

FORMER USED OIL UST

DMW-3 (-0.02)

FORMER SERVICE STATION PARCEL (SITE) BOUNDARY

UNDEVELOPED LAND

PROPERTY LINE

46TH AVENUE

HENRI'S RESTAURANT

0 30 60

SCALE IN FEET

C:\DRIVE_E\Clients\SLR\001\001.0173.00010\02-02.dwg, 10/1/2009 7:53:25 PM, BDT

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL. WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 10/09
DWN. BDT
APPR. MDS
REVIS.
PROJECT NO.
001.0173.00010

FIGURE 2
FORMER ARCO SERVICE STATION #0855
4603 OCEAN BEACH HIGHWAY
LONGVIEW, WASHINGTON
DEEP GROUNDWATER ELEVATIONS - JUNE 17, 2009 (PRIOR TO SYSTEM ACTIVATION)

BOON DOX MARKET

BOON DOX TAVERN

TEXACO SERVICE STATION

DMW-7

SS

M.H.

OCEAN BEACH HIGHWAY

SIDEWALK

MW-10

MW-5

DMW-4

PLANTER

MW-11

DMW-5

DMW-9

MW-13

RW-1

MW-12

VACANT PROPERTY

DMW-10

MW-14

UNDERGROUND TREATMENT SYSTEM INFLUENT LINE

GROUNDWATER TREATMENT SYSTEM LOCATION

DMW-3

SYSTEM EFFLUENT LINE

FORMER SERVICE STATION PARCEL (SITE) BOUNDARY

SANITARY SEWER LATERAL

UNDEVELOPED LAND

DRAINAGE DITCH

PROPERTY LINE

46TH AVENUE

BUS LANE

MW-9

DMW-6

MW-8

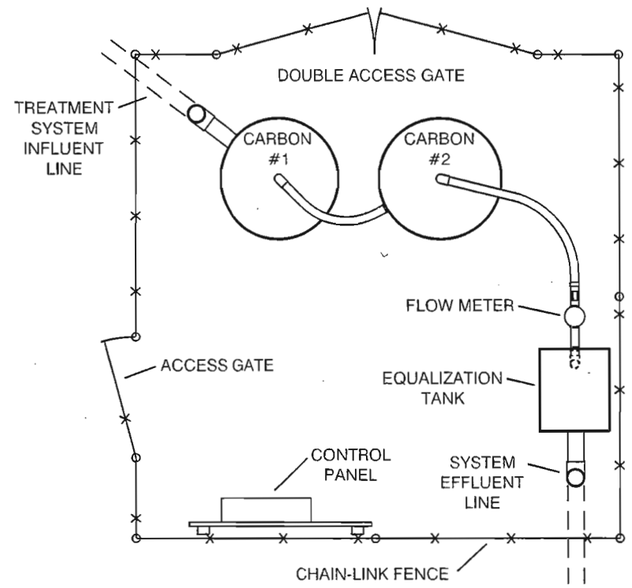
HENRI'S RESTAURANT

0 30 60

SCALE IN FEET

LEGEND

- RW-1 — DEEP GROUNDWATER RECOVERY WELL LOCATION
- MW-5 — SHALLOW GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- DMW-5 — DEEP GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- SS — UNDERGROUND SANITARY SEWER LINE
- M.H. — SANITARY SEWER MANHOLE



1/2 GROUNDWATER TREATMENT SYSTEM

NOT TO SCALE

SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 10/09
DWN. BDT
APPR. MDS
REVIS.
PROJECT NO. 001.0173.00010

FIGURE 3
FORMER ARCO SERVICE STATION #0855
4603 OCEAN BEACH HIGHWAY
LONGVIEW, WASHINGTON

SITE PLAN AND SYSTEM LAYOUT

C:\DRIVE_E\Clients\SLR\001\001.0173.00010\02-03.dwg, 10/5/2009 6:42:53 PM, BDT

BOON DOX TAVERN

BOON DOX MARKET

TEXACO SERVICE STATION

LEGEND

- **MW-5** SHALLOW GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- **RW-1** DEEP GROUNDWATER RECOVERY WELL LOCATION AND LOCATION
- (2.91) SHALLOW GROUNDWATER ELEVATION (IN FEET ABOVE THE NAVD 88 DATUM)

OCEAN BEACH HIGHWAY

SIDEWALK

SIDEWALK

MW-10 (2.91)

MW-9 (4.38)

BUS LANE

MW-5 (2.67)

PLANTER

MW-11 (2.46)

MW-13 (5.38)

FORMER UNDERGROUND DISPENSER LINES

FORMER DISPENSER ISLAND

RW-1

UNDEVELOPED MARSHY LAND

MW-12 (2.80)

FORMER GASOLINE USTs

FORMER SERVICE STATION BUILDING

PROPERTY LINE

MW-14 (2.90)

FORMER HEATING OIL UST

FORMER USED OIL UST

DRAINAGE DITCH

FORMER SERVICE STATION PARCEL (SITE) BOUNDARY

UNDEVELOPED LAND

PROPERTY LINE

46TH AVENUE

MW-8 (2.54)

HENRI'S RESTAURANT

0 30 60

SCALE IN FEET

SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 10/09
DWN. BDT
APPR. MDS
REVIS.
PROJECT NO. 001.0173.00010

FIGURE 4
FORMER ARCO SERVICE STATION #0855
4603 OCEAN BEACH HIGHWAY
LONGVIEW, WASHINGTON
SHALLOW GROUNDWATER ELEVATIONS - JUNE 17, 2009 (PRIOR TO SYSTEM ACTIVATION)

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BOON DOX TAVERN

BOON DOX MARKET

DMW-7 (1.32)

TEXACO SERVICE STATION

LEGEND

DMW-5 — DEEP GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

RW-1 — DEEP GROUNDWATER RECOVERY WELL LOCATION AND DESIGNATION

(1.35) — DEEP GROUNDWATER ELEVATION (IN FEET ABOVE THE NAVD 88 DATUM)

OCEAN BEACH HIGHWAY

SIDEWALK

DMW-8 (1.33)

SIDEWALK

DMW-6 (1.35)

BUS LANE

DMW-4 (1.35)

PLANTER

DMW-5 (1.35)

DMW-9 (1.34)

FORMER DISPENSER ISLAND

FORMER UNDERGROUND DISPENSER LINES

RW-1 (-15.12)

UNDEVELOPED MARSHY LAND

FORMER GASOLINE USTs

FORMER SERVICE STATION BUILDING

DMW-10 (1.35)

PROPERTY LINE

FORMER HEATING OIL UST

FORMER USED OIL UST

DRAINAGE DITCH

DMW-3 (-0.15)

FORMER SERVICE STATION PARCEL (SITE) BOUNDARY

UNDEVELOPED LAND

PROPERTY LINE

46TH AVENUE

HENRI'S RESTAURANT

0 30 60

SCALE IN FEET

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SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 10/09
DWN. BDT
APPR. MDS
REVIS.
PROJECT NO. 001.0173.00010

FIGURE 5
FORMER ARCO SERVICE STATION #0855
4603 OCEAN BEACH HIGHWAY
LONGVIEW, WASHINGTON
DEEP GROUNDWATER ELEVATIONS - SEPTEMBER 28, 2009 (SYSTEM OPERATING)

BOON DOX TAVERN

BOON DOX MARKET

TEXACO SERVICE STATION

LEGEND

MW-5 SHALLOW GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

RW-1 DEEP GROUNDWATER RECOVERY WELL LOCATION AND LOCATION

(1.64) SHALLOW GROUNDWATER ELEVATION (IN FEET ABOVE THE NAVD 88 DATUM)

NOTE: AT THE TIME OF THE SHALLOW GROUNDWATER LEVEL MEASUREMENTS, THE GROUNDWATER ELEVATION IN THE DEEP GROUNDWATER RECOVERY WELL WAS -15.12 FEET ABOVE THE NAVD 88 DATUM.

OCEAN BEACH HIGHWAY

SIDEWALK

SIDEWALK

MW-10 (2.01)

MW-9 (4.46)

BUS LANE

MW-5 (1.64)

PLANTER

MW-11 (1.15)

MW-13 (1.28)

FORMER UNDERGROUND DISPENSER LINES

FORMER DISPENSER ISLAND

RW-1

UNDEVELOPED MARSHY LAND

MW-12 (2.45)

FORMER GASOLINE USTs

FORMER SERVICE STATION BUILDING

PROPERTY LINE

MW-14 (1.49)

FORMER HEATING OIL UST

FORMER USED OIL UST

DRAINAGE DITCH

FORMER SERVICE STATION PARCEL (SITE) BOUNDARY

UNDEVELOPED LAND

PROPERTY LINE

46TH AVENUE

MW-8 (1.94)

HENRI'S RESTAURANT

0 30 60

SCALE IN FEET

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SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 10/09
DWN. BDT
APPR. GDS
REVIS.
PROJECT NO. 001.0173.00010

FIGURE 6
FORMER ARCO SERVICE STATION #0855
4603 OCEAN BEACH HIGHWAY
LONGVIEW, WASHINGTON
SHALLOW GROUNDWATER ELEVATIONS - SEPTEMBER 28, 2009 (SYSTEM OPERATING)

APPENDIX A

SOIL BORING LOG

SLR
SLR International Corp
22122 20th Avenue SE
Bothell, Washington 98021
Telephone: 425.402.8800
Fax: 425.402.8488

WELL NUMBER RW-1

CLIENT Wakefield Family, LLC
PROJECT NAME Former Arco Service Station #0855
PROJECT NUMBER 001.0173.00008
PROJECT LOCATION Longview, Washington
DATE STARTED 9/5/08 **COMPLETED** 10/30/08
GROUND ELEVATION _____ **HOLE SIZE** 6" diameter
DRILLING DRILLING CONTRACTOR Cascade Drilling
GROUND WATER LEVELS:
DRILLING DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY M. Staton **CHECKED BY** _____
AT END OF ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					0.3 **CRUSHED ROCK** (FILL).
					GRAVELLY SAND, light brown, fine- to coarse-grained, some fine to medium gravel, moist to wet, no hydrocarbon-like odors (FILL).
2.5					
5.0					@ 4.5 feet: wet
7.5			SP		
10.0					
12.5					

WELL DIAGRAM: Cement; Hydrated bentonite chips; Native sand backfill; Hydrated bentonite chips

GENERAL BH / TP / WELL FORMER ARCO #0855.GPJ GINT US.GDT 2/5/09

(Continued Next Page)

SLR
SLR International Corp
22122 20th Avenue SE
Bothell, Washington 98021
Telephone: 425.402.8800
Fax: 425.402.8488

WELL NUMBER RW-1

CLIENT Wakefield Family, LLC **PROJECT NAME** Former Arco Service Station #0855

PROJECT NUMBER 001.0173.00008 **PROJECT LOCATION** Longview, Washington

DEPTH (ft)	INTERVAL	TYPE	NAME	BLOW COUNTS PER FOOT (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
15.0					SP		**GRAVELLY SAND**, light brown, fine- to coarse-grained, some fine to medium gravel, moist to wet, no hydrocarbon-like odors (FILL). *(continued)*	
							15.2	
		SS		3	ML		**CLAYEY SILT**, brownish gray, soft, moist to wet, no hydrocarbon-like odors, trace organics.	
17.5		SS		7				
		SS		11				
							19.0	
20.0		SS		12	SM		**SILTY SAND**, gray, very fine- to coarse-grained, some fines, some fine gravel, very moist to wet, loose to medium dense, no hydrocarbon-like odors. @ 19.2 feet: no fine gravel @ 19.5 feet: wet	6"-diameter Sch. 40 PVC riser
		SS		4				
22.5		SS		20				
							23.5	
25.0		SS		36	SP		**SAND**, dark gray, fine- to coarse-grained, dense, wet, no hydrocarbon-like odors.	#2/12 sand filter pack
27.5								6"-diameter Sch. 40 PVC 0.020"-slotted screen
30.0								6"-diameter Sch. 40 PVC sump

REMARKS

Between depths of 15 and 25.5 feet, soil samples were collected on a continuous basis by using a decontaminated 18-inch-long, 2-inch inside-diameter split-spoon sampler.
SS = split-spoon sampler
Soil samples collected during initial drilling on September 5, 2008.

(Continued Next Page)

SLR
SLR International Corp
22122 20th Avenue SE
Bothell, Washington 98021
Telephone: 425.402.8800
Fax: 425.402.8488

WELL NUMBER RW-1

CLIENT Wakefield Family, LLC **PROJECT NAME** Former Arco Service Station #0855

PROJECT NUMBER 001.0173.00008 **PROJECT LOCATION** Longview, Washington

DEPTH (ft)	INTERVAL	TYPE	NAME	BLOW COUNTS PER FOOT (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
32.5					SP		**SAND**, dark gray, fine- to coarse-grained, dense, wet, no hydrocarbon-like odors. *(continued)*	6"-diameter Sch. 40 PVC well cap; Native sand backfill
35.0								

Boring completed at 35.0 feet.

WELL COMPLETION DETAILS

0.3 to 24.3 feet: 6.0-inch-diameter Schedule 40 PVC blank riser pipe.
24.3 to 29.3 feet: 6.0-inch-diameter Schedule 40 PVC well screen with 0.020-inch machined slots.
29.3 to 31.3 feet: 6.0-inch-diameter Schedule 40 PVC sump.

0 to 1.5 feet: Concrete.
1.5 to 3 feet: Hydrated bentonite chips.
3 to 10 feet: Native sand.
10 to 18.5 feet: Hydrated bentonite chips.
18.5 to 32 feet: #2/12 Cemex sand.
32 to 35 feet: Native sand.

REMARKS

Between depths of 15 and 25.5 feet, soil samples were collected on a continuous basis by using a decontaminated 18-inch-long, 2-inch inside-diameter split-spoon sampler.
SS = split-spoon sampler
Soil samples collected during initial drilling on September 5, 2008.

APPENDIX B

LABORATORY ANALYTICAL REPORTS – TREATMENT SYSTEM SAMPLES

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services™
An Employee - Owned Company

June 22, 2009 Analytical Report for Service Request No: K0905504

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview

Dear Mike:

Enclosed are the results of the samples submitted to our laboratory on June 18, 2009. For your reference, these analyses have been assigned our service request number K0905504.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

06/22/09

Pradeep Divvela
Project Chemist

PD/LG

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	SLR International	**Service Request No.:**	K0905504
Project:	Longview	**Date Received:**	06/18/09
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

Sample Receipt

Three water samples were received for analysis at Columbia Analytical Services on 06/18/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Gasoline Range Organics by Method NWTPH-Gx

No anomalies associated with the analysis of these samples were observed.

Volatile Organic Compounds by EPA Method 8260B

Initial Calibration Exceptions:
The primary evaluation criterion was exceeded for m,p-Xylenes in Initial Calibration (ICAL) ID 8530. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the mean Relative Standard Deviation (RSD) of all analytes in the calibration. The result of the mean RSD calculation was 9.7%. The calibration met the alternative evaluation criteria. Note that CAS/Kelso policy does not allow the use of averaging if any analyte in the ICAL exceeds 30% RSD.

Elevated Detection Limits:
The sample INF1-61809 required dilutions due to the presence of elevated levels of Benzene. The reporting limits were adjusted to reflect the dilution.

No other anomalies associated with the analysis of these samples were observed.

06/22/09

Approved by_____ Date_____

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Collected:**	06/18/2009
Sample Matrix:	Water	**Date Received:**	06/18/2009

Gasoline Range Organics

Sample Name:	INF1-61809	**Units:**	ug/L
Lab Code:	K0905504-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/19/09	06/19/09	KWG0905351	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	98	50-150	06/19/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Collected:**	06/18/2009
Sample Matrix:	Water	**Date Received:**	06/18/2009

Gasoline Range Organics

Sample Name:	EFF1-61809	**Units:**	ug/L
Lab Code:	K0905504-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/19/09	06/19/09	KWG0905351	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	99	50-150	06/19/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Collected:**	06/18/2009
Sample Matrix:	Water	**Date Received:**	06/18/2009

Gasoline Range Organics

Sample Name:	EFF2-61809	**Units:**	ug/L
Lab Code:	K0905504-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/19/09	06/19/09	KWG0905351	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	99	50-150	06/19/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905351-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/19/09	06/19/09	KWG0905351	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	99	50-150	06/19/09	Acceptable

Comments:

Client: SLR International
Project: Longview
Sample Matrix: Water

Service Request: K0905504

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
INF1-61809	K0905504-001	98
EFF1-61809	K0905504-002	99
EFF2-61809	K0905504-003	99
Batch QCDUP	KWG0905351-1	99
Method Blank	KWG0905351-3	99
Batch QC	K0905283-018	99
Lab Control Sample	KWG0905351-2	104

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: SLR International
Project: Longview
Sample Matrix: Water

Service Request: K0905504
Date Extracted: 06/19/2009
Date Analyzed: 06/19/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name: Batch QC
Lab Code: K0905283-018

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: ug/L
Basis: NA

Level: Low
Extraction Lot: KWG0905351

			Batch QCDUP KWG0905351-1 Duplicate Sample			
Analyte Name	**MRL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Extracted:**	06/19/2009
Sample Matrix:	Water	**Date Analyzed:**	06/19/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0905351

	Lab Control Sample KWG0905351-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	479	500	96	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Collected:**	06/18/2009
Sample Matrix:	Water	**Date Received:**	06/18/2009

Volatile Organics by GC/MS

Sample Name:	INF1-61809	**Units:**	ug/L
Lab Code:	K0905504-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	**500**	D	10	20	06/19/09	06/19/09	KWG0905356	
Toluene	ND	U	1.0	2	06/19/09	06/19/09	KWG0905356	
Ethylbenzene	ND	U	1.0	2	06/19/09	06/19/09	KWG0905356	
m,p-Xylenes	**2.6**	D	1.0	2	06/19/09	06/19/09	KWG0905356	
o-Xylene	ND	U	1.0	2	06/19/09	06/19/09	KWG0905356	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	104	78-129	06/19/09	Acceptable
Dibromofluoromethane	95	73-122	06/19/09	Acceptable
4-Bromofluorobenzene	92	68-117	06/19/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: SLR International
Project: Longview
Sample Matrix: Water

Service Request: K0905504
Date Collected: 06/18/2009
Date Received: 06/18/2009

Volatile Organics by GC/MS

Sample Name: EFF1-61809
Lab Code: K0905504-002

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
Toluene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
Ethylbenzene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
m,p-Xylenes	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
o-Xylene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	105	78-129	06/19/09	Acceptable
Dibromofluoromethane	98	73-122	06/19/09	Acceptable
4-Bromofluorobenzene	90	68-117	06/19/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Collected:**	06/18/2009
Sample Matrix:	Water	**Date Received:**	06/18/2009

Volatile Organics by GC/MS

Sample Name:	EFF2-61809	**Units:**	ug/L
Lab Code:	K0905504-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
Toluene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
Ethylbenzene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
m,p-Xylenes	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
o-Xylene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	107	78-129	06/19/09	Acceptable
Dibromofluoromethane	100	73-122	06/19/09	Acceptable
4-Bromofluorobenzene	91	68-117	06/19/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905356-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
Toluene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
Ethylbenzene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
m,p-Xylenes	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	
o-Xylene	ND	U	0.50	1	06/19/09	06/19/09	KWG0905356	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	106	78-129	06/19/09	Acceptable
Dibromofluoromethane	97	73-122	06/19/09	Acceptable
4-Bromofluorobenzene	90	68-117	06/19/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: SLR International
Project: Longview
Sample Matrix: Water

Service Request: K0905504

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
INF1-61809	K0905504-001	104	95	92
EFF1-61809	K0905504-002	105	98	90
EFF2-61809	K0905504-003	107	100	91
Method Blank	KWG0905356-4	106	97	90
INF1-61809MS	KWG0905356-1	105	95	98
INF1-61809DMS	KWG0905356-2	106	95	97
Lab Control Sample	KWG0905356-3	106	97	98

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0905504
Project:	Longview	**Date Extracted:**	06/19/2009
Sample Matrix:	Water	**Date Analyzed:**	06/19/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organics by GC/MS

Sample Name:	INF1-61809	**Units:**	ug/L
Lab Code:	K0905504-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	KWG0905356

Analyte Name	Sample Result	INF1-61809MS KWG0905356-1 Matrix Spike			INF1-61809DMS KWG0905356-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Expected	%Rec	Result	Expected	%Rec			
Benzene	500	706	200	103	675	200	88	69-126	4	30
Toluene	ND	210	200	105	201	200	100	66-128	4	30
Ethylbenzene	ND	207	200	104	198	200	99	65-126	5	30
m,p-Xylenes	2.6	428	400	106	404	400	100	63-130	6	30
o-Xylene	ND	216	200	108	208	200	104	65-130	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: SLR International
Project: Longview
Sample Matrix: Water

Service Request: K0905504
Date Extracted: 06/19/2009
Date Analyzed: 06/19/2009

Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG0905356

	Lab Control Sample KWG0905356-3 Lab Control Spike			%Rec
Analyte Name	**Result**	**Expected**	**%Rec**	**Limits**
Benzene	10.1	10.0	101	74-118
Toluene	10.9	10.0	109	74-117
Ethylbenzene	10.5	10.0	105	71-118
m,p-Xylenes	21.5	20.0	108	73-119
o-Xylene	10.8	10.0	108	74-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

CHAIN OF CUSTODY

SR#: 10905504

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE _____ OF _____ COC #_____

PROJECT NAME	Longview
PROJECT NUMBER	
PROJECT MANAGER	Mike Staton
COMPANY/ADDRESS	SLR
	22122 SE 20th Bldg H.
CITY/STATE/ZIP	Bothell, WA
E-MAIL ADDRESS	MStaton@SLRCORP.com
PHONE #	(425) 402-8800
FAX #	
SAMPLER'S SIGNATURE	

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐ ☐ Fuel Fingerprint ☐ NW-HCID ☐	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐	Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	REMARKS
INF1-61809	6/18/09	1150		GW	6		X	X												
Eff1-61809	↓	1202		↓	6		X	X												
Eff2-61809	↓	1212		↓	6		X	X												

20

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. # _____

Bill To: Mike Staton (address above)

TURNAROUND REQUIREMENTS

X 24 hr. ____ 48 hr.

____ 5 Day

____ Standard (10-15 working days)

____ Provide FAX Results

Monday 6/22/09

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Please have Results to Mike Staton by Monday

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Chris Kramer	Signature:	Signature:	Signature:
Date/Time: 6/18/09 1326	Date/Time: 6/18/09 1326	Date/Time:	Date/Time:
Printed Name: Chris Kramer	Printed Name: Les Kennedy	Printed Name:	Printed Name:
Firm: SLR	Firm: CAS	Firm:	Firm:

R #1 0

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services, Inc.
An Employee - Owned Company

June 26, 2009 Analytical Report for Service Request No: K0905699

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview/001.0173.00010

Dear Mike:

Enclosed are the results of the rush samples submitted to our laboratory on June 25, 2009. For your reference, these analyses have been assigned our service request number K0905699.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

06/26/09

Pradeep Divvela
Project Chemist

PD/ln

cc: Chris Kramer, SLR International, West Linn, OR

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	SLR International	**Service Request No.:**	K0905699
Project:	Longview	**Date Received:**	06/25/09
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 06/25/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Gasoline Range Organics by Method NWTPH-Gx

No anomalies associated with the analysis of these samples were observed.

Volatile Organic Compounds by EPA Method 8260B

Initial Calibration Exceptions:
The primary evaluation criterion was exceeded for Bromoform in Initial Calibration (ICAL) ID 8347. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the mean Relative Standard Deviation (RSD) of all analytes in the calibration. The result of the mean RSD calculation was 11.0%. The calibration met the alternative evaluation criteria. Note that CAS/Kelso policy does not allow the use of averaging if any analyte in the ICAL exceeds 30% RSD.

No other anomalies associated with the analysis of these samples were observed.

06/29/09

Approved by_____ Date_____

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Collected:**	06/25/2009
Sample Matrix:	Water	**Date Received:**	06/25/2009

Gasoline Range Organics

Sample Name:	EFF1-62509	**Units:**	ug/L
Lab Code:	K0905699-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/26/09	06/26/09	KWG0905566	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	06/26/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Collected:**	06/25/2009
Sample Matrix:	Water	**Date Received:**	06/25/2009

Gasoline Range Organics

Sample Name:	EFF2-62509	**Units:**	ug/L
Lab Code:	K0905699-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/26/09	06/26/09	KWG0905566	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	06/26/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905566-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	06/26/09	06/26/09	KWG0905566	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	06/26/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0905699

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
EFF1-62509	K0905699-001	103
EFF2-62509	K0905699-002	103
EFF2-62509DUP	KWG0905566-4	99
Method Blank	KWG0905566-3	103
Lab Control Sample	KWG0905566-1	107
Duplicate Lab Control Sample	KWG0905566-2	108

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Extracted:**	06/26/2009
Sample Matrix:	Water	**Date Analyzed:**	06/26/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	EFF2-62509	**Units:**	ug/L
Lab Code:	K0905699-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0905566

Analyte Name	MRL	Sample Result	EFF2-62509DUP KWG0905566-4 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Extracted:**	06/26/2009
Sample Matrix:	Water	**Date Analyzed:**	06/26/2009

Lab Control Spike/Duplicate Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0905566

	Lab Control Sample KWG0905566-1 Lab Control Spike			Duplicate Lab Control Sample KWG0905566-2 Duplicate Lab Control Spike			%Rec		RPD
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**Limits**	**RPD**	**Limit**
Gasoline Range Organics-NWTPH	518	500	104	510	500	102	80-119	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Collected:**	06/25/2009
Sample Matrix:	Water	**Date Received:**	06/25/2009

Volatile Organics by GC/MS

Sample Name:	EFF1-62509	**Units:**	ug/L
Lab Code:	K0905699-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	06/26/09	06/26/09	KWG0905575	
Toluene	ND	U	0.50	1	06/26/09	06/26/09	KWG0905575	
Ethylbenzene	ND	U	0.50	1	06/26/09	06/26/09	KWG0905575	
m,p-Xylenes	ND	U	0.50	1	06/26/09	06/26/09	KWG0905575	
o-Xylene	ND	U	0.50	1	06/26/09	06/26/09	KWG0905575	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	100	78-129	06/26/09	Acceptable
Dibromofluoromethane	100	73-122	06/26/09	Acceptable
4-Bromofluorobenzene	85	68-117	06/26/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Collected:**	06/25/2009
Sample Matrix:	Water	**Date Received:**	06/25/2009

Volatile Organics by GC/MS

Sample Name:	EFF2-62509	**Units:**	ug/L
Lab Code:	K0905699-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
Toluene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
Ethylbenzene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
m,p-Xylenes	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
o-Xylene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	99	78-129	06/25/09	Acceptable
Dibromofluoromethane	98	73-122	06/25/09	Acceptable
4-Bromofluorobenzene	82	68-117	06/25/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0905699
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905575-5	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
Toluene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
Ethylbenzene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
m,p-Xylenes	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	
o-Xylene	ND	U	0.50	1	06/25/09	06/25/09	KWG0905575	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	103	78-129	06/25/09	Acceptable
Dibromofluoromethane	97	73-122	06/25/09	Acceptable
4-Bromofluorobenzene	87	68-117	06/25/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0905699

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
EFF1-62509	K0905699-001	100	100	85
EFF2-62509	K0905699-002	99	98	82
Method Blank	KWG0905575-5	103	97	87
Lab Control Sample	KWG0905575-3	105	99	98
Duplicate Lab Control Sample	KWG0905575-4	106	100	95

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0905699
Date Extracted: 06/25/2009
Date Analyzed: 06/25/2009 - 06/26/2009

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG0905575

	Lab Control Sample KWG0905575-3 Lab Control Spike			Duplicate Lab Control Sample KWG0905575-4 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	11.2	10.0	112	11.7	10.0	117	74-118	4	30
Toluene	9.92	10.0	99	10.1	10.0	101	74-117	2	30
Ethylbenzene	9.28	10.0	93	9.42	10.0	94	71-118	1	30
m,p-Xylenes	18.3	20.0	91	18.7	20.0	94	73-119	2	30
o-Xylene	8.97	10.0	90	9.24	10.0	92	74-120	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

CHAIN OF CUSTODY

Columbia Analytical Services

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: RCOC 20010 PAGE _____ OF _____ COC #_____

PROJECT NAME	Longview
PROJECT NUMBER	001.00173-00010
PROJECT MANAGER	Mike Staton
COMPANY ADDRESS	SLR
	22122 20th Ave SE, Bldg H
CITY/STATE/ZIP	Bothell, WA
E-MAIL ADDRESS	MStaton@SLRcorp.com
PHONE #	(425) 402-8800
FAX #	
SAMPLER'S SIGNATURE	

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 8270 8270LL	Volatile Organics 624 8260	Hydrocarbons (*see below) Gas X Diesel BTEX X	Fuel Fingerprint (FIO) Oil	NW-HCID Screen	Oil & Grease/TRPH 1664 HEM 1664 SGT	PCB's Aroclors Congeners	Pesticides/Herbicides 608 8081A 8141A 8151A	Chlorophenolics - 8151M Tetra PCP	PAHS 8310 SIM	Metals: Total or Dissolved (See list below)	Cyanide	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC DOC (circle) NO2+NO3	TOX 9020 AOX 1650 506					REMARKS
Eff2-62509	6/25/09	1045		GW	6		X	X																	
Eff2-62509	↓	1055		GW	6		X	X																	24-hr TAT

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. # _____

Bill To: Mike Staton

TURNAROUND REQUIREMENTS

X 24 hr ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

→ Eff2-62509 ★

→ Eff1-62509

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Signature: [signature]	Signature:	Signature:
Date/Time: 6/25/09 1116	Date/Time: 6/25/09 1116	Date/Time:	Date/Time:
Printed Name: Chris Kline	Printed Name: [illegible]	Printed Name:	Printed Name:
Firm: SLR	Firm: CAS	Firm:	Firm:

RCOC #1 06/08

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services, Inc.
An Employee - Owned Company

July 6, 2009 Analytical Report for Service Request No: K0905880

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview/001.0173.00010

Dear Mike:

Enclosed are the results of the rush samples submitted to our laboratory on July 01, 2009. For your reference, these analyses have been assigned our service request number K0905880.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

07/13/09

Pradeep Divvela
Project Chemist

PD/ln

cc: Chris Kramer, SLR International, West Linn, OR

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	SLR International	**Service Request No.:**	K0905880
Project:	Longview	**Date Received:**	07/10/09
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two ground water samples were received for analysis at Columbia Analytical Services on 07/10/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Gasoline Range Organics by EPA Method 8015B

No anomalies associated with the analysis of these samples were observed.

Volatile Organic Compounds by EPA Method 8260B

No anomalies associated with the analysis of these samples were observed.

07/13/09

Approved by_____ Date_____

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Collected:**	07/01/2009
Sample Matrix:	Water	**Date Received:**	07/01/2009

Gasoline Range Organics

Sample Name:	EFF1 - 7109	**Units:**	ug/L
Lab Code:	K0905880-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/01/09	07/01/09	KWG0905788	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	102	50-150	07/01/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Collected:**	07/01/2009
Sample Matrix:	Water	**Date Received:**	07/01/2009

Gasoline Range Organics

Sample Name:	EFF2 - 7109	**Units:**	ug/L
Lab Code:	K0905880-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/01/09	07/01/09	KWG0905788	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	101	50-150	07/01/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905788-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/01/09	07/01/09	KWG0905788	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	102	50-150	07/01/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0905880

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
EFF1 - 7109	K0905880-001	102
EFF2 - 7109	K0905880-002	101
EFF2 - 7109DUP	KWG0905788-1	102
Method Blank	KWG0905788-3	102
Lab Control Sample	KWG0905788-2	106

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Extracted:**	07/01/2009
Sample Matrix:	Water	**Date Analyzed:**	07/01/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	EFF2 - 7109	**Units:**	ug/L
Lab Code:	K0905880-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0905788

			EFF2 - 7109DUP KWG0905788-1 Duplicate Sample			
Analyte Name	**MRL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Extracted:**	07/01/2009
Sample Matrix:	Water	**Date Analyzed:**	07/01/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0905788

	Lab Control Sample KWG0905788-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	471	500	94	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Collected:**	07/01/2009
Sample Matrix:	Water	**Date Received:**	07/01/2009

Volatile Organics by GC/MS

Sample Name:	EFF1 - 7109	**Units:**	ug/L
Lab Code:	K0905880-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
Toluene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
Ethylbenzene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
m,p-Xylenes	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
o-Xylene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	92	78-129	07/02/09	Acceptable
Dibromofluoromethane	91	73-122	07/02/09	Acceptable
4-Bromofluorobenzene	89	68-117	07/02/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Collected:**	07/01/2009
Sample Matrix:	Water	**Date Received:**	07/01/2009

Volatile Organics by GC/MS

Sample Name:	EFF2 - 7109	**Units:**	ug/L
Lab Code:	K0905880-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
Toluene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
Ethylbenzene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
m,p-Xylenes	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
o-Xylene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	93	78-129	07/02/09	Acceptable
Dibromofluoromethane	90	73-122	07/02/09	Acceptable
4-Bromofluorobenzene	89	68-117	07/02/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905802-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
Toluene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
Ethylbenzene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
m,p-Xylenes	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	
o-Xylene	ND	U	0.50	1	07/02/09	07/02/09	KWG0905802	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	94	78-129	07/02/09	Acceptable
Dibromofluoromethane	91	73-122	07/02/09	Acceptable
4-Bromofluorobenzene	87	68-117	07/02/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0905880

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
EFF1 - 7109	K0905880-001	92	91	89
EFF2 - 7109	K0905880-002	93	90	89
Method Blank	KWG0905802-3	94	91	87
Lab Control Sample	KWG0905802-1	97	93	95
Duplicate Lab Control Sample	KWG0905802-2	98	91	93

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0905880
Project:	Longview/001.0173.00010	**Date Extracted:**	07/02/2009
Sample Matrix:	Water	**Date Analyzed:**	07/02/2009

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0905802

	Lab Control Sample KWG0905802-1 Lab Control Spike			Duplicate Lab Control Sample KWG0905802-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	9.28	10.0	93	8.87	10.0	89	74-118	5	30
Toluene	8.85	10.0	89	8.57	10.0	86	74-117	3	30
Ethylbenzene	9.21	10.0	92	8.76	10.0	88	71-118	5	30
m,p-Xylenes	19.2	20.0	96	18.0	20.0	90	73-119	6	30
o-Xylene	9.69	10.0	97	9.32	10.0	93	74-120	4	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

CHAIN OF CUSTODY

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SR#: _____

PAGE 1 OF 1 COC # _____

PROJECT NAME	Longview
PROJECT NUMBER	001.0173.00010
PROJECT MANAGER	Mike Staton
COMPANY/ADDRESS	SLR 22122 20th Ave SE Bldg H
CITY/STATE/ZIP	Bothell, WA
E-MAIL ADDRESS	MStaton@SLRCORP.com
PHONE # 425-402-5500	FAX #
SAMPLER'S SIGNATURE	Chris Kramer

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 [ ] 8270 [ ] 8270LL [ ]	Volatile Organics 624 [ ] 8260 [ ]	Hydrocarbons (*see below) Gas [X] Diesel [ ] Oil [ ]	BTEX 8021 [ ]	Fuel Fingerprint (FIQ) [ ]	NW-HCID Screen [ ]	Oil & Grease:TRPH 1664 SGT [ ] 1664 HEM [ ]	PCB's Aroclors [ ] Congeners [ ]	Pesticides/Herbicides 608 [ ] 8081A [ ] 8141A [ ] 8151A [ ]	Chlorophenolics - 8151M Tri [ ] Tetra [ ] PCP [ ]	PAHS 8310 [ ] SIM [ ]	Metals: Total or Dissolved (See list below)	Cyanide [ ]	pH; Cond, Cl, SO_4, PO_4, F, NO_2, NO_3; BOD, TSS; TDS (circle)	NH_3-N; COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 [ ] AOX 1650 [ ] 506 [ ]					REMARKS
Eff1-7109	7/1/09	925		GW	6		X	X																			
Eff2-7109	7/1/09	935		GW	6		X	X																			24 HR TAT

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. # _____

Bill To: _____

TURNAROUND REQUIREMENTS

X 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

_____ Requested Report Date

Circle which metals are to be analyzed:

Total Metals. Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals. Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Eff2-7109 ☆

Eff2-7109

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Chris Kramer	Signature: [illegible]	Signature:	Signature:
Date/Time: 7/1/09 1051	Date/Time: 7/1/09 1051	Date/Time:	Date/Time:
Printed Name: Chris Kramer	Printed Name: [illegible]	Printed Name:	Printed Name:
Firm: SLR	Firm: CAS	Firm:	Firm:

BCOC #1 06/08

17

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services
An Employee - Owned Compan

July 10, 2009 Analytical Report for Service Request No: K0906113

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview/001.0173.00010

Dear Mike:

Enclosed are the results of the samples submitted to our laboratory on July 08, 2009. For your reference, these analyses have been assigned our service request number K0906113.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	SLR International	**Service Request No.:**	K0906113
Project:	Longview	**Date Received:**	07/08/09
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 07/08/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Gasoline Range Organics by EPA Method 8015B

No anomalies associated with the analysis of these samples were observed.

Volatile Organic Compounds by EPA Method 8260B

Initial Calibration Exceptions:
The primary evaluation criterion was exceeded for m,p-Xylenes in Initial Calibration (ICAL) ID 8530. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the mean Relative Standard Deviation (RSD) of all analytes in the calibration. The result of the mean RSD calculation was 9.7%. The calibration met the alternative evaluation criteria. Note that CAS/Kelso policy does not allow the use of averaging if any analyte in the ICAL exceeds 30% RSD.

No other anomalies associated with the analysis of these samples were observed.

07/10/09

Approved by_____ Date_____

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Collected:**	07/08/2009
Sample Matrix:	Water	**Date Received:**	07/08/2009

Gasoline Range Organics

Sample Name:	Eff1-7809	**Units:**	ug/L
Lab Code:	K0906113-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/09/09	07/09/09	KWG0905990	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	102	50-150	07/09/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Collected:**	07/08/2009
Sample Matrix:	Water	**Date Received:**	07/08/2009

Gasoline Range Organics

Sample Name:	Eff2-7809	**Units:**	ug/L
Lab Code:	K0906113-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/09/09	07/09/09	KWG0905990	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	102	50-150	07/09/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905990-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/09/09	07/09/09	KWG0905990	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	101	50-150	07/09/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906113

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
Eff1-7809	K0906113-001	102
Eff2-7809	K0906113-002	102
Eff2-7809DUP	KWG0905990-1	101
Method Blank	KWG0905990-3	101
Lab Control Sample	KWG0905990-2	106

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Extracted:**	07/09/2009
Sample Matrix:	Water	**Date Analyzed:**	07/09/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	Eff2-7809	**Units:**	ug/L
Lab Code:	K0906113-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0905990

Analyte Name	MRL	Sample Result	Eff2-7809DUP KWG0905990-1 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Extracted:**	07/09/2009
Sample Matrix:	Water	**Date Analyzed:**	07/09/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0905990

	Lab Control Sample KWG0905990-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	467	500	93	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Collected:**	07/08/2009
Sample Matrix:	Water	**Date Received:**	07/08/2009

Volatile Organics by GC/MS

Sample Name:	Eff1-7809	**Units:**	ug/L
Lab Code:	K0906113-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
Toluene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
Ethylbenzene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
m,p-Xylenes	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
o-Xylene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	104	78-129	07/09/09	Acceptable
Dibromofluoromethane	89	73-122	07/09/09	Acceptable
4-Bromofluorobenzene	95	68-117	07/09/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Collected:**	07/08/2009
Sample Matrix:	Water	**Date Received:**	07/08/2009

Volatile Organics by GC/MS

Sample Name:	Eff2-7809	**Units:**	ug/L
Lab Code:	K0906113-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
Toluene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
Ethylbenzene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
m,p-Xylenes	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	
o-Xylene	ND	U	0.50	1	07/09/09	07/09/09	KWG0905980	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	103	78-129	07/09/09	Acceptable
Dibromofluoromethane	89	73-122	07/09/09	Acceptable
4-Bromofluorobenzene	93	68-117	07/09/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0905980-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/08/09	07/08/09	KWG0905980	
Toluene	ND	U	0.50	1	07/08/09	07/08/09	KWG0905980	
Ethylbenzene	ND	U	0.50	1	07/08/09	07/08/09	KWG0905980	
m,p-Xylenes	ND	U	0.50	1	07/08/09	07/08/09	KWG0905980	
o-Xylene	ND	U	0.50	1	07/08/09	07/08/09	KWG0905980	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	104	78-129	07/08/09	Acceptable
Dibromofluoromethane	87	73-122	07/08/09	Acceptable
4-Bromofluorobenzene	92	68-117	07/08/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906113

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Eff1-7809	K0906113-001	104	89	95
Eff2-7809	K0906113-002	103	89	93
Method Blank	KWG0905980-4	104	87	92
Batch QC	K0905777-009	103	88	97
Batch QCMS	KWG0905980-1	105	87	96
Batch QCDMS	KWG0905980-2	105	87	95
Lab Control Sample	KWG0905980-3	106	88	96

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0906113
Project:	Longview/001.0173.00010	**Date Extracted:**	07/08/2009
Sample Matrix:	Water	**Date Analyzed:**	07/08/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organics by GC/MS

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K0905777-009	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	KWG0905980

Analyte Name	Sample Result	Batch QCMS KWG0905980-1 Matrix Spike			Batch QCDMS KWG0905980-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Expected	%Rec	Result	Expected	%Rec			
Benzene	0.96	49.6	50.0	97	47.7	50.0	93	69-126	4	30
Toluene	0.95	51.2	50.0	101	49.0	50.0	96	66-128	4	30
Ethylbenzene	10	59.6	50.0	99	57.2	50.0	94	65-126	4	30
m,p-Xylenes	1.3	103	100	102	101	100	99	63-130	2	30
o-Xylene	1.6	54.4	50.0	106	52.0	50.0	101	65-130	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906113
Date Extracted: 07/08/2009
Date Analyzed: 07/08/2009

Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG0905980

	Lab Control Sample KWG0905980-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Benzene	10.2	10.0	102	74-118
Toluene	10.7	10.0	107	74-117
Ethylbenzene	10.7	10.0	107	71-118
m,p-Xylenes	21.4	20.0	107	73-119
o-Xylene	11.1	10.0	111	74-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

CHAIN OF CUSTODY

SR#: 1040 4113

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 1 COC #

PROJECT NAME: Longview
PROJECT NUMBER: 001.0173.00010
PROJECT MANAGER: Mike Staton
COMPANY/ADDRESS: SLR 22122 20th Ave SE Bldg H
CITY/STATE/ZIP: Bothell, WA
E-MAIL ADDRESS: MStaton@SLRCORP.com
PHONE #: (425) 402-8800 FAX #:
SAMPLER'S SIGNATURE: Chris Kramer

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 8270 8270LL	Volatile Organics 624 8260 8021 BTEX	Hydrocarbons (*see below) Gas Diesel Oil	Fuel Fingerprint (FIO) NW-HCID Screen	Oil & Grease/TRPH 1664 HEM 1664 SGT	PCB's Arodors Congeners	Pesticides/Herbicides 608 8081A 8141A 8151A	Chlorophenolics Tri Tetra 8151M PCP	PAHS 8310 SIM	Metals, Total or Dissolved (See list below)	Cyanide	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 AOX 1650 506				REMARKS
Eff1-7809	7/8/09	1040		GW	6		X	X															
Eff2-7809	↓	1050		GW	6		X	X															* 24 hr TAT

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

X 24 hr ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date:

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

→ Eff2-7809 *

→ Eff1-7809

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Chris Kramer	Signature:	Signature:	Signature:
Date/Time: 7/8/09 1151	Date/Time: 7/9/09 1152	Date/Time:	Date/Time:
Printed Name: Chris Kramer	Printed Name:	Printed Name:	Printed Name:
Firm: SLR	Firm: TAS	Firm:	Firm:

18

BC 06/

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services INC
An Employee - Owned Company

July 16, 2009 Analytical Report for Service Request No: K0906329

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview/001.0173.00010

Dear Mike:

Enclosed are the results of the rush samples submitted to our laboratory on July 15, 2009. For your reference, these analyses have been assigned our service request number K0906329.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

7/16/09

Pradeep Divvela
Project Chemist

PD/lb

cc: Chris Kramer, SLR International

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
j	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met
N	The Matrix Spike sample recovery is not within control limits. See case narrative
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
j	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
–	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL
j	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Collected:**	07/15/2009
Sample Matrix:	Water	**Date Received:**	07/15/2009

Gasoline Range Organics

Sample Name:	INF1-71509	**Units:**	ug/L
Lab Code:	K0906329-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/15/09	07/15/09	KWG0906175	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	99	50-150	07/15/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Collected:**	07/15/2009
Sample Matrix:	Water	**Date Received:**	07/15/2009

Gasoline Range Organics

Sample Name:	EFF1-71509	**Units:**	ug/L
Lab Code:	K0906329-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/15/09	07/15/09	KWG0906175	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	100	50-150	07/15/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Collected:**	07/15/2009
Sample Matrix:	Water	**Date Received:**	07/15/2009

Gasoline Range Organics

Sample Name:	EFF2-71509	**Units:**	ug/L
Lab Code:	K0906329-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/15/09	07/15/09	KWG0906175	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	100	50-150	07/15/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0906175-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Not
Gasoline Range Organics-NWTPH	ND	U	250	1	07/15/09	07/15/09	KWG0906175	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	99	50-150	07/15/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906329

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
INF1-71509	K0906329-001	99
EFF1-71509	K0906329-002	100
EFF2-71509	K0906329-003	100
EFF2-71509DUP	KWG0906175-1	99
Method Blank	KWG0906175-3	99
Lab Control Sample	KWG0906175-2	104

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Extracted:**	07/15/2009
Sample Matrix:	Water	**Date Analyzed:**	07/15/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	EFF2-71509	**Units:**	ug/L
Lab Code:	K0906329-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG090617

Analyte Name	MRL	Sample Result	EFF2-71509DUP KWG0906175-1 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Extracted:**	07/15/2009
Sample Matrix:	Water	**Date Analyzed:**	07/15/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0906175

	Lab Control Sample KWG0906175-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	473	500	95	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

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Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Collected:**	07/15/2009
Sample Matrix:	Water	**Date Received:**	07/15/2009

Volatile Organics by GC/MS

Sample Name:	INF1-71509	**Units:**	ug/L
Lab Code:	K0906329-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	**230**	D	5.0	10	07/15/09	07/15/09	KWG0906179	
Toluene	**0.70**		0.50	1	07/15/09	07/15/09	KWG0906179	
Ethylbenzene	**4.0**		0.50	1	07/15/09	07/15/09	KWG0906179	
m,p-Xylenes	**6.4**		0.50	1	07/15/09	07/15/09	KWG0906179	
o-Xylene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	94	78-129	07/15/09	Acceptable
Dibromofluoromethane	91	73-122	07/15/09	Acceptable
4-Bromofluorobenzene	94	68-117	07/15/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906329
Date Collected: 07/15/2009
Date Received: 07/15/2009

Volatile Organics by GC/MS

Sample Name: EFF1-71509
Lab Code: K0906329-002

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
Toluene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
Ethylbenzene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
m,p-Xylenes	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
o-Xylene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	96	78-129	07/15/09	Acceptable
Dibromofluoromethane	93	73-122	07/15/09	Acceptable
4-Bromofluorobenzene	90	68-117	07/15/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Collected:**	07/15/2009
Sample Matrix:	Water	**Date Received:**	07/15/2009

Volatile Organics by GC/MS

Sample Name:	EFF2-71509	**Units:**	ug/L
Lab Code:	K0906329-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
Toluene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
Ethylbenzene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
m,p-Xylenes	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
o-Xylene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	93	78-129	07/15/09	Acceptable
Dibromofluoromethane	94	73-122	07/15/09	Acceptable
4-Bromofluorobenzene	72	68-117	07/15/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906329
Date Collected: NA
Date Received: NA

Volatile Organics by GC/MS

Sample Name: Method Blank
Lab Code: KWG0906179-4

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
Toluene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
Ethylbenzene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
m,p-Xylenes	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	
o-Xylene	ND	U	0.50	1	07/15/09	07/15/09	KWG0906179	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	97	78-129	07/15/09	Acceptable
Dibromofluoromethane	93	73-122	07/15/09	Acceptable
4-Bromofluorobenzene	91	68-117	07/15/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906329

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
INF1-71509	K0906329-001	94	91	94
EFF1-71509	K0906329-002	96	93	90
EFF2-71509	K0906329-003	93	94	72
Method Blank	KWG0906179-4	97	93	91
INF1-71509MS	KWG0906179-1	101	95	96
INF1-71509DMS	KWG0906179-2	99	96	98
Lab Control Sample	KWG0906179-3	101	97	97

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Extracted:**	07/15/2009
Sample Matrix:	Water	**Date Analyzed:**	07/15/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organics by GC/MS

Sample Name:	INF1-71509	**Units:**	ug/L
Lab Code:	K0906329-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	KWG0906179

		INF1-71509MS KWG0906179-1 Matrix Spike			INF1-71509DMS KWG0906179-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	230	324	100	94	302	100	72	69-126	7	30
Toluene	0.70	98.2	100	98	92.1	100	91	66-128	6	30
Ethylbenzene	4.0	101	100	97	96.2	100	92	65-126	4	30
m,p-Xylenes	6.4	205	200	99	197	200	95	63-130	4	30
o-Xylene	ND	103	100	103	100	100	100	65-130	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0906329
Project:	Longview/001.0173.00010	**Date Extracted:**	07/15/2009
Sample Matrix:	Water	**Date Analyzed:**	07/15/2009

Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0906179

	Lab Control Sample KWG0906179-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Benzene	9.58	10.0	96	74-118
Toluene	9.45	10.0	95	74-117
Ethylbenzene	9.33	10.0	93	71-118
m,p-Xylenes	19.2	20.0	96	73-119
o-Xylene	9.88	10.0	99	74-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services

CHAIN OF CUSTODY

SR#: K0906329

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 1 COC #

PROJECT NAME	Longview
PROJECT NUMBER	001.6173.00010
PROJECT MANAGER	Mike Staton
COMPANY/ADDRESS	SLR 22122 20th Ave SE Bldg H
CITY/STATE/ZIP	Bothell, WA 98021
E-MAIL ADDRESS	mstaton@slrcorp.com
PHONE #	(425) 402-8800 FAX #
SAMPLER'S SIGNATURE	

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons (*see below) 8021 ☐ BTEX X Gas X ☐ Diesel ☐ Oil ☐ ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 SGT ☐ 1664 HEM ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐	Hex-Chrom ☐ pH, Cond, Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	REMARKS
INF1-71509	7/15/09	1005		GW			X	X											
Eff1-71509	↓	1015		↓			X	X											
Eff2-71509	↓	1025		↓			X	X											24-hr TAT*

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. # _____

Bill To: _____

TURNAROUND REQUIREMENTS

X 24 hr. ___ 48 hr. ___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI (NORTHWEST) OTHER: _____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

→ Eff2-71509 *

→ INF1-71509
Eff1-71509

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: 7/15/09 1118	Signature: 7/15/09 1118	Signature	Signature
Printed Name: Chris Kramer	Printed Name	Printed Name	Printed Name
Firm: SLR	Firm	Firm	Firm
Date/Time	Date/Time	Date/Time	Date/Time

BCOC #1 06/08

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services
An Employee - Owned Company

July 31, 2009 Analytical Report for Service Request No: K0906779

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview/001.0173.00010

Dear Mike:

Enclosed are the results of the rush samples submitted to our laboratory on July 29, 2009. For your reference, these analyses have been assigned our service request number K0906779.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/lb

cc: Chris Kramer, SLR International, West Linn, OR

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
j	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
j	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
j	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	SLR international	**Service Request No.:**	K0906779
Project:	Longview	**Date Received:**	07/29/09
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 07/29/09. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Gasoline Range Organics by Method NWTPH – Gx

No anomalies associated with the analysis of these samples were observed.

Volatile Organic Compounds by EPA Method 8260B

Initial Calibration Exceptions:
The primary evaluation criterion was exceeded for Bromoform in Initial Calibration (ICAL) ID 8610. In accordance with CAS standard operating procedures, the alternative evaluation specified in the EPA method was performed using the mean Relative Standard Deviation (RSD) of all analytes in the calibration. The result of the mean RSD calculation was 9.7%. The calibration met the alternative evaluation criteria. Note that CAS/Kelso policy does not allow the use of averaging if any analyte in the ICAL exceeds 30% RSD.

No other anomalies associated with the analysis of these samples were observed.

Approved by_____ Date 07/30/09

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0906779
Project:	Longview/001.0173.00010	**Date Collected:**	07/29/2009
Sample Matrix:	Water	**Date Received:**	07/29/2009

Gasoline Range Organics

Sample Name:	EFF1-72909	**Units:**	ug/L
Lab Code:	K0906779-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/30/09	07/30/09	KWG0906609	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	96	50-150	07/30/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0906779
Project:	Longview/001.0173.00010	**Date Collected:**	07/29/2009
Sample Matrix:	Water	**Date Received:**	07/29/2009

Gasoline Range Organics

Sample Name:	EFF2-72909	**Units:**	ug/L
Lab Code:	K0906779-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/30/09	07/30/09	KWG0906609	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	96	50-150	07/30/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0906779
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0906609-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	07/30/09	07/30/09	KWG0906609	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	96	50-150	07/30/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906779

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
EFF1-72909	K0906779-001	96
EFF2-72909	K0906779-002	96
EFF1-72909DUP	KWG0906609-4	96
Method Blank	KWG0906609-3	96
Lab Control Sample	KWG0906609-1	99
Duplicate Lab Control Sample	KWG0906609-2	99

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0906779
Project:	Longview/001.0173.00010	**Date Extracted:**	07/30/2009
Sample Matrix:	Water	**Date Analyzed:**	07/30/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	EFF1-72909	**Units:**	ug/L
Lab Code:	K0906779-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0906609

Analyte Name	MRL	Sample Result	EFF1-72909DUP KWG0906609-4 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0906779
Project:	Longview/001.0173.00010	**Date Extracted:**	07/30/2009
Sample Matrix:	Water	**Date Analyzed:**	07/30/2009

Lab Control Spike/Duplicate Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0906609

	Lab Control Sample KWG0906609-1 Lab Control Spike			Duplicate Lab Control Sample KWG0906609-2 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Gasoline Range Organics-NWTPH	485	500	97	514	500	103	80-119	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0906779
Project:	Longview/001.0173.00010	**Date Collected:**	07/29/2009
Sample Matrix:	Water	**Date Received:**	07/29/2009

Volatile Organics by GC/MS

Sample Name:	EFF1-72909	**Units:**	ug/L
Lab Code:	K0906779-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
Toluene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
Ethylbenzene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
m,p-Xylenes	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
o-Xylene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	100	78-129	07/29/09	Acceptable
Dibromofluoromethane	98	73-122	07/29/09	Acceptable
4-Bromofluorobenzene	93	68-117	07/29/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906779
Date Collected: 07/29/2009
Date Received: 07/29/2009

Volatile Organics by GC/MS

Sample Name: EFF2-72909
Lab Code: K0906779-002

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260B

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
Toluene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
Ethylbenzene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
m,p-Xylenes	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
o-Xylene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	99	78-129	07/29/09	Acceptable
Dibromofluoromethane	98	73-122	07/29/09	Acceptable
4-Bromofluorobenzene	85	68-117	07/29/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906779
Date Collected: NA
Date Received: NA

Volatile Organics by GC/MS

Sample Name: Method Blank
Lab Code: KWG0906620-4

Units: ug/L
Basis: NA

Extraction Method: EPA 5030B
Analysis Method: 8260B

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
Toluene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
Ethylbenzene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
m,p-Xylenes	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	
o-Xylene	ND	U	0.50	1	07/29/09	07/29/09	KWG0906620	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	99	78-129	07/29/09	Acceptable
Dibromofluoromethane	96	73-122	07/29/09	Acceptable
4-Bromofluorobenzene	93	68-117	07/29/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906779

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
EFF1-72909	K0906779-001	100	98	93
EFF2-72909	K0906779-002	99	98	85
Method Blank	KWG0906620-4	99	96	93
EFF2-72909MS	KWG0906620-1	103	99	100
EFF2-72909DMS	KWG0906620-2	103	101	97
Lab Control Sample	KWG0906620-3	102	98	99

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0906779
Project:	Longview/001.0173.00010	**Date Extracted:**	07/29/2009
Sample Matrix:	Water	**Date Analyzed:**	07/29/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organics by GC/MS

Sample Name:	EFF2-72909	**Units:**	ug/L
Lab Code:	K0906779-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	KWG0906620

Analyte Name	Sample Result	EFF2-72909MS KWG0906620-1 Matrix Spike			EFF2-72909DMS KWG0906620-2 Duplicate Matrix Spike			%Rec Limits	RPD	RPD Limit
		Result	Expected	%Rec	Result	Expected	%Rec			
Benzene	ND	10.1	10.0	101	9.55	10.0	96	69-126	6	30
Toluene	ND	9.57	10.0	96	9.34	10.0	93	66-128	2	30
Ethylbenzene	ND	8.75	10.0	88	8.49	10.0	85	65-126	3	30
m,p-Xylenes	ND	17.8	20.0	89	17.3	20.0	86	63-130	3	30
o-Xylene	ND	8.83	10.0	88	8.83	10.0	88	65-130	0	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0906779
Date Extracted: 07/29/2009
Date Analyzed: 07/29/2009

Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA
Level: Low
Extraction Lot: KWG0906620

	Lab Control Sample KWG0906620-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Benzene	9.45	10.0	95	74-118
Toluene	8.99	10.0	90	74-117
Ethylbenzene	8.68	10.0	87	71-118
m,p-Xylenes	18.1	20.0	91	73-119
o-Xylene	9.20	10.0	92	74-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

CHAIN OF CUSTODY

Columbia Analytical Services

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: _____ PAGE 1 OF 1 COC # _____

PROJECT NAME: Longview
PROJECT NUMBER: 001.0173.00010
PROJECT MANAGER: Mike Staton
COMPANY/ADDRESS: SLR - 22122 29th Ave SE Bldg H
CITY/STATE/ZIP: Bothell, WA
E MAIL ADDRESS: MStaton@SLRCORP.com
PHONE #: (425) 402-5810 FAX #:
SAMPLER'S SIGNATURE: Chris Kane

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐ Fuel Fingerprint (FIO) ☐ NW-HCID Screen ☐	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics Tri ☐ Tetra ☐ - 8151M PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle) NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	REMARKS
Eff1-72909	7/29/09	915		GW			X	X										
Eff2-72909	↓	925		GW			X	X										* 24 hr TAT

18

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. # _____
Bill To: _____

TURNAROUND REQUIREMENTS

X 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

_____ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

→ Eff2-72909

→ Eff1-72909

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Chris Kane	Signature:	Signature:	Signature:
Date/Time: 7/29/09 1053	Date/Time: 7/29/09 1453	Date/Time:	Date/Time:
Printed Name: Chris Kane	Printed Name: Brad Thun (CDS)	Printed Name:	Printed Name:
Firm: SLR	Firm:	Firm:	Firm:

R(1 06

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services, Inc.
An Employee - Owned Company

August 17, 2009 Analytical Report for Service Request No: K0907395

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview/001.0173.00010

Dear Mike:

Enclosed are the results of the rush samples submitted to our laboratory on August 13, 2009. For your reference, these analyses have been assigned our service request number K0907395.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

8/17/09

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	08/13/2009
Sample Matrix:	Water	**Date Received:**	08/13/2009

Gasoline Range Organics

Sample Name:	INF1-81309	**Units:**	ug/L
Lab Code:	K0907395-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	08/13/09	08/13/09	KWG0907127	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	87	50-150	08/13/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	08/13/2009
Sample Matrix:	Water	**Date Received:**	08/13/2009

Gasoline Range Organics

Sample Name:	EFF1-81309	**Units:**	ug/L
Lab Code:	K0907395-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	08/13/09	08/13/09	KWG0907127	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	88	50-150	08/13/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	08/13/2009
Sample Matrix:	Water	**Date Received:**	08/13/2009

Gasoline Range Organics

Sample Name:	EFF2-81309	**Units:**	ug/L
Lab Code:	K0907395-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	08/13/09	08/13/09	KWG0907127	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	88	50-150	08/13/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0907127-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTPH	ND	U	250	1	08/13/09	08/13/09	KWG0907127	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	87	50-150	08/13/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0907395

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
INF1-81309	K0907395-001	87
EFF1-81309	K0907395-002	88
EFF2-81309	K0907395-003	88
Batch QCDUP	KWG0907127-1	82
Method Blank	KWG0907127-3	87
Batch QC	K0907169-002	81
Lab Control Sample	KWG0907127-2	90

Surrogate Recovery Control Limits (%)

Sur1 =	1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Extracted:**	08/14/2009
Sample Matrix:	Water	**Date Analyzed:**	08/14/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K0907169-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0907127

Analyte Name	MRL	Sample Result	Batch QCDUP KWG0907127-1 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Gasoline Range Organics-NWTPH	1300	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Extracted:**	08/13/2009
Sample Matrix:	Water	**Date Analyzed:**	08/13/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0907127

	Lab Control Sample KWG0907127-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	468	500	94	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	08/13/2009
Sample Matrix:	Water	**Date Received:**	08/13/2009

Volatile Organics by GC/MS

Sample Name:	INF1-81309	**Units:**	ug/L
Lab Code:	K0907395-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	**140**	D	2.5	5	08/13/09	08/13/09	KWG0907121	
Toluene	**0.51**		0.50	1	08/13/09	08/13/09	KWG0907121	
Ethylbenzene	**3.0**		0.50	1	08/13/09	08/13/09	KWG0907121	
m,p-Xylenes	**5.0**		0.50	1	08/13/09	08/13/09	KWG0907121	
o-Xylene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	110	78-129	08/13/09	Acceptable
Dibromofluoromethane	101	73-122	08/13/09	Acceptable
4-Bromofluorobenzene	98	68-117	08/13/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	08/13/2009
Sample Matrix:	Water	**Date Received:**	08/13/2009

Volatile Organics by GC/MS

Sample Name:	EFF1-81309	**Units:**	ug/L
Lab Code:	K0907395-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
Toluene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
Ethylbenzene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
m,p-Xylenes	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
o-Xylene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	112	78-129	08/13/09	Acceptable
Dibromofluoromethane	102	73-122	08/13/09	Acceptable
4-Bromofluorobenzene	98	68-117	08/13/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	08/13/2009
Sample Matrix:	Water	**Date Received:**	08/13/2009

Volatile Organics by GC/MS

Sample Name:	EFF2-81309	**Units:**	ug/L
Lab Code:	K0907395-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
Toluene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
Ethylbenzene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
m,p-Xylenes	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
o-Xylene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	112	78-129	08/13/09	Acceptable
Dibromofluoromethane	102	73-122	08/13/09	Acceptable
4-Bromofluorobenzene	98	68-117	08/13/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Ground water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0907121-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
Toluene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
Ethylbenzene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
m,p-Xylenes	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	
o-Xylene	ND	U	0.50	1	08/13/09	08/13/09	KWG0907121	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	112	78-129	08/13/09	Acceptable
Dibromofluoromethane	100	73-122	08/13/09	Acceptable
4-Bromofluorobenzene	98	68-117	08/13/09	Acceptable

Comments:

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0907395

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
INF1-81309	K0907395-001	110	101	98
EFF1-81309	K0907395-002	112	102	98
EFF2-81309	K0907395-003	112	102	98
Method Blank	KWG0907121-4	112	100	98
Batch QC	K0907101-008	111	101	99
Batch QCMS	KWG0907121-1	111	100	100
Batch QCDMS	KWG0907121-2	111	99	100
Lab Control Sample	KWG0907121-3	112	99	100

Surrogate Recovery Control Limits (%)

Sur1 = Toluene-d8	78-129
Sur2 = Dibromofluoromethane	73-122
Sur3 = 4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Extracted:**	08/13/2009
Sample Matrix:	Ground water	**Date Analyzed:**	08/13/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organics by GC/MS

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K0907101-008	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	KWG0907121

		Batch QCMS KWG0907121-1 Matrix Spike			Batch QCDMS KWG0907121-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	ND	10.3	10.0	103	10.5	10.0	105	69-126	2	30
Toluene	ND	10.6	10.0	106	10.8	10.0	108	66-128	2	30
Ethylbenzene	ND	10.4	10.0	104	10.5	10.0	105	65-126	1	30
m,p-Xylenes	ND	20.5	20.0	102	20.8	20.0	104	63-130	2	30
o-Xylene	ND	10.2	10.0	102	10.4	10.0	104	65-130	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0907395
Project:	Longview/001.0173.00010	**Date Extracted:**	08/13/2009
Sample Matrix:	Ground water	**Date Analyzed:**	08/13/2009

Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0907121

	Lab Control Sample KWG0907121-3 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Benzene	10.0	10.0	100	74-118
Toluene	10.3	10.0	103	74-117
Ethylbenzene	9.99	10.0	100	71-118
m,p-Xylenes	19.7	20.0	99	73-119
o-Xylene	10.2	10.0	102	74-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

CHAIN OF CUSTODY

Columbia Analytical Services™

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: 1910130

PAGE 1 OF 1 COC #

PROJECT NAME	Longview
PROJECT NUMBER	001.0173.00010
PROJECT MANAGER	Mike Staton
COMPANY/ADDRESS	SLR
	22122 29th Ave SE
CITY/STATE/ZIP	Bothell, WA
E-MAIL ADDRESS	MStaton@slrcorp.com
PHONE # 425-402-8800	FAX #
SAMPLER'S SIGNATURE	Chris Kramer

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons (*see below) Gas ☒ Diesel ☐ Oil ☐ BTEX ☒	Fuel Fingerprint (FIO) NW-HCID	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2 NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐				REMARKS
DUP1-81309	8/13/09	1045		GW	6			X	X															
EFF1-81309	↓	1055		↓	6			X	X															
EFF2-81309	↓	1105		↓	6			X	X															* 24 hr TAT

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. # _____

Bill To: _____

TURNAROUND REQUIREMENTS

X 24 hr. ___ 48 hr.

___ 5-Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed.

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI (NORTHWEST) OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

→ EFF2-81309

→ DUP1-81309
EFF1-81309

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Chris Kramer	Signature:	Signature:	Signature:
Date/Time: 8/13/09 1130	Date/Time: 8/13/09 1130	Date/Time:	Date/Time:
Printed Name: Chris Kramer	Printed Name:	Printed Name:	Printed Name:
Firm: SLR	Firm: CAS	Firm:	Firm:

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services
An Employee - Owned Company

September 10, 2009 Analytical Report for Service Request No: K0907874

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Former Arco Station #0855/001.0173.00010

Dear Mike:

Enclosed are the results of the samples submitted to our laboratory on August 26, 2009. For your reference, these analyses have been assigned our service request number K0907874.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/ln

cc: Chris Kramer, SLR International, West Linn, OR

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Collected:**	08/26/2009
Sample Matrix:	Water	**Date Received:**	08/26/2009

Gasoline Range Organics

Sample Name:	Eff1-82609	**Units:**	ug/L
Lab Code:	K0907874-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	09/08/09	09/08/09	KWG0908034	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	101	50-150	09/08/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Collected:**	08/26/2009
Sample Matrix:	Water	**Date Received:**	08/26/2009

Gasoline Range Organics

Sample Name:	Eff2-82609	**Units:**	ug/L
Lab Code:	K0907874-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	09/08/09	09/08/09	KWG0908034	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	101	50-150	09/08/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0908034-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	09/08/09	09/08/09	KWG0908034	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	101	50-150	09/08/09	Acceptable

Comments:

Client: SLR International
Project: Former Arco Station #0855/001.0173.00010
Sample Matrix: Water

Service Request: K0907874

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
Eff1-82609	K0907874-001	101
Eff2-82609	K0907874-002	101
Batch QCDUP	KWG0908034-1	102
Method Blank	KWG0908034-3	101
Batch QC	K0907919-004	101
Lab Control Sample	KWG0908034-2	105

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene 50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Extracted:**	09/08/2009
Sample Matrix:	Water	**Date Analyzed:**	09/08/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K0907919-004	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0908034

			Batch QCDUP KWG0908034-1			
		Sample	Duplicate Sample		Relative Percent	
Analyte Name	**MRL**	**Result**	**Result**	**Average**	**Difference**	**RPD Limit**
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Extracted:**	09/08/2009
Sample Matrix:	Water	**Date Analyzed:**	09/08/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0908034

	Lab Control Sample KWG0908034-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	489	500	98	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

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Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Collected:**	08/26/2009
Sample Matrix:	Water	**Date Received:**	08/26/2009

Volatile Organics by GC/MS

Sample Name:	Eff1-82609	**Units:**	ug/L
Lab Code:	K0907874-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
Toluene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
Ethylbenzene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
m,p-Xylenes	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
o-Xylene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	109	78-129	09/03/09	Acceptable
Dibromofluoromethane	96	73-122	09/03/09	Acceptable
4-Bromofluorobenzene	90	68-117	09/03/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Collected:**	08/26/2009
Sample Matrix:	Water	**Date Received:**	08/26/2009

Volatile Organics by GC/MS

Sample Name:	Eff2-82609	**Units:**	ug/L
Lab Code:	K0907874-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
Toluene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
Ethylbenzene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
m,p-Xylenes	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
o-Xylene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	109	78-129	09/03/09	Acceptable
Dibromofluoromethane	97	73-122	09/03/09	Acceptable
4-Bromofluorobenzene	91	68-117	09/03/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0907962-5	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
Toluene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
Ethylbenzene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
m,p-Xylenes	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	
o-Xylene	ND	U	0.50	1	09/03/09	09/03/09	KWG0907962	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	110	78-129	09/03/09	Acceptable
Dibromofluoromethane	94	73-122	09/03/09	Acceptable
4-Bromofluorobenzene	92	68-117	09/03/09	Acceptable

Comments:

Client: SLR International
Project: Former Arco Station #0855/001.0173.00010
Sample Matrix: Water

Service Request: K0907874

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Batch QCDMS	KWG0907962-2	108	91	93
Lab Control Sample	KWG0907962-3	107	90	94
Duplicate Lab Control Sample	KWG0907962-4	109	91	94
Eff1-82609	K0907874-001	109	96	90
Eff2-82609	K0907874-002	109	97	91
Method Blank	KWG0907962-5	110	94	92
Batch QC	K0907909-002	107	94	93
Batch QCMS	KWG0907962-1	108	90	93

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Extracted:**	09/03/2009
Sample Matrix:	Water	**Date Analyzed:**	09/03/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organics by GC/MS

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K0907909-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	KWG0907962

		Batch QCMS KWG0907962-1 Matrix Spike			Batch QCDMS KWG0907962-2 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	ND	9.66	10.0	97	9.72	10.0	97	69-126	1	30
Toluene	ND	10.3	10.0	103	10.4	10.0	104	66-128	1	30
Ethylbenzene	ND	10.3	10.0	103	10.4	10.0	104	65-126	1	30
m,p-Xylenes	ND	20.6	20.0	103	20.6	20.0	103	63-130	0	30
o-Xylene	ND	10.3	10.0	103	10.3	10.0	103	65-130	0	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	SLR International	**Service Request:**	K0907874
Project:	Former Arco Station #0855/001.0173.00010	**Date Extracted:**	09/03/2009
Sample Matrix:	Water	**Date Analyzed:**	09/03/2009

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0907962

	Lab Control Sample KWG0907962-3 Lab Control Spike			Duplicate Lab Control Sample KWG0907962-4 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	9.01	10.0	90	9.03	10.0	90	74-118	0	30
Toluene	9.27	10.0	93	9.50	10.0	95	74-117	2	30
Ethylbenzene	9.31	10.0	93	9.47	10.0	95	71-118	2	30
m,p-Xylenes	18.7	20.0	94	19.0	20.0	95	73-119	2	30
o-Xylene	9.59	10.0	96	9.60	10.0	96	74-120	0	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services®

CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: K0907844

PAGE 1 OF 1 COC #

PROJECT NAME: Former Arco Station #0855

PROJECT NUMBER: 001.0173.00010

PROJECT MANAGER: Mike Staton

COMPANY ADDRESS:

CITY/STATE/ZIP:

E MAIL ADDRESS: mstaton@slrcorp.com

PHONE #: FAX #:

SAMPLER'S SIGNATURE: [illegible signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 8270 8270LL	Volatile Organics 624 8260	Hydrocarbons (See below) 8021 BTEX Gas Diesel Oil	Fuel Fingerprint (FID) NW-HCID Screen	Oil & Grease/TRPH 1664 HEM 1664 SGT	PCB's Aroclors Congeners	Pesticides/Herbicides 608 8081A 8141A 8151A	Chlorophenolics Tri Tetra 8151M PCP	PAHS 8310 SIM	Metals, Total or Dissolved (See list below)	Cyanide	Hex-Chrom	pH, Cond, Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020 AOX 1650 506	REMARKS
Eff 1-82609	8-26	11:40		Gw	6		X	X													
Eff 2-82609	8-26	11:45		Gw	6		X	X													

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. #

Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

___ 5 Day

X Standard (10-15 working days)

___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI (NORTHWEST circled) OTHER: ____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [illegible signature] Date/Time: 8-26-09 / 12:23	Signature: [illegible signature] Date/Time: 8/26/09 1225	Signature Date/Time	Signature Date/Time
Printed Name: Steve Hamner Firm: SLR	Printed Name: John Jones Firm: CAS	Printed Name Firm	Printed Name Firm

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services
An Employee - Owned Company

September 16, 2009 Analytical Report for Service Request No: K0908389

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Former Arco Station #0855 (Longview)/001.0173.00010

Dear Mike:

Enclosed are the results of the rush samples submitted to our laboratory on September 09, 2009. For your reference, these analyses have been assigned our service request number K0908389.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
B	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL has been elevated due to a matrix interference.
X	See case narrative.
*	The duplicate analysis not within control limits. See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results (25% for CLP Pesticides).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
i	The MRL/MDL has been elevated due to a chromatographic interference.
X	See case narrative.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Collected:**	09/09/2009
Sample Matrix:	Water	**Date Received:**	09/09/2009

Gasoline Range Organics

Sample Name:	INF1-9909	**Units:**	ug/L
Lab Code:	K0908389-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	09/14/09	09/14/09	KWG0908199	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	09/14/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Collected:**	09/09/2009
Sample Matrix:	Water	**Date Received:**	09/09/2009

Gasoline Range Organics

Sample Name:	EFF1-9909	**Units:**	ug/L
Lab Code:	K0908389-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	09/14/09	09/14/09	KWG0908199	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	09/14/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Collected:**	09/09/2009
Sample Matrix:	Water	**Date Received:**	09/09/2009

Gasoline Range Organics

Sample Name:	EFF2-9909	**Units:**	ug/L
Lab Code:	K0908389-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	09/14/09	09/14/09	KWG0908199	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	09/14/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0908199-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	09/14/09	09/14/09	KWG0908199	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	103	50-150	09/14/09	Acceptable

Comments:

Client: SLR International
Project: Former Arco Station #0855 (Longview)/001.0173.00010
Sample Matrix: Water

Service Request: K0908389

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method: EPA 5030B
Analysis Method: NWTPH-Gx

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1
INF1-9909	K0908389-001	103
EFF1-9909	K0908389-002	103
EFF2-9909	K0908389-003	103
EFF2-9909DUP	KWG0908199-1	103
Method Blank	KWG0908199-3	103
Lab Control Sample	KWG0908199-2	107

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Extracted:**	09/14/2009
Sample Matrix:	Water	**Date Analyzed:**	09/14/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	EFF2-9909	**Units:**	ug/L
Lab Code:	K0908389-003	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0908199

Analyte Name	MRL	Sample Result	EFF2-9909DUP KWG0908199-1 Duplicate Sample Result	Average	Relative Percent Difference	RPD Limit
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Extracted:**	09/14/2009
Sample Matrix:	Water	**Date Analyzed:**	09/14/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0908199

	Lab Control Sample KWG0908199-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	486	500	97	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: SLR International
Project: Former Arco Station #0855 (Longview)/001.0173.00010
Sample Matrix: Water

Service Request: K0908389
Date Collected: 09/09/2009
Date Received: 09/09/2009

Volatile Organics by GC/MS

Sample Name: INF1-9909
Lab Code: K0908389-001

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	**95**	D	2.5	5	09/11/09	09/11/09	KWG0908190	
Toluene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
Ethylbenzene	**1.9**		0.50	1	09/11/09	09/11/09	KWG0908190	
m,p-Xylenes	**3.8**		0.50	1	09/11/09	09/11/09	KWG0908190	
o-Xylene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	106	78-129	09/11/09	Acceptable
Dibromofluoromethane	98	73-122	09/11/09	Acceptable
4-Bromofluorobenzene	91	68-117	09/11/09	Acceptable

Comments:

Client: SLR International
Project: Former Arco Station #0855 (Longview)/001.0173.00010
Sample Matrix: Water

Service Request: K0908389
Date Collected: 09/09/2009
Date Received: 09/09/2009

Volatile Organics by GC/MS

Sample Name: EFF1-9909
Lab Code: K0908389-002

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
Toluene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
Ethylbenzene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
m,p-Xylenes	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
o-Xylene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	109	78-129	09/11/09	Acceptable
Dibromofluoromethane	101	73-122	09/11/09	Acceptable
4-Bromofluorobenzene	91	68-117	09/11/09	Acceptable

Comments:

Client: SLR International
Project: Former Arco Station #0855 (Longview)/001.0173.00010
Sample Matrix: Water

Service Request: K0908389
Date Collected: 09/09/2009
Date Received: 09/09/2009

Volatile Organics by GC/MS

Sample Name: EFF2-9909
Lab Code: K0908389-003

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: ug/L
Basis: NA

Level: Low

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
Toluene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
Ethylbenzene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
m,p-Xylenes	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
o-Xylene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	109	78-129	09/11/09	Acceptable
Dibromofluoromethane	100	73-122	09/11/09	Acceptable
4-Bromofluorobenzene	91	68-117	09/11/09	Acceptable

Comments:

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0908190-6	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
Toluene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
Ethylbenzene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
m,p-Xylenes	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	
o-Xylene	ND	U	0.50	1	09/11/09	09/11/09	KWG0908190	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	108	78-129	09/11/09	Acceptable
Dibromofluoromethane	99	73-122	09/11/09	Acceptable
4-Bromofluorobenzene	89	68-117	09/11/09	Acceptable

Comments:

Client: SLR International
Project: Former Arco Station #0855 (Longview)/001.0173.00010
Sample Matrix: Water

Service Request: K0908389

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
INF1-9909	K0908389-001	106	98	91
EFF1-9909	K0908389-002	109	101	91
EFF2-9909	K0908389-003	109	100	91
Method Blank	KWG0908190-6	108	99	89
Batch QC	K0908239-016	108	99	92
Batch QCMS	KWG0908190-3	106	96	91
Batch QCDMS	KWG0908190-4	107	96	92
Lab Control Sample	KWG0908190-5	107	98	94

Surrogate Recovery Control Limits (%)

Sur1 =	Toluene-d8	78-129
Sur2 =	Dibromofluoromethane	73-122
Sur3 =	4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Extracted:**	09/11/2009
Sample Matrix:	Water	**Date Analyzed:**	09/11/2009

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organics by GC/MS

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K0908239-016	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B	**Extraction Lot:**	KWG0908190

		Batch QCMS KWG0908190-3 Matrix Spike			Batch QCDMS KWG0908190-4 Duplicate Matrix Spike					
Analyte Name	**Sample Result**	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	ND	10.4	10.0	104	10.1	10.0	101	69-126	3	30
Toluene	ND	10.7	10.0	107	10.3	10.0	103	66-128	4	30
Ethylbenzene	ND	10.6	10.0	106	10.3	10.0	103	65-126	3	30
m,p-Xylenes	ND	21.3	20.0	106	20.4	20.0	102	63-130	4	30
o-Xylene	ND	10.6	10.0	106	10.2	10.0	102	65-130	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

Client:	SLR International	**Service Request:**	K0908389
Project:	Former Arco Station #0855 (Longview)/001.0173.00010	**Date Extracted:**	09/11/2009
Sample Matrix:	Water	**Date Analyzed:**	09/11/2009

Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0908190

	Lab Control Sample KWG0908190-5 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Benzene	9.60	10.0	96	74-118
Toluene	9.66	10.0	97	74-117
Ethylbenzene	9.58	10.0	96	71-118
m,p-Xylenes	19.3	20.0	97	73-119
o-Xylene	9.69	10.0	97	74-120

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

CHAIN OF CUSTODY

Columbia Analytical Services™

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: K0908384

PAGE _____ OF _____ COC #_____

PROJECT NAME: Former Arco Station #0855 (Longview)
PROJECT NUMBER: 001.0173.00010
PROJECT MANAGER: Mike Staton
COMPANY/ADDRESS: SLR
CITY/STATE/ZIP:
E-MAIL ADDRESS: mstaton@slrcorp.com
PHONE #: FAX #:
SAMPLER'S SIGNATURE: Chris Kramer

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons (*see below) Gas ☒	BTEX ☒ 8021 ☐	Diesel ☐ Oil ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID ☐	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond, Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	REMARKS
INFI-9909	9/9/09	1235			6			X	X												5 Day TAT
Eff1-9909	↓	1240			6			X	X												↓
Eff2-9909		1250			6			X	X												

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
___ IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. # _____
Bill To: _____

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
X 5 Day
___ Standard (10-15 working days)
___ Provide FAX Results

_____ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

5 Day TAT for all samples

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Chris Kramer	Signature: Tom Jones	Signature:	Signature:
Date/Time: 9/9/09 1355	Date/Time: 9/9/09 1355	Date/Time:	Date/Time:
Printed Name: Chris Kramer	Printed Name: John Jones	Printed Name:	Printed Name:
Firm: SLR	Firm: CAS	Firm:	Firm:

RCOC #1 07/09

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

October 5, 2009 Analytical Report for Service Request No: K0909116

Mike Staton
SLR International
22122 SE 20th Bldg H
Bothell, WA 98021

RE: Longview/001.0173.00010

Dear Mike:

Enclosed are the results of the rush samples submitted to our laboratory on September 28, 2009. For your reference, these analyses have been assigned our service request number K0909116.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL or LOQ but greater than or equal to the MDL or LOD.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for dilution.
j	The MRL/MDL or LOQ/LOD has been elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated concentration that is less than the MRL or LOQ but greater than or equal to the MDL or LOD.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for any dilution or
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
j	The MRL/MDL or LOQ/LOD has been elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The compound was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The LOD has been adjusted for any dilution or
j	The MRL/MDL or LOQ/LOD has been elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Collected:**	09/28/2009
Sample Matrix:	Water	**Date Received:**	09/28/2009

Gasoline Range Organics

Sample Name:	Eff1-92809	**Units:**	ug/L
Lab Code:	K0909116-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	10/02/09	10/02/09	KWG0908964	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	94	50-150	10/02/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Collected:**	09/28/2009
Sample Matrix:	Water	**Date Received:**	09/28/2009

Gasoline Range Organics

Sample Name:	Eff2-92809	**Units:**	ug/L
Lab Code:	K0909116-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	N
Gasoline Range Organics-NWTP	ND	U	250	1	10/02/09	10/02/09	KWG0908964	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	94	50-150	10/02/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Gasoline Range Organics

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0908964-3	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics-NWTP	ND	U	250	1	10/02/09	10/02/09	KWG0908964	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	94	50-150	10/02/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010		
Sample Matrix:	Water		

Surrogate Recovery Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	PERCENT
Analysis Method:	NWTPH-Gx	**Level:**	Low

Sample Name	Lab Code	Sur1
Eff1-92809	K0909116-001	94
Eff2-92809	K0909116-002	94
Batch QCDUP	KWG0908964-1	93
Method Blank	KWG0908964-3	94
Batch QC	K0908871-053	93
Lab Control Sample	KWG0908964-2	97

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene	50-150

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Extracted:**	10/02/2009
Sample Matrix:	Water	**Date Analyzed:**	10/02/2009

Duplicate Sample Summary
Gasoline Range Organics

Sample Name:	Batch QC	**Units:**	ug/L
Lab Code:	K0908871-053	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	NWTPH-Gx	**Extraction Lot:**	KWG0908964

			Batch QCDUP KWG0908964-1			
			Duplicate Sample			
Analyte Name	**MRL**	**Sample Result**	**Result**	**Average**	**Relative Percent Difference**	**RPD Limit**
Gasoline Range Organics-NWTPH	250	ND	ND	ND	-	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Extracted:**	10/02/2009
Sample Matrix:	Water	**Date Analyzed:**	10/02/2009

Lab Control Spike Summary
Gasoline Range Organics

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	NWTPH-Gx	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0908964

	Lab Control Sample KWG0908964-2 Lab Control Spike			
Analyte Name	**Result**	**Expected**	**%Rec**	**%Rec Limits**
Gasoline Range Organics-NWTPH	476	500	95	80-119

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Collected:**	09/28/2009
Sample Matrix:	Water	**Date Received:**	09/28/2009

Volatile Organics by GC/MS

Sample Name:	Eff1-92809	**Units:**	ug/L
Lab Code:	K0909116-001	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
Toluene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
Ethylbenzene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
m,p-Xylenes	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
o-Xylene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	97	78-129	09/29/09	Acceptable
Dibromofluoromethane	99	73-122	09/29/09	Acceptable
4-Bromofluorobenzene	90	68-117	09/29/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Collected:**	09/28/2009
Sample Matrix:	Water	**Date Received:**	09/28/2009

Volatile Organics by GC/MS

Sample Name:	Eff2-92809	**Units:**	ug/L
Lab Code:	K0909116-002	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
Toluene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
Ethylbenzene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
m,p-Xylenes	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
o-Xylene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	98	78-129	09/29/09	Acceptable
Dibromofluoromethane	102	73-122	09/29/09	Acceptable
4-Bromofluorobenzene	90	68-117	09/29/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA

Volatile Organics by GC/MS

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG0908857-4	**Basis:**	NA
Extraction Method:	EPA 5030B	**Level:**	Low
Analysis Method:	8260B		

Analyte Name	Result	Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Benzene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
Toluene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
Ethylbenzene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
m,p-Xylenes	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	
o-Xylene	ND	U	0.50	1	09/29/09	09/29/09	KWG0908857	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Toluene-d8	97	78-129	09/29/09	Acceptable
Dibromofluoromethane	101	73-122	09/29/09	Acceptable
4-Bromofluorobenzene	91	68-117	09/29/09	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: SLR International
Project: Longview/001.0173.00010
Sample Matrix: Water

Service Request: K0909116

Surrogate Recovery Summary
Volatile Organics by GC/MS

Extraction Method: EPA 5030B
Analysis Method: 8260B

Units: PERCENT
Level: Low

Sample Name	Lab Code	Sur1	Sur2	Sur3
Eff1-92809	K0909116-001	97	99	90
Eff2-92809	K0909116-002	98	102	90
Method Blank	KWG0908857-4	97	101	91
Lab Control Sample	KWG0908857-3	102	105	98
Duplicate Lab Control Sample	KWG0908857-5	102	105	96

Surrogate Recovery Control Limits (%)

Sur1 = Toluene-d8	78-129
Sur2 = Dibromofluoromethane	73-122
Sur3 = 4-Bromofluorobenzene	68-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	SLR International	**Service Request:**	K0909116
Project:	Longview/001.0173.00010	**Date Extracted:**	09/29/2009
Sample Matrix:	Water	**Date Analyzed:**	09/29/2009

Lab Control Spike/Duplicate Lab Control Spike Summary
Volatile Organics by GC/MS

Extraction Method:	EPA 5030B	**Units:**	ug/L
Analysis Method:	8260B	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG0908857

	Lab Control Sample KWG0908857-3 Lab Control Spike			Duplicate Lab Control Sample KWG0908857-5 Duplicate Lab Control Spike					
Analyte Name	**Result**	**Expected**	**%Rec**	**Result**	**Expected**	**%Rec**	**%Rec Limits**	**RPD**	**RPD Limit**
Benzene	9.18	10.0	92	8.63	10.0	86	74-118	6	30
Toluene	9.50	10.0	95	8.83	10.0	88	74-117	7	30
Ethylbenzene	9.41	10.0	94	8.60	10.0	86	71-118	9	30
m,p-Xylenes	18.8	20.0	94	17.6	20.0	88	73-119	6	30
o-Xylene	9.22	10.0	92	8.80	10.0	88	74-120	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: 150 90 9116

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

PAGE 1 OF 1 COC #

PROJECT NAME	Longview
PROJECT NUMBER	001, 6173.60010
PROJECT MANAGER	Mike Staton
COMPANY/ADDRESS	SLR
CITY/STATE/ZIP	
E-MAIL ADDRESS	mstaton@SLRcorp.com
PHONE # / FAX #	
SAMPLER'S SIGNATURE	Chris Kane

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐	Hydrocarbons Gas ☐	BTEX ☐ 8021 ☐	Diesel ☐ Oil ☐ ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID (*see below)	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHs 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	REMARKS
Eff1-92809	9/28/09	1050		W			X	X													
Eff2-92809	↓	1100		↓			X	X													

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. Data Validation Report (includes all raw data)

___ IV. CLP Deliverable Report

___ V. EDD

INVOICE INFORMATION

P.O. # _____

Bill To: _____

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.

X 5 Day

___ Standard (10-15 working days)

___ Provide FAX Results

_____ Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

5 Day TAT for both samples

[redacted]

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Chris Kane	Signature: John Jones	Signature:	Signature:
Date/Time: 9/28/09 1238	Date/Time: 9/28/09 1236	Date/Time:	Date/Time:
Printed Name: Chris Kane	Printed Name: John Jones	Printed Name:	Printed Name:
Firm: SLR	Firm: CAS	Firm:	Firm:

16

#1 07

APPENDIX C

LABORATORY ANALYTICAL REPORTS – GROUNDWATER SAMPLES

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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September 16, 2009

Mike Staton, Project Manager
SLR International Corp.
22122 20th Ave. SE., H-150
Bothell, WA 98021

Dear Mr. Staton:

Included are the results from the testing of material submitted on September 4, 2009 from the Former Arco 0855 001.0173.00010, F&BI 909051 project. There are 19 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SLR0916R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 4, 2009 by Friedman & Bruya, Inc. from the SLR International Corp. Former Arco 0855 001.0173.00010, F&BI 909051 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SLR International Corp.
909051-01	MW8-0909
909051-02	MW11-0909
909051-03	DMW3-0909
909051-04	DMW4-0909
909051-05	MW5-0909
909051-06	DMW9-0909
909051-07	MW13-0909
909051-08	MW14-0909
909051-09	MW12-0909
909051-10	MW9-0909
909051-11	DMW6-0909
909051-12	MW10-0909

The samples sent to Analytical Resources for nitrate, sulfate, alkalinity, and dissolved methane analyses. Review of the enclosed report indicates that all quality assurance was acceptable.

All quality control requirements were acceptable.

Date of Report: 09/16/09
Date Received: 09/04/09
Project: Former Arco 0855 001.0173.00010, F&BI 909051
Date Extracted: 09/08/09 and 09/09/09
Date Analyzed: 09/08/09 and 09/09/09

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW8-0909 909051-01	<1	<1	<1	<3	<100	60
MW11-0909 909051-02	<1	<1	<1	<3	<100	72
DMW3-0909 909051-03	<1	<1	<1	<3	<100	67
DMW4-0909 909051-04	<1	<1	<1	<3	<100	73
MW5-0909 909051-05	<1	<1	<1	<3	<100	59
DMW9-0909 d 909051-06 1/40	2,800	4	320	1,100	14,000	87
MW13-0909 909051-07	<1	<1	<1	<3	<100	67
MW14-0909 909051-08	<1	<1	<1	<3	<100	69
MW12-0909 909051-09	<1	<1	<1	<3	<100	60
MW9-0909 909051-10	<1	<1	<1	<3	<100	70
DMW6-0909 909051-11	<1	<1	<1	<3	<100	71

Date of Report: 09/16/09
Date Received: 09/04/09
Project: Former Arco 0855 001.0173.00010, F&BI 909051
Date Extracted: 09/08/09 and 09/09/09
Date Analyzed: 09/08/09 and 09/09/09

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
MW10-0909 909051-12	<1	<1	2	<3	200	72
Method Blank	<1	<1	<1	<3	<100	73

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW8-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-01
Date Analyzed:	09/09/09	Data File:	909051-01.088
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	71	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	427

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW11-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-02
Date Analyzed:	09/09/09	Data File:	909051-02.089
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	76	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,550

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW3-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-03
Date Analyzed:	09/09/09	Data File:	909051-03.090
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	78	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	2,300

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW4-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-04
Date Analyzed:	09/09/09	Data File:	909051-04.091
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,660

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW5-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-05
Date Analyzed:	09/09/09	Data File:	909051-05.092
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	82	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,430

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW9-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-06
Date Analyzed:	09/09/09	Data File:	909051-06.093
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	2,110

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW13-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-07
Date Analyzed:	09/09/09	Data File:	909051-07.084
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	73	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	11,300

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW14-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-08
Date Analyzed:	09/09/09	Data File:	909051-08.094
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	74	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,120

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW12-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-09
Date Analyzed:	09/09/09	Data File:	909051-09.095
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	70	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	11,500

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW9-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-10
Date Analyzed:	09/09/09	Data File:	909051-10.096
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	71	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	450

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW6-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-11
Date Analyzed:	09/09/09	Data File:	909051-11.097
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	86	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,700

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	MW10-0909	Client:	SLR International Corp.
Date Received:	09/04/09	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909051-12
Date Analyzed:	09/09/09	Data File:	909051-12.099
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	77	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,420

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SLR International Corp.
Date Received:	NA	Project:	Former Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	I9-368 mb
Date Analyzed:	09/09/09	Data File:	I9-368 mb.082
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	74	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	<1

Date of Report: 09/16/09
Date Received: 09/04/09
Project: Former Arco 0855 001.0173.00010, F&BI 909051

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 909051-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	82	65-118
Toluene	ug/L (ppb)	50	81	72-122
Ethylbenzene	ug/L (ppb)	50	83	73-126
Xylenes	ug/L (ppb)	150	82	74-118
Gasoline	ug/L (ppb)	1,000	105	69-134

Date of Report: 09/16/09
Date Received: 09/04/09
Project: Former Arco 0855 001.0173.00010, F&BI 909051

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 909051-07 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Manganese	mg/kg (ppm)	11,300	11,500	2	0-20

Laboratory Code: 909051-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Manganese	mg/kg (ppm)	20	11,300	0 b	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Manganese	mg/kg (ppm)	20	95	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

September 14, 2009

Mike Erdahl
Friedman & Bruya
3012 – 16th Avenue West
Seattle, WA 9819-2029

Project: 909051 PO# H-1986
ARI ID: PN13

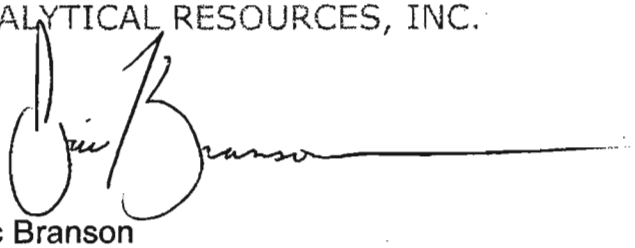
Dear Mr. Erdahl:

Please find enclosed the original Chain of Custody record, sample receipt documentation, and the final data for the samples from the project referenced above.

Sample receipt information and analytical details are addressed in the Case Narrative.

An electronic copy of this package will be kept on file at ARI. Should you have any questions or concerns, please feel free to call me at your convenience.

Respectfully,
ANALYTICAL RESOURCES, INC.



Eric Branson
Project Manager
(206) 695-6213
eric@arilabs.com
www.arilabs.com

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Case Narrative

- Sample Receipt & Analytical Details -

Sample Receipt:

Analytical Resources, Inc. accepted twelve water samples in good condition on 09/03/09. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form and Preservation Verification sheet.

The samples were analyzed for the parameters listed below, as requested on the Chain of Custody.

Methane / Ethane / Ethene by RSK 175M

The analysis was completed routinely.

Conventional Chemistry Parameters:

-Alkalinity by Standard Method 2320-

The analysis was completed routinely.

-Nitrate Calculation by EPA Method 353.2-

The analysis was completed routinely.

-Sulfate by EPA Method 375.2-

The analysis was completed routinely.

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER

PROJECT NAME/NO. 909051

PO # H-1986

REMARKS

Please Email Results
merdahl@friedmanandbruya.com

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Oil and Grease	EPH	VPH	Nitrate	Sulfate	Alkalinity	Dissolved Methane RSK-175				Notes
						ANALYSES REQUESTED										
MW8-0909		9/3/09	0824	W	3				X	X	X	X				
DMW11-0909			1013													
DMW3-0909			1114													
DMW4-0909			1210													
MW5-0909			1252													
DMW9-0909			1430													
MW13-0909			1522													
MW14-0909			1614													
MW12-0909			1659													
MW9-0909			1812													
DMW6-0909			1842													
MW10-0909			1940													

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	9/4/09	9:25
Received by: Mikka Mulumba	Mikka Mulumba	ARI		
Relinquished by:				
Received by:				

PNS: 0909

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
METHANE ETHANE ETHENE
Modified RSK 175

Matrix: Water

QC Report No: PN13-Friedman & Bruya, Inc.
Project: H-1986
909051
Date Received: 09/04/09

Data Release Authorized:
Reported: 10/02/09

ARI ID	Sample ID	Analysis Date	DL	Analyte	RL	Result
PN13A 09-20737	MW8-0909	09/10/09	1.0	**Methane**	**0.7**	**1,470**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13B 09-20738	MW11-0909	09/10/09	1.0	**Methane**	**0.7**	**581**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13C 09-20739	DMW3-0909	09/10/09	1.0	**Methane**	**0.7**	**1,420**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13D 09-20740	DMW4-0909	09/10/09	1.0	**Methane**	**0.7**	**4,220**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13E 09-20741	MW5-0909	09/10/09	1.0	**Methane**	**0.7**	**290**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13F 09-20742	DMW9-0909	09/10/09	1.0	**Methane**	**0.7**	**20,600**
				Ethane	**1.2**	**33.3**
				Ethene	1.1	< 1.1 U
PN13G 09-20743	MW13-0909	09/10/09	1.0	**Methane**	**0.7**	**121**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13H 09-20744	MW14-0909	09/10/09	1.0	**Methane**	**0.7**	**101**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13I 09-20745	MW12-0909	09/10/09	1.0	**Methane**	**0.7**	**761**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13J 09-20746	MW9-0909	09/10/09	1.0	**Methane**	**0.7**	**12.6**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PN13K 09-20747	DMW6-0909	09/10/09	1.0	**Methane**	**0.7**	**9,520**
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
METHANE ETHANE ETHENE
Modified RSK 175

Matrix: Water

QC Report No: PN13-Friedman & Bruya, Inc.
Project: H-1986
909051
Date Received: 09/04/09

Data Release Authorized:
Reported: 10/02/09

ARI ID	Sample ID	Analysis Date	DL	Analyte	RL	Result
PN13L	MW10-0909	09/10/09	1.0	**Methane**	**0.7**	**7,880**
09-20748				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
091009MB	Method Blank	09/10/09	1.0	Methane	0.7	< 0.7 U
091009MB	Method Blank	09/10/09	1.0	Ethane	1.2	< 1.2 U
091009MB	Method Blank	09/10/09	1.0	Ethene	1.1	< 1.1 U

Reported in ug/L (ppb)

FORM I

ANALYTICAL RESOURCES INCORPORATED

RSK 175 WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: PN13-Friedman & Bruya, Inc.
Project: H-1986
909051

ARI ID	Client ID	PRP	TOT OUT
PN13A	MW8-0909	85.4%	0
PN13B	MW11-0909	91.2%	0
PN13C	DMW3-0909	88.3%	0
PN13D	DMW4-0909	88.9%	0
PN13E	MW5-0909	97.7%	0
PN13F	DMW9-0909	86.8%	0
PN13G	MW13-0909	88.1%	0
PN13H	MW14-0909	96.5%	0
PN13I	MW12-0909	86.3%	0
PN13J	MW9-0909	96.6%	0
PN13K	DMW6-0909	90.2%	0
PN13L	MW10-0909	89.1%	0
MB-091009	Method Blank	88.0%	0
LCS-091009	Lab Control	89.4%	0
LCSD-091009	Lab Control Dup	93.2%	0

	LCS/MB LIMITS	QC LIMITS
(PRP) = Propane	(79-132)	(72-122)

Log Number Range: 09-20737 to 09-20748

FORM-II RSK 175

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
METHANE ETHANE ETHENE
Modified RSK 175
Page 1 of 1
Matrix: Water

QC Report No: PN13-Friedman & Bruya, Inc.
Project: H-1986
909051
Date Received: 09/04/09

Data Release Authorized:
Reported: 09/14/09

ARI ID	Analysis Date	Analyte	Spike	Result	Recovery	RPD
091009LCS	09/10/09	Methane	654	576	88.0%	0.5%
091009LCSD				579	88.5%	
091009LCS	09/10/09	Ethane	1,230	1,220	99.4%	0.8%
091009LCSD				1,210	98.6%	
091009LCS	09/10/09	Ethene	1,150	1,140	99.5%	1.8%
091009LCSD				1,120	97.8%	

Reported in ug/L (ppb)

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW8-0909
ARI ID: 09-20737 PN13A

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	67.4
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	0.1	0.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 10/02/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW11-0909
ARI ID: 09-20738 PN13B

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	126
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	10.0	82.6

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: DMW3-0909
ARI ID: 09-20739 PN13C

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	220
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	0.5	8.8

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: DMW4-0909
ARI ID: 09-20740 PN13D

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	178
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	0.5	24.4

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW5-0909
ARI ID: 09-20741 PN13E

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	49.4
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	20.0	202

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: DMW9-0909
ARI ID: 09-20742 PN13F

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	330
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	0.1	< 0.1 U

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW13-0909
ARI ID: 09-20743 PN13G

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	96.0
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	50.0	805

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW14-0909
ARI ID: 09-20744 PN13H

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	45.4
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	50.0	444

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW12-0909
ARI ID: 09-20745 PN13I

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	146
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	50.0	882

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW9-0909
ARI ID: 09-20746 PN13J

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	52.9
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	0.3
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	0.5	9.3

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: DMW6-0909
ARI ID: 09-20747 PN13K

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	146
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/04/09 090409#1	EPA 300.0	mg/L	0.1	< 0.1 U

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Client ID: MW10-0909
ARI ID: 09-20748 PN13L

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/04/09 090409#1	SM 2320	mg/L CaCO3	1.0	180
N-Nitrate	09/04/09 090409#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Sulfate	09/08/09 090809#1	EPA 300.0	mg/L	5.0	34.3

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: PN13J Client ID: MW9-0909							
N-Nitrate	EPA 300.0	09/04/09	mg-N/L	0.3	2.1	2.0	90.0%
Sulfate	EPA 300.0	09/04/09	mg/L	9.3	19.8	10.0	105.0%

REPLICATE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: 09/03/09
Date Received: 09/04/09

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: PN13A Client ID: MW8-0909						
Alkalinity	SM 2320	09/04/09	mg/L CaCO3	67.4	67.0	0.6%
ARI ID: PN13J Client ID: MW9-0909						
N-Nitrate	EPA 300.0	09/04/09	mg-N/L	0.3	0.3	0.0%
Sulfate	EPA 300.0	09/04/09	mg/L	9.3	9.3	0.0%

METHOD BLANK RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank
N-Nitrate	EPA 300.0	09/04/09	mg-N/L	< 0.1 U
Sulfate	EPA 300.0	09/04/09	mg/L	< 0.1 U
		09/08/09		< 0.1 U

STANDARD REFERENCE RESULTS-CONVENTIONALS
PN13-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/11/09

Project: H-1986
Event: 909051
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Alkalinity ERA #P114506	SM 2320	09/04/09	mg/L CaCO3	70.5	70.7	99.7%
N-Nitrate ERA #09127	EPA 300.0	09/04/09	mg-N/L	2.8	3.0	93.3%
Sulfate ERA #220109	EPA 300.0	09/04/09 09/08/09	mg/L	2.9 2.9	3.0 3.0	96.7% 96.7%

909051

SAMPLE CHAIN OF CUSTODY ME 09-04-09

VS/BIG

Page # 1 of 2

Send Report To MIKE STATON

Company SLR

Address 22122 20TH AVE SE, H-150

City, State, ZIP BOTHELL, WA 98021

Phone # (425) 402-8800 Fax # (425) 402-8488

SAMPLERS (signature)

PROJECT NAME/NO.: Former ARCO # 0855 001.0173.00010

PO #: 001.0173.00010

REMARKS: Rinsed preservative from VOAs for sample DMW9-0909

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers (NP)	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Sulfate & Nitrate by 300.0	Dissolved Mn by 200.8	Alkalinity by 310.1	Dissolved CH4 by RSK-175	Notes
MW8-0909	01A-F	9/3/09	0824	Water	6		X	X				X	X	X	X	
DMW11-0909	02A-F		1013													
DMW3-0909	03A-F		1114													
DMW4-0909	04A-F		1210													
MW5-0909	05A-F		1252													
DMW9-0909	06A-F		1430													Rinsed HCl from VOAs
MW13-0909	07A-F		1522													
MW14-0909	08A-F		1614													
MW12-0909	09A-F		1659													
MW9-0909	10A-F	↓	1812	↓	↓	↓	↓	↓				↓	↓	↓	↓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	CHRIS LEE	SLR	9/4/09	0700
Received by:	Nhan Phan	FeB_I	9/4/09	9:15
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Samples received at 2 °C

909051

SAMPLE CHAIN OF CUSTODY

ME 09-04-09 V3/BI4

Page # 2 of 2

Send Report To MIKE STATON

Company SLR

Address 22122 20TH AVE SE, H-150

City, State, ZIP BOTHELL, WA 98021

Phone # (425) 402-8800 Fax # (425) 402-8188

SAMPLERS (signature)

PROJECT NAME/NO.: Former ARCO # 0855 001.0173.00010

PO #: 001.0173.00010

REMARKS

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers (NP)	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Sulfate Nitrate by 300.0	Dissolved Mn by 200.8	Alkalinity by 310.1	Dissolved CH4 by RSK-175		Notes
DMW6-0909	11A-F	9/3/09	1842	Water	46		X	X				X	X	X	X		
MW10-0909	12A-F	↓	1940	↓	↓		X	X				X	X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	CHRIS LEE	SLR	9/4/09	0700
Received by:	Nhan Phan	FeBI	9/4/09	9:15
Relinquished by:				
Received by:				

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

FORMS\COC\COC.DOC

Samples received at 2 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 16, 2009

Mike Staton, Project Manager
SLR International Corp.
22122 20th Ave. SE., H-150
Bothell, WA 98021

Dear Mr. Staton:

Included are the results from the testing of material submitted on September 3, 2009 from the Fmr Arco 0855 001.0173.00010, F&BI 909034 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
SLR0916R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 3, 2009 by Friedman & Bruya, Inc. from the SLR International Corp. Fmr Arco 0855 001.0173.00010, F&BI 909034 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SLR International Corp.
909034-01	DMW7-0909
909034-02	DMW8-0909
909034-03	DMW5-0909
909034-04	DMW10-0909

The samples sent to Analytical Resources for nitrate, sulfate, alkalinity, and dissolved methane analyses. Review of the enclosed report indicates that all quality assurance was acceptable.

All quality control requirements were acceptable.

Date of Report: 09/16/09
Date Received: 09/03/09
Project: Fmr Arco 0855 001.0173.00010, F&BI 909034
Date Extracted: 09/04/09
Date Analyzed: 09/04/09

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
DMW7-0909 909034-01	<1	<1	<1	<3	<100	66
DMW8-0909 909034-02	<1	<1	<1	<3	<100	61
DMW5-0909 909034-03	<1	<1	<1	<3	<100	75
DMW10-0909 909034-04	9	<1	2	<3	<100	76
Method Blank	<1	<1	<1	<3	<100	82

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW7-0909	Client:	SLR International Corp.
Date Received:	09/03/09	Project:	Fmr Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909034-01
Date Analyzed:	09/09/09	Data File:	909034-01.100
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	86	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	3,540

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW8-0909	Client:	SLR International Corp.
Date Received:	09/03/09	Project:	Fmr Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909034-02
Date Analyzed:	09/09/09	Data File:	909034-02.101
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	77	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,860

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW5-0909	Client:	SLR International Corp.
Date Received:	09/03/09	Project:	Fmr Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909034-03
Date Analyzed:	09/09/09	Data File:	909034-03.102
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	81	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	1,570

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	DMW10-0909	Client:	SLR International Corp.
Date Received:	09/03/09	Project:	Fmr Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	909034-04
Date Analyzed:	09/09/09	Data File:	909034-04.103
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	82	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	2,080

Analysis For Dissolved Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	SLR International Corp.
Date Received:	NA	Project:	Fmr Arco 0855 001.0173.00010
Date Extracted:	09/09/09	Lab ID:	I9-368 mb
Date Analyzed:	09/09/09	Data File:	I9-368 mb.082
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	74	60	125

Analyte:	Concentration ug/L (ppb)
Manganese	<1

Date of Report: 09/16/09
Date Received: 09/03/09
Project: Fmr Arco 0855 001.0173.00010, F&BI 909034

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 909025-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	90	65-118
Toluene	ug/L (ppb)	50	88	72-122
Ethylbenzene	ug/L (ppb)	50	91	73-126
Xylenes	ug/L (ppb)	150	90	74-118
Gasoline	ug/L (ppb)	1,000	104	69-134

Date of Report: 09/16/09
Date Received: 09/03/09
Project: Fmr Arco 0855 001.0173.00010, F&BI 909034

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR DISSOLVED METALS USING EPA METHOD 200.8

Laboratory Code: 909051-07 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Manganese	mg/kg (ppm)	11,300	11,500	2	0-20

Laboratory Code: 909051-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Manganese	mg/kg (ppm)	20	11,300	0 b	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Manganese	mg/kg (ppm)	20	95	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

September 14, 2009

Mike Erdahl
Friedman & Bruya
3012 – 16th Avenue West
Seattle, WA 9819-2029

Project: 909034 PO# H-1952
ARI ID: PM93

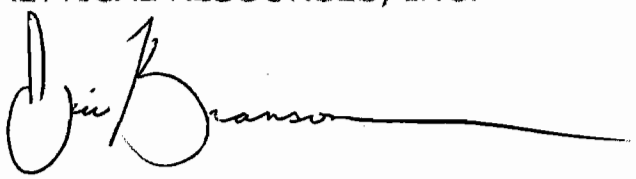
Dear Mr. Erdahl:

Please find enclosed the original Chain of Custody record, sample receipt documentation, and the final data for the samples from the project referenced above.

Sample receipt information and analytical details are addressed in the Case Narrative.

An electronic copy of this package will be kept on file at ARI. Should you have any questions or concerns, please feel free to call me at your convenience.

Respectfully,
ANALYTICAL RESOURCES, INC.



Eric Branson
Project Manager
(206) 695-6213
eric@arilabs.com
www.arilabs.com

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

- Sample Receipt & Analytical Details -

Sample Receipt:

Analytical Resources, Inc. accepted four water samples in good condition on 09/03/09. For further details regarding sample receipt please refer to the enclosed Cooler Receipt Form and Preservation Verification sheet.

The samples were analyzed for the parameters listed below, as requested on the Chain of Custody.

Methane / Ethane / Ethene by RSK 175M

The analysis was completed routinely.

Conventional Chemistry Parameters:

-Alkalinity by Standard Method 2320-

The analysis was completed routinely.

-Nitrate Calculation by EPA Method 353.2-

The sample matrix required that the analysis be performed at a 5x dilution. As such, the Reporting Limits have been elevated.

-Sulfate by EPA Method 375.2-

The analysis was completed routinely.

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER

PROJECT NAME/NO.: 909034

PO #: H-1952

REMARKS

Please Email Results
merdahl@friedmanandbruya.com

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Oil and Grease	EPH	VPH	Nitrate	Sulfate	Alkalinity	Dissolved Methane RSK-175				Notes
						ANALYSES REQUESTED										
DMW7-0909		9/2/09	1050	W					X	X	X	X				
DMW8-0909		"	1200	"					X	X	X	X				
DMW5-0909		"	1255	"					X	X	X	X				
DMW10-0909		"	1345	"					X	X	X	X				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	9/3/09	10:25
Received by:	Rick Hudson	ARI	9/3/09	1225
Relinquished by:				
Received by:				

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

PM93 : 09093

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
METHANE ETHANE ETHENE
Modified RSK 175
Page 1 of 1
Matrix: Water

QC Report No: PM93-Friedman & Bruya, Inc.
Project: H-1952
909034
Date Received: 09/03/09

Data Release Authorized:
Reported: 09/14/09

ARI ID	Sample ID	Analysis Date	DL	Analyte	RL	Result
PM93A	DMW7-0909	09/10/09	1.0	**Methane**	**0.7**	**5,860**
09-20642				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PM93B	DMW8-0909	09/10/09	1.0	**Methane**	**0.7**	**3,080**
09-20643				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PM93C	DMW5-0909	09/10/09	1.0	**Methane**	**0.7**	**4,180**
09-20644				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
PM93D	DMW10-0909	09/10/09	1.0	**Methane**	**0.7**	**2,900**
09-20645				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
091009MB	Method Blank	09/10/09	1.0	Methane	0.7	< 0.7 U
091009MB	Method Blank	09/10/09	1.0	Ethane	1.2	< 1.2 U
091009MB	Method Blank	09/10/09	1.0	Ethene	1.1	< 1.1 U

Reported in ug/L (ppb)

ANALYTICAL RESOURCES INCORPORATED

RSK 175 WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: PM93-Friedman & Bruya, Inc.
Project: H-1952
909034

ARI ID	Client ID	PRP	TOT OUT
PM93A	DMW7-0909	89.6%	0
PM93B	DMW8-0909	88.2%	0
PM93C	DMW5-0909	95.4%	0
PM93D	DMW10-0909	92.5%	0
MB-091009	Method Blank	88.0%	0
LCS-091009	Lab Control	89.4%	0
LCSD-091009	Lab Control Dup	93.2%	0

	LCS/MB LIMITS	QC LIMITS
(PRP) = Propane	(79-132)	(72-122)

Log Number Range: 09-20642 to 09-20645

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
METHANE ETHANE ETHENE
Modified RSK 175
Page 1 of 1
Matrix: Water

QC Report No: PM93-Friedman & Bruya, Inc.
Project: H-1952
909034
Date Received: 09/03/09

Data Release Authorized:
Reported: 09/14/09

ARI ID	Analysis Date	Analyte	Spike	Result	Recovery	RPD
091009LCS	09/10/09	Methane	654	576	88.0%	0.5%
091009LCSD				579	88.5%	
091009LCS	09/10/09	Ethane	1,230	1,220	99.4%	0.8%
091009LCSD				1,210	98.6%	
091009LCS	09/10/09	Ethene	1,150	1,140	99.5%	1.8%
091009LCSD				1,120	97.8%	

Reported in ug/L (ppb)

SAMPLE RESULTS-CONVENTIONALS
PM93-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 10/05/09

Project: H-1952
Event: 909034
Date Sampled: 09/02/09
Date Received: 09/03/09

Client ID: DMW7-0909
ARI ID: 09-20642 PM93A

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/03/09 090309#1	SM 2320	mg/L CaCO3	1.0	174
N-Nitrate	09/03/09	Calculated	mg-N/L	0.050	< 0.050 U
Sulfate	09/08/09 090809#1	EPA 375.2	mg/L	10.0	18.0

RL Analytical reporting limit
U *Undetected at reported detection limit*

SAMPLE RESULTS-CONVENTIONALS
PM93-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 10/05/09

Project: H-1952
Event: 909034
Date Sampled: 09/02/09
Date Received: 09/03/09

Client ID: DMW8-0909
ARI ID: 09-20643 PM93B

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/03/09 090309#1	SM 2320	mg/L CaCO3	1.0	142
N-Nitrate	09/03/09	Calculated	mg-N/L	0.050	< 0.050 U
Sulfate	09/08/09 090809#1	EPA 375.2	mg/L	10.0	23.2

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PM93-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 10/05/09

Project: H-1952
Event: 909034
Date Sampled: 09/02/09
Date Received: 09/03/09

Client ID: DMW5-0909
ARI ID: 09-20644 PM93C

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/03/09 090309#1	SM 2320	mg/L CaCO3	1.0	126
N-Nitrate	09/03/09	Calculated	mg-N/L	0.050	< 0.050 U
Sulfate	09/08/09 090809#1	EPA 375.2	mg/L	10.0	33.6

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
PM93-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 10/05/09

Project: H-1952
Event: 909034
Date Sampled: 09/02/09
Date Received: 09/03/09

Client ID: DMW10-0909
ARI ID: 09-20645 PM93D

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	09/03/09 090309#1	SM 2320	mg/L CaCO3	1.0	117
N-Nitrate	09/03/09	Calculated	mg-N/L	0.050	< 0.050 U
Sulfate	09/08/09 090809#1	EPA 375.2	mg/L	10.0	32.7

RL Analytical reporting limit
U Undetected at reported detection limit

REPLICATE RESULTS-CONVENTIONALS
PM93-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 09/09/09

Project: H-1952
Event: 909034
Date Sampled: 09/02/09
Date Received: 09/03/09

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: PM93A Client ID: DMW7-0909						
Alkalinity	SM 2320	09/03/09	mg/L CaCO3	174	172	1.2%

METHOD BLANK RESULTS-CONVENTIONALS
PM93-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 10/05/09

Project: H-1952
Event: 909034
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank
Sulfate	EPA 375.2	09/08/09	mg/L	< 2.0 U

STANDARD REFERENCE RESULTS-CONVENTIONALS
PM93-Friedman & Bruya, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 10/05/09

Project: H-1952
Event: 909034
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Alkalinity ERA #P114506	SM 2320	09/03/09	mg/L CaCO3	66.5	70.7	94.1%
Sulfate ERA #37065	EPA 375.2	09/08/09	mg/L	25.0	25.0	100.0%

909034

SAMPLE CHAIN OF CUSTODY

ME 09-03-09 v2/ AIS

Page # 1 of 1

Send Report To MIKE STATON
Company SLR
Address 22122 20th Ave SE, H-150
City, State, ZIP Bothell, WA 98021
Phone # 425-402-8880 Fax # 425-402-8488

SAMPLERS (signature) CHRIS LEE
PROJECT NAME/NO. Fmr ARCO #0855 001.0173.00010
PO # 001.0173.00010
REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Sulfate + Nitrate by 300.0	Dissolved Mn by 200.8	Alkalinity by 310.1	Dissolved CH4 RSK-175		Notes
DMW7-0909	01A-F	9/3/09	1050	Water	6		X	X				X	X	X	X		
DMW8-0909	02A-F		1200														
DMW5-0909	03A-F		1255														
DMW10-0909	04A-F	↓	1345	↓	↓												

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		CHRIS LEE	SLR	9/3/09	1445
Received by:		Nhan Phan	FcBI	9/3/09	09:30
Relinquished by:					
Received by:					

FORMS\COC\COC.DOC

Samples received at 2 °C