

January 9, 2010
Project 001.0173.00010

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

**Re: Quarterly Groundwater Sampling Report – December 2009 Event
Former Arco Service Station #0855, Longview, Washington**

Dear Mr. Middleton:

On behalf of the Wakefield Family LLC (property owner), SLR International Corp (SLR) has prepared this report to present the results of the quarterly groundwater sampling activities conducted in December 2009 at the above-referenced site. 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). The purposes of the groundwater sampling program are to assess the effectiveness of the current deep groundwater recovery operations and the 2007 site remedial action (soil excavation and shallow groundwater extraction), and to monitor the migration and attenuation of the petroleum hydrocarbon concentrations in the shallow groundwater-bearing unit and the deep aquifer over time.

After completing the 2007 remedial action, quarterly groundwater sampling results showed that the samples from all of the shallow monitoring wells, except MW-10, and all of the deep monitoring wells, except DMW-4, DMW-5, DMW-9, and DMW-10, contained petroleum hydrocarbon concentrations below the Model Toxics Control Act (MTCA) Method A groundwater cleanup levels for four consecutive quarters (SLR, 2008a; SLR, 2008b; and SLR, 2008c). To remediate the impacted groundwater in the deep aquifer, a deep groundwater recovery well (RW-1) was installed and a recovery/treatment system has been operating since June 2009. After activating the system, the current groundwater sampling program consists of conducting annual sampling events (collect samples from all of the shallow and deep monitoring wells) in September, and conducting quarterly sampling events (collect samples from shallow well MW-10 and deep wells DMW-5, DMW-9, and DMW-10) in December, March, and June.

December 2009 Sampling Event

SLR personnel conducted the groundwater sampling activities on December 15, 2009. On December 14th, SLR deactivated the deep groundwater recovery/treatment system so that the deep aquifer would be under non-pumping static conditions at the time of sampling.

Immediately prior to sampling, SLR measured the depths to groundwater in 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) by using an electronic water level probe. The depth to groundwater measurements were converted to groundwater elevations by using the results of previous well elevation surveys conducted by Gibbs and Olson, Inc., of Longview, Washington. The depths to groundwater in the shallow wells ranged from 1.77 to 5.97 feet below the tops of the well casings. The groundwater elevations in the shallow wells ranged from 3.14 to 6.79 feet above the NAVD 88 datum. The depths to groundwater in the deep wells ranged from 4.71 to 6.89 feet below the tops of the well casings. The groundwater elevations in the deep wells ranged from 1.95 to 2.32 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 December 2009 sampling event, as well as from the previous groundwater sampling events, are presented in Table 1. The groundwater elevations in the shallow and deep wells on December 15, 2009, are shown on Figures 2 and 3, respectively.

SLR personnel collected groundwater samples from shallow well MW-10 and deep monitoring wells DMW-5, DMW-9, and DMW-10 for laboratory analysis. SLR purged the wells by using a peristaltic pump with dedicated tubing at a flow rate of approximately 0.33 liters per minute. During purging, field parameters of temperature, conductivity, dissolved oxygen (DO), pH, and oxidation-reduction potential were measured every three to five minutes. Each groundwater sample was collected following the stabilization of the field parameter measurements. The purge water is stored on site in properly labeled, 55-gallon drums, pending off-site disposal.

The groundwater samples were submitted to Friedman & Bruya, Inc. (F&B) in Seattle, Washington, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B, and gasoline-range organics (GRO) by Ecology Method NWTPH-Gx. The analytical results indicated that the groundwater sample from deep wells DMW-9 and DMW-10 contained benzene concentrations [980 and 20 micrograms per liter ($\mu\text{g/L}$), respectively] that exceeded the MTCA Method A cleanup level (5 $\mu\text{g/L}$). The sample from DMW-9 also contained total xylenes and GRO concentrations (1,100 and 5,300 $\mu\text{g/L}$, respectively) that exceeded the Method A cleanup levels (1,000 and 800 $\mu\text{g/L}$, respectively). The groundwater samples from shallow well MW-10 and deep well DMW-5 did not contain analyte concentrations greater than the Method A cleanup levels. The groundwater sample analytical results from the December 2009 event, as well as from the previous sampling events, are presented in Table 2. The benzene and GRO concentrations in the December 2009 samples from the shallow and deep wells are shown on Figures 2 and 3, respectively. A copy of the laboratory analytical report is attached.

Conclusions

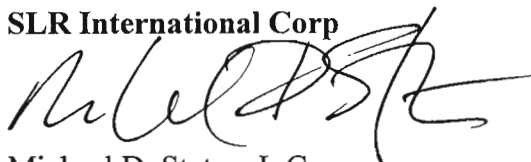
The 2008 groundwater sampling results from the shallow wells indicated that the 2007 remediation activities effectively removed the source of the shallow groundwater contamination and extracted most of the impacted shallow groundwater. In October 2008, the remaining petroleum hydrocarbon concentrations in the shallow groundwater that exceeded the MTCA Method A cleanup levels only occurred in one localized area (near well MW-10). Based on the September 2009 sampling results (SLR, 2009) and the December 2009 sampling results, it appears that the hydrocarbon concentrations near MW-10 have decreased to below the Method A cleanup levels due to natural attenuation.

The 2008 groundwater sampling results from the deep wells showed that the 2007 remediation activities had limited short-term effects on the deep groundwater concentrations. However, the petroleum hydrocarbon concentrations are decreasing with distance away from the primary source area (the former dispenser island area) due to natural attenuation. To actively remediate the impacted deep groundwater, a deep groundwater recovery/treatment system has been operating since June 2009. Based on the December 2009 sampling results, the benzene and GRO concentrations in the deep groundwater have decreased due to the operation of the system. At the source area well (DMW-9), the benzene and GRO concentrations in December 2009 are 2,320 and 3,300 µg/L, respectively, less than the concentrations in October 2008 (the last sampling event prior to activating the deep groundwater recovery/treatment system).

If you have any questions, please call Mike Staton at (425) 471-0479.

Sincerely,

SLR International Corp



Michael D. Staton, L.G.
Principal Geologist

Attachments: Limitations
References
Tables 1 and 2
Figures 1 through 3
Laboratory Analytical Report

cc: Kurt Peterson, Cascadia Law Group PLLC (4 copies)

LIMITATIONS

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

Opinions and recommendations contained herein apply to conditions existing when services were performed and are intended only for the client, purposes, location, timeframes, 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 2008a. *Remedial Action Report, Former Arco Service Station #0855, 4603 Ocean Beach Highway, Longview, Washington.* July 21.
- SLR 2008b. *Quarterly Groundwater Sampling Report – July 2008 Event, Former Arco Service Station #0855, Longview, Washington.* August 29.
- SLR 2008c. *Quarterly Groundwater Sampling Report – September/October 2008 Event, Former Arco Service Station #0855, Longview, Washington.* October 29.
- SLR 2009. *Deep Groundwater Remediation System Installation and Performance Report, Former Arco Service Station #0855, Longview, Washington.* November 4.

Table 1
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
	8.25 ^c	10/18/01	5.26	NP	3.08
		01/16/02	4.45	NP	3.89
		07/09/03	5.80	NP	2.54
		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
	8.89 ^c	10/18/01	4.83	NP	3.93
		01/16/02	3.71	NP	5.05
		07/09/03	5.36	NP	3.40
		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	8.58 ^c	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*
		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 1
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
		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
8.67 ^c		07/09/03	6.86	NP	1.92
		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
		09/02/09	7.08	NP	1.59
		12/15/09	4.63	NP	4.04
MW-6		8.21	11/15/00	6.15	NP
		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
	8.11 ^c	07/09/03	6.16	NP	2.05
		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 1
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
	8.26 ^c	07/09/03	7.00	NP	1.45
		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
		09/02/09	4.55	NP	1.90
		12/15/09	3.31	NP	3.14
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
		09/02/09	5.20	NP	4.23
		12/15/09	4.51	NP	4.92
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
		09/02/09	7.76	NP	1.76
		12/15/09	5.97	NP	3.55

Table 1
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
		09/02/09	7.52	NP	0.64
		12/15/09	4.35	NP	3.81
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
		09/02/09	6.33	NP	1.88
		12/15/09	3.09	NP	5.12
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
		09/02/09	7.04	NP	1.99
		12/15/09	2.24	NP	6.79
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
		09/02/09	6.93	NP	1.46
		12/15/09	1.77	NP	6.62
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
		09/02/09	5.19	NP	1.47
		12/15/09	4.71	NP	1.95

Table 1
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-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
		09/02/09	7.13	NP	1.42
		12/15/09	6.26	NP	2.29
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
		09/02/09	6.75	NP	1.39
		12/15/09	5.87	NP	2.27
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
		09/02/09	7.79	NP	1.36
		12/15/09	6.89	NP	2.26
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
		09/02/09	6.74	NP	1.38
		12/15/09	5.85	NP	2.27
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
		09/02/09	7.69	NP	1.40
		12/15/09	6.80	NP	2.29
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
		09/02/09	7.44	NP	1.42
		12/15/09	6.54	NP	2.32

Table 1
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
		09/02/09	6.99	NP	1.39
		12/15/09	6.09	NP	2.29
Deep Recovery Well					
RW-1	8.08	09/02/09	6.69	NP	1.39
		12/15/09	5.78	NP	2.30
NOTES:					
NP = Free product was not present.					
^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 2
Groundwater Sample Analytical Results
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 Monitoring 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 2
Groundwater Sample Analytical Results
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 Monitoring 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 2
Groundwater Sample Analytical Results
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 Monitoring 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
	12/15/09	3.0	<1.0	11	<3.0	310	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 2
Groundwater Sample Analytical Results
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 Monitoring Wells							
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	12/15/09	1.0	<1.0	<1.0	<3.0	<100	NA
	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 2
Groundwater Sample Analytical Results
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 Monitoring Wells (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
	12/15/09	980	2.0	<1.0	1,100	5,300	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
	12/15/09	20	<1.0	13	7.0	150	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.

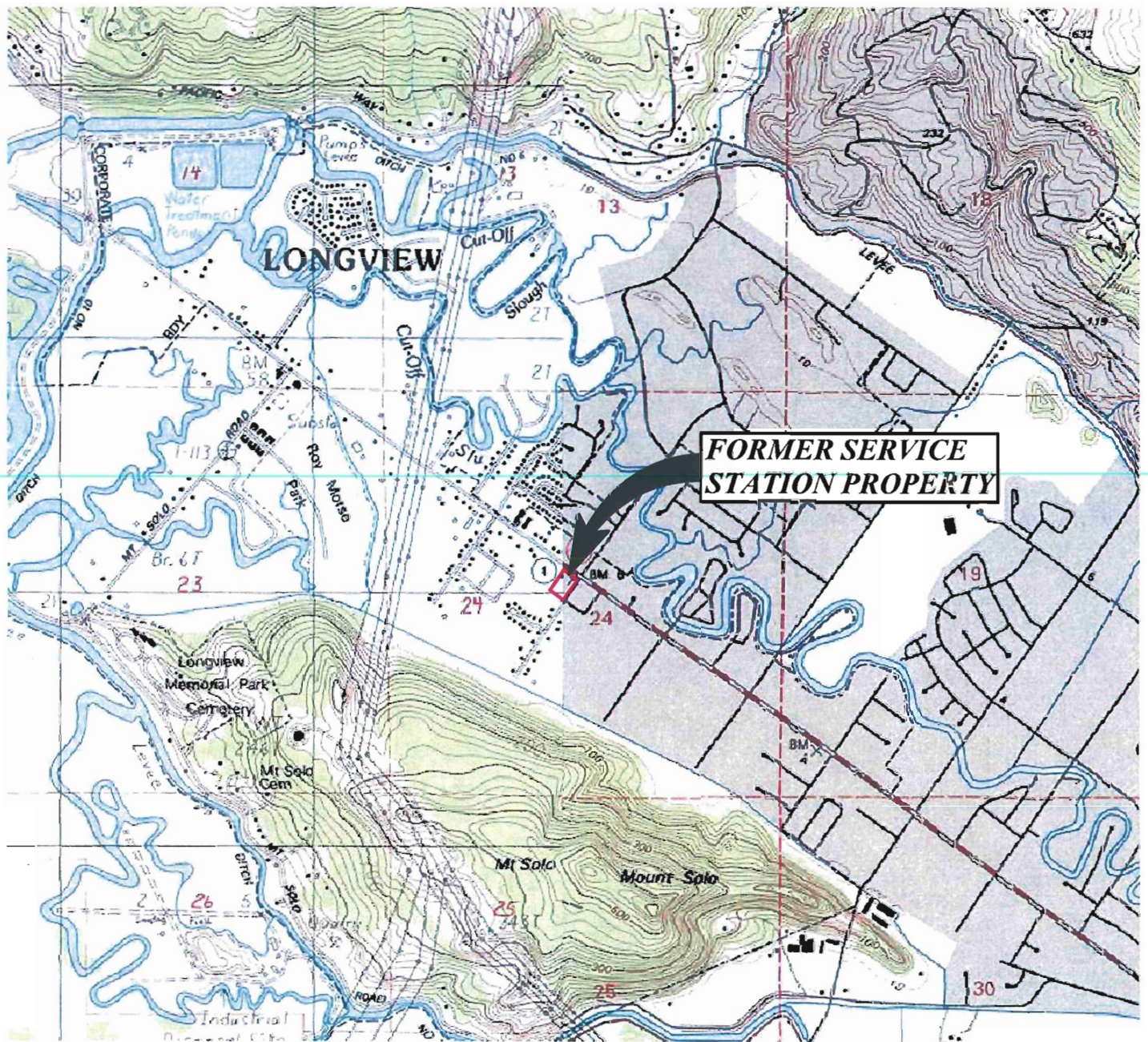
^c Diesel-range organics (DRO) by Ecology Method NWTPH-Dx.

^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.



0 2000 4000
SCALE IN FEET



WASHINGTON

SOURCE: USGS 7.5 Minute Quadrangles Kelso, 1970 Contour Interval 20 Feet and
Abernathy Mtn., 1986 Contour Interval 20 Feet.

FIGURE 1
FORMER ARCO SERVICE STATION #0855
LONGVIEW, WASHINGTON

PROPERTY LOCATION MAP

SLR
SLR International Corp

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

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

DATE 01/10
DWN. BDT
APPR. MDS
REVIS.
PROJECT NO.
001.0173.00010

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BOON DOX
MARKET

BOON DOX
TAVERN

TEXACO SERVICE
STATION

LEGEND

MW-5  SHALLOW GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

MW-2  ABANDONED OR DESTROYED SHALLOW GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

(3.55) SHALLOW GROUNDWATER ELEVATION (IN FEET)

3 B	B = BENZENE CONCENTRATION IN GROUNDWATER SAMPLE (in µg/L)
310 G	G = GRO CONCENTRATION IN GROUNDWATER SAMPLE (in µg/L)

OCEAN BEACH HIGHWAY

APPROXIMATE
EXTENT OF 2007
SOIL EXCAVATION

SIDEWALK

SIDEWALK

MW-10
(3.55)

3 B
310 G

MW-5
(4.04)

PLANTER

MW-11
(3.81)

FORMER UNDERGROUND
DISPENSER LINES

UNDEVELOPED
MARSHY LAND

MW-13
(6.79)

MW-12
(5.12)

FORMER SERVICE
STATION BUILDING

FORMER GASOLINE USTs

MW-2

MW-14
(6.62)

FORMER
HEATING OIL UST

FORMER
USED OIL UST

MW-7

UNDEVELOPED
LAND

APPROXIMATE
EXTENT OF 2007
SOIL EXCAVATION

46TH AVENUE

MW-9
(4.92)

BUS LANE

MW-8
(3.14)

HENRI'S
RESTAURANT

0 30 60
SCALE IN FEET

SLR
SLR International Corp

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

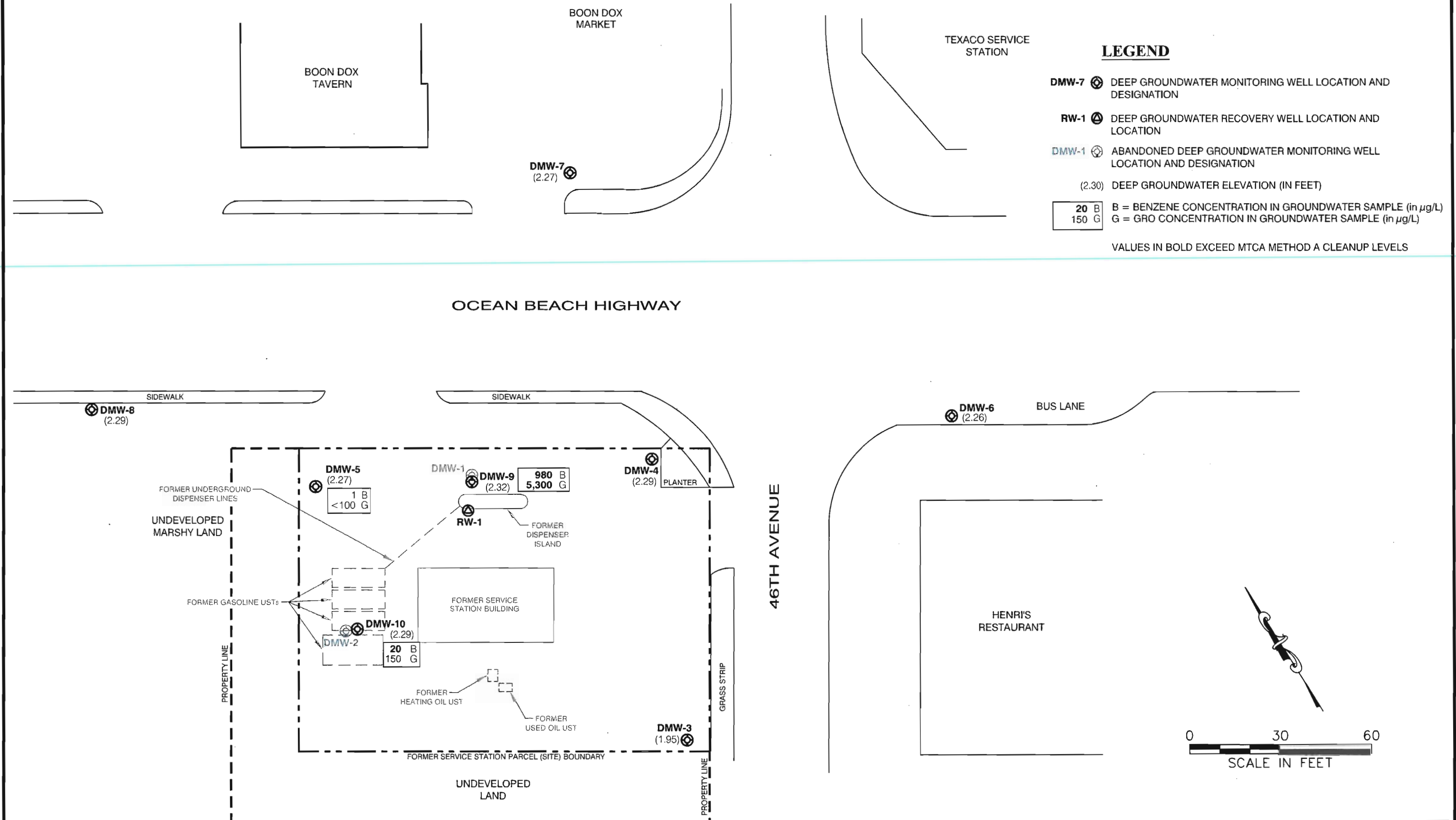
T: 425-402-8800
F: 425-402-8488

DATE 01/10
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REVIS.
PROJECT NO.
001.0173.00010

FIGURE 2
FORMER ARCO SERVICE STATION #0855
LONGVIEW, WASHINGTON

SHALLOW GROUNDWATER SAMPLING RESULTS
DECEMBER 15, 2009

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
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3012 16th Avenue West
Seattle, WA 98119-2029
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e-mail: fbi@isomedia.com

December 23, 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 December 17, 2009 from the Former Arco 0855 001.0173.00010, F&BI 912158 project. There are 4 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
SLR1223R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on December 17, 2009 by Friedman & Bruya, Inc. from the SLR International Corp. Former Arco 0855 001.0173.00010, F&BI 912158 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>SLR International Corp.</u>
912158-01	DMW5-1209
912158-02	DMW9-1209
912158-03	DMW10-1209
912158-04	MW10-1209

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/23/09

Date Received: 12/17/09

Project: Former Arco 0855 001.0173.00010, F&BI 912158

Date Extracted: 12/18/09

Date Analyzed: 12/18/09 and 12/19/09

**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)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
DMW5-1209 912158-01	1	<1	<1	<3	<100	66
DMW9-1209 912158-02	980	2	<1	1,100	5,300	ip
DMW10-1209 912158-03	20	<1	13	7	150	114
MW10-1209 912158-04	3	<1	11	<3	310	123
Method Blank	<1	<1	<1	<3	<100	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/23/09

Date Received: 12/17/09

Project: Former Arco 0855 001.0173.00010, F&BI 912158

**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: 912158-01 (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	106	65-118
Toluene	ug/L (ppb)	50	106	72-122
Ethylbenzene	ug/L (ppb)	50	110	73-126
Xylenes	ug/L (ppb)	150	106	74-118
Gasoline	ug/L (ppb)	1,000	97	69-134

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.

117/09 V2

(ammigis) CUTT PLATE

PROJECT NAME/NO.

#Q1

Farmer ARCO # 0855

[illegible]

REMARKS

[illegible]

Fax (206) 283-5044

SIGNATURE

Relinquished b:

Received by:

Relinquished b:

Received by:

PRINT NAME

CHRIS LEE

14015 129 111511

COMPANY

SLR

FBI

TIME

Life

1140

111

203

Samples received at