February 28, 2017

Mr. Grant Lidren
Alaska Department of Environmental Conservation-SPAR
555 Cordova St.
Anchorage, AK 99501

RE: June 2016 Groundwater Monitoring at the ML&P Transformer Shop; 1130 E. First Ave., Anchorage, Alaska (Hazard ID: 23842)

Dear Mr. Lidren:

This report presents the results of the June 2016 groundwater monitoring conducted at the Municipal Light and Power's (ML&P) Transformer Shop Site at 1130 E. First Avenue (formerly 1201 E. Third Ave.), in Anchorage, Alaska. The Site is listed with the Alaska Department of Environmental Conservation (ADEC) as File # 2100.26.302, Record Key # 90210001102, and Hazard ID 23842. The petroleum hydrocarbon contamination in the groundwater is attributed to leaking underground storage tanks removed in 1989. All of the groundwater monitoring wells are flush-mounted and located in an asphalt paved lot adjacent the Transformer Shop Building (Figures 1 and 2).

Except for items noted in this report, the sampling activities were conducted in accordance with the December 3, 2002 Work Plan, and subsequent modifications approved by ADEC. These modifications include:

- ADEC's February 3, 2004 letter approving the *September 2003 Groundwater Monitoring Event* which requested ML&P to continue groundwater sampling of five of the six monitoring wells at the Site (MW-3, MW-5, MW-6, MW-7 and MW-9). The monitoring was to be conducted annually in June and the samples analyzed for diesel range organics (DRO), gasoline range organics (GRO) and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Sampling of MW-8, which is adjacent to MW-9, was not requested for annual monitoring and sampling was discontinued.
- Changing of the sampling method to a low-flow sampling technique by means of a peristaltic pump to improve sample quality (decreased turbidity) and reduce the volume of purge water generated. This method differs from the 2002 Work Plan, which detailed the removal of 3 well casing volumes of purge water with a bailer prior to sampling. The low-flow sampling method has been used for the annual monitoring since 2011.
- Reducing the number monitoring wells to be sampled to four (MW-5, MW-6, MW-7 and MW-9), in accordance with ADEC approval (February 3, 2015). Well MW-3 was damaged the previous winter due to frost heaving and was no longer functional (the casing was apparently broken in the subsurface and well was blocked at 17 feet below ground surface with only a foot of water in the well in June 2014).

2016 Groundwater Sampling

SLR International Corporation (SLR) personnel collected groundwater samples at four monitoring wells (MW-5, MW-6, MW-7, and MW-9) on June 15, 2016. The sampling effort was completed by Ben Siwiec and Jason Gray, who meet the criteria of ADEC-qualified environmental professionals and samplers per 18 AAC 75.333. Groundwater sampling forms documenting the sampling of the wells are included in Appendix D of this report. A photograph log is also included documenting the site conditions during the sampling event.

Prior to the collection of the groundwater samples, the water levels in all wells were measured using an electronic water level indicator. With the exception of monitoring well MW-9 (discussed below) groundwater samples were collected using a low-flow sampling method by means of a peristaltic pump. The low-flow sampling method consists of purging at a low flow rate (between 0.05 and 0.5 liters per minute [L/min]), while maintaining a drawdown of less than 0.3 feet, if possible. During the purging, up to six water quality parameters are measured (temperature, pH, conductivity, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity) at three to five minute intervals. Water quality parameters are considered stable when three consecutive readings of at least three parameters (or four if temperature is used) are within:

- ± 3% for temperature (minimum of ± 0.2 º C),
- ± 0.1 for pH,
- ± 3% for conductivity,
- ± 10 mv for ORP,
- ± 10% for DO, and
- ± 10% for turbidity.

All monitoring wells except MW-9 sustained near constant water levels during purging, at flow rates of 0.25 to 0.35 L/min. While purging, the water quality parameters were measured using a YSI 556 multi-parameter instrument. Turbidity was measured with a La Motte 2020e turbidity meter. Stability criteria were met for all wells except MW-9. Water level data and final water quality parameters are presented in Table 1. Purge water generated during sampling activities was placed in labeled containers and disposed of by ML&P following the receipt of analytical results.

MW-9 has typically been a poor yielding well, which has repeatedly gone dry when purging and attempting to achieve stable parameters, even at very low flow rates. Therefore, MW-9 was intentionally purged dry on June 13, 2016 without attempting to achieve stable parameters. A total of 3.7 gallons of water were purged. The water in the well was as allowed to recover for approximately 48 hours and analytical samples were collected on June 15, without additional purging. At that time, the water level well had recovered approximately 40%. Water quality parameters were measured on June 15 concurrent with sampling.

Laboratory Analyses

Groundwater samples were collected from the four monitoring wells, including a duplicate sample from well MW-9, and submitted to SGS North America in Anchorage using chain-of-custody procedures. The samples were analyzed for DRO by Method AK 102, GRO by Method AK101 and BTEX by Method SW8021B.

Analytical data was reviewed for consistency with the *ADEC Technical Memorandum, Environmental Laboratory Data and Quality Assurance Requirements* (ADEC 2009). Appendices A, B, and C contain a Data Quality Assessment (DQA), ADEC Laboratory Data Review Checklist, and the laboratory analytical data package. Based on the DQA, the data were considered to be of good quality and acceptable for use with the noted qualifications. No data were rejected.

Analytical Results

The June 2016 analytical results are provided in Table 2 and Figure 2. Table 3 provides a summary of current and historical analytical results. The results were screened against the current ADEC ground water cleanup levels (18 AAC 75.345, Table C, revised November 2016). Of the four wells sampled, monitoring well MW-9 was the only well with detected concentrations above applicable groundwater cleanup levels.

Groundwater cleanup levels in MW-9 were exceeded for benzene, total xylenes, GRO and DRO as shown on Table 2. Benzene was 0.645 milligrams per liter (mg/L) in the primary sample and 0.5 mg/L in the duplicate, which was greater than the groundwater cleanup level of 0.0046 mg/L. Total xylenes was detected at 0.2052 mg/L in the primary sample and 0.1917 mg/L in the duplicate, which was slightly higher than the groundwater cleanup level of 0.19 mg/L. GRO was detected at 2.34 mg/L in the primary sample and 2.52 mg/L in the duplicate, which was slightly higher than the groundwater cleanup level of 2.2 mg/L. Concentrations of DRO were 2.16 mg/L and 2.38 mg/L in the duplicate, which were slightly greater than the groundwater cleanup level of 1.5 mg/L.

Total xylenes had previously not exceeded groundwater cleanup levels at the Site. However, in November 2016 the 18 AAC 75.345, Table C groundwater cleanup level for total xylenes was lowered from 1,500 to 0.19 mg/L, resulting in an exceedance of the current standard in MW-9.

Samples from monitoring wells MW-5, MW-6, and MW-7 had concentrations well below groundwater cleanup levels. No contaminants were detected in MW-5. MW-6 contained detectable but trace levels of DRO (concentrations were between the detection limit (DL) and limit of quantitation (LOQ)) and MW-7 contained detectable but trace levels of toluene (concentration was between the DL and LOQ). This is consistent with the historical data set, and indicates the plume of petroleum hydrocarbon-impacted groundwater is very localized around MW-9. MW-9 is located where the former USTs were removed, and is the presumed source area. Wells MW-7 and MW-6 are located less than 150 feet down gradient from MW-9, and show essentially no petroleum hydrocarbon-impacted groundwater.

Monitoring well MW-9 has historically contained the highest concentrations of BTEX, GRO and DRO (Table 3). The concentration of these analytes in MW-9 was lower in 2016 than 2015, especially for GRO. Based on the groundwater monitoring conducted since May 2000, the long term trend has been a gradual decline for these contaminants of concern, with occasional oscillations.

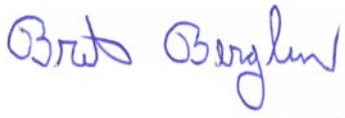
Conclusions and Recommendations

The groundwater monitoring at the Transformer Shop Site indicates the petroleum hydrocarbons in the groundwater are decreasing over time but still exceed ADEC groundwater cleanup levels at one monitoring well (MW-9). In 2016, total xylenes, DRO and GRO were slightly above the groundwater cleanup level, but benzene was still significantly above the groundwater cleanup level. Based on the monitoring well network, the extent of petroleum hydrocarbon impacted groundwater is very localized around MW-9, and the plume is stable or decreasing. There is minimal groundwater movement in the immediate area of the plume, as evidenced by the poor recharge in MW-9. This further supports the conclusion that the plume will not migrate, and will slowly degrade with time.

In accordance with the ADEC monitoring request (ADEC 2004), the next groundwater monitoring event at the Site is planned for June of 2017. However, due to the slow rate of natural attenuation of the contaminants of concern and their lack of migration (as evidenced by the long term data set), ML&P requests that the monitoring schedule is changed from annual to biennial (once every two years). If approved, the next monitoring event would be June 2018.

If you have any questions or concerns, please contact Bret Berglund (SLR, 907-563-2128) or Yelena Saville (ML&P, 907-263-5273).

Sincerely,



Bret Berglund
Project Manager, C.P.G.

CC: Yelena Saville, ML&P

Attachments

Table 1 June 2016 Water Sampling Log
Table 2 June 2016 Groundwater Sample Results
Table 3 Historical Groundwater Analytical Results
Figure 1 Site Vicinity Map
Figure 2 Site Map with June 2016 Groundwater Sampling Results
Photograph Log

Appendices

A Data Quality Assessment
B ADEC Laboratory Data Review Checklist
C SGS Laboratory Data Reports
D Groundwater Sampling Forms

TABLE 1 - JUNE 2016 WATER SAMPLING LOG
ML&P TRANSFORMER SHOP

Well Number[1,2,3]	MW-5	MW-6	MW-7	MW-9
Water Level & Well Purging Data				
Date Water Level Measured	6/15/2016	6/15/2016	6/15/2016	6/13/2016
Time Water Level Measured	10:30	12:25	12:10	11:44
TOC Elevation, ft	Unknown	Unknown	49.23	51.23
Depth to Water Below TOC, ft	5.12	15.43	17.30	4.32
Water Level Elevation, ft	NC	NC	31.93	46.91
Depth of Well Below Top of Casing, ft	13.80	20.90	21.00	8.72
Water Column in Well, ft	8.68	5.47	3.70	4.40
Diameter of Well Casing, inch	2	2	2	2
Gallons per Foot	0.163	0.163	0.163	0.163
Gallons in Well	1.41	0.89	0.60	0.72
Total Gallons Purged (Low Flow)	2.5	2.9	1.4	3.7
Sampling/Water Parameters				
Date Sampled	6/15/2016	6/15/2016	6/15/2016	6/15/2016
Time Sampled	11:10	13:05	12:10	9:50
Temperature, C	9.38	8.05	8.95	13.24
Specific Conductance, µS/cm	634	669	925	1297
Turbidity (NTU)	2.32	2.35	3.09	14.00
pH	6.62	5.93	5.80	6.88
Dissolved Oxygen, mg/L	9.24	7.13	9.13	15.50
Sample Number	MW-5TS	MW-6TS	MW-7TS	MW-9TS, MW-99TS (duplicate)

Abbreviations:

C Celsius
ft feet
mg/L milligrams per liter
NC Not calculated (TOC elevation not known).
µS/cm microsiemens per centimeter
TOC Top of casing

Notes

1 Sampled By SLR: Ben Siwiec and Jason Gray
2 All wells were purged and sampled by a low-flow methodwith a peristaltic pump, except for MW-9. MW-9 was purged dry on 6/13/16, and was sampled 48 hours later without additional purging. Water level was about 40% recovered.
3 All wells are flush-mounted in paved areas surrounding the Transformer Shop.

TABLE 2 - JUNE 2016 GROUNDWATER SAMPLE RESULTS
ML&P TRANSFORMER SHOP
June 15, 2016

Compound (mg/L)	Method	18 AAC 75.345 Table C Cleanup Level	Monitoring Well MW-3	Monitoring Well MW-5	Monitoring Well MW-6	Monitoring Well MW-7	Monitoring Well MW-9
Sample ID[1]			NA	MW-5TS	MW-6TS	MW-7TS	MW-9TS/MW-99TS
Diesel Range Organics (DRO)	AK 102	1.5	Due to damage no sample was collected.	ND [0.294]	0.191 J	ND [0.3]	**2.16/2.38**
Gasoline Range Organics (GRO)	AK 101	2.2		ND [0.05]	ND [0.05]	ND [0.05]	**2.34/2.52**
Benzene	SW8021B	0.0046		ND [0.0002]	ND [0.0002]	ND [0.0002]	**0.645/0.5**
Toluene	SW8021B	1.1		ND [0.0005]	ND [0.0005]	0.00055 J	0.00771/0.00741
Ethylbenzene	SW8021B	0.015		ND [0.0005]	ND [0.0005]	ND [0.0005]	0.00295 MN/0.00418 MN
Total Xylenes	SW8021B	0.19		ND [0.001]	ND [0.001]	ND [0.001]	**0.2052/0.1917**

Notes:

1) All wells were purged and sampled by low-flow method with a peristaltic pump after stabile parameters were obtained, except for MW-9. MW-9 was purged dry, and sampled approximately 48 hours later. At that time, the water level well had recovered approximately 40%.

ND [0.360]	Analyte not detected above the Limit of Quantitation (LOQ).
2.63	Bold/Shaded - Concentration exceeded the 18 AAC 75.345, Table C groundwater cleanup level (November 2016).
0.945/1.72	Primary sample concentration followed by duplicate sample concentration

Abbreviations:

AAC	Alaska Administrate Code
J	Compound was positively identified. Concentration is above the method detection limit (DL), but below the LOQ.
ft	Feet
M	The quantitation is an estimate due to a sample matrix quality control failure. An "H", "L", or "N" indicates a potential high, low, or unknown bias respectively.
mg/L	milligrams/liter
NA	not applicable
ND	not detected

TABLE 3 - HISTORICAL GROUNDWATER ANALYTICAL RESULTS
ML&P TRANSFORMER SHOP

Compound (mg/L)		DRO	GRO	Benzene	Total BTEX
Nov 2016 Cleanup Level (18 AAC 75.345, Table C)		1.5	2.2	0.0046	--
Monitoring Well	Date[1]				
MW-3	8/27/1998	0.206	--	--	--
	12/31/1998	0.669	--	--	--
	3/19/1999	ND [0.333]	--	--	--
	6/23/1999	0.427	--	--	--
	9/30/1999	**4.42**	--	--	--
	2/2/2000	ND [0.395]	ND [0.0900]	ND [0.00050]	--
	5/26/2000	0.700	ND [0.0900]	ND [0.00050]	--
	8/25/2000	0.622	ND [0.0900]	ND [0.00050]	0.0194
	12/1/2000	ND [0.326]	ND [0.0900]	ND [0.00050]	0.00303
	6/24/2004	ND [0.300]	ND [0.0900]	ND [0.00050]	ND
	6/15/2005	ND [0.337]	ND [0.0900]	ND [0.00050]	ND
	8/3/2006	0.465	ND [0.100]	ND [0.00050]	ND
	8/1/2007	ND [0.357]	ND [0.100]	ND [0.00050]	ND
	7/10/2008	0.495 B	ND [0.100]	ND [0.00050]	ND
	7/29/2010	ND [0.574]	ND [0.062]	ND [0.0003]	ND
	6/23/2011	ND [0.266]	ND [0.031]	0.00029 J	0.00029 J
	6/22/2012	ND [0.382]	ND [0.0620]	ND [0.0003]	ND
	7/12/2013	ND [0.360]	ND [0.0620]	ND [0.0003]	ND
	6/25/2014	Well damaged, not sampled.			
MW-5	7/16/2004	0.352	ND [0.0900]	ND [0.00050]	ND
	6/15/2005	ND [0.333]	ND [0.0900]	ND [0.00050]	ND
	8/2/2006	ND [0.370]	ND [0.100]	ND [0.00050]	ND
	8/1/2007	ND [0.328]	ND [0.100]	ND [0.00050]	ND
	7/11/2008	0.276 J, B	ND [0.100]	ND [0.00050]	ND
	7/29/2010	ND [0.526]	ND [0.062]	ND [0.0003]	ND
	6/22/2011	ND [0.266]	ND [0.031]	ND [0.00015]	ND
	6/22/2012	ND [0.392]	ND [0.0620]	0.00016 J	0.00016 J
	7/11/2013	0.236 J	ND [0.0620]	ND [0.0003]	ND
	6/25/2014	ND [0.308]	ND [0.0500]	ND [0.00025]	ND
	6/25/2015	0.423 J	ND [0.05]	ND [0.00025]	ND
	6/15/2016	ND [0.294]	ND [0.05]	ND [0.0002]	ND
MW-6	8/27/1998	0.282	--	--	--
	12/31/1998	0.759	--	--	--
	3/19/1999	1.21	--	--	--
	6/23/1999	**2.17**	--	--	--
	9/30/1999	1.43	--	--	--
	2/2/2000	0.419	ND [0.0900]	ND [0.00050]	ND
	5/26/2000	ND [0.674]	ND [0.0900]	ND [0.00050]	ND
	8/25/2000	ND [0.323]	ND [0.0900]	ND [0.00050]	ND
	12/1/2000	1.29	ND [0.0900]	ND [0.00050]	ND
	6/24/2004	ND [0.366]	ND [0.0900]	ND [0.00050]	ND
	6/15/2005	ND [0.333]	ND [0.0900]	ND [0.00050]	ND
	8/3/2006	ND [0.366]	ND [0.100]	ND [0.00050]	ND
	8/1/2007	0.519	ND [0.100]	ND [0.00050]	ND
	7/11/2008	0.407 B	ND [0.100]	ND [0.00050]	ND
	7/29/2010	ND [0.544]	ND [0.062]	ND [0.0003]	ND
	6/22/2011	ND [0.260]	ND [0.031] QN	ND [0.00015]	ND
	6/21/2012	ND [0.378]	ND [0.0620]	ND [0.0003]	ND
	7/12/2013	0.185 J	ND [0.0620]	ND [0.0003]	ND
	6/25/2014	0.189 J	ND [0.0500]	ND [0.00025]	ND
	6/25/2015	0.223 J	ND [0.05]	ND [0.00025]	ND
	6/15/2016	0.191 J	ND [0.05]	ND [0.0002]	ND

TABLE 3, Continued - HISTORICAL GROUNDWATER ANALYTICAL RESULTS
ML&P TRANSFORMER SHOP

Compound (mg/L)		DRO	GRO	Benzene	Total BTEX
Nov 2016 Cleanup Level (18 AAC 75.345, Table C)		**1.5**	**2.2**	**0.0046**	**--**
Monitoring Well	**Date**				
MW-7	8/27/1998	ND [0.104]	--	--	--
	12/31/1998	0.158	--	--	--
	3/19/1999	ND [0.309]	--	--	--
	6/23/1999	ND [0.297]	--	--	--
	9/30/1999	ND [0.319]	--	--	--
	2/2/2000	ND [0.357]	ND [0.0900]	ND [0.00050]	ND
	5/26/2000	ND [0.674]	ND [0.0900]	ND [0.00050]	ND
	8/25/2000	ND [0.333]	ND [0.0900]	ND [0.00050]	ND
	12/1/2000	ND [0.330]	ND [0.0900]	ND [0.00050]	ND
	6/24/2004	ND [0.361]	ND [0.0900]	ND [0.00050]	ND
	6/15/2005	ND [0.375]	ND [0.0900]	ND [0.00050]	ND
	8/3/2006	ND [0.368]	ND [0.100]	ND [0.00050]	ND
	8/1/2007	ND [0.321]	ND [0.100]	ND [0.00050]	ND
	7/11/2008	ND [0.621] B	ND [0.100]	ND [0.00050]	ND
	7/29/2010	ND [0.538]	ND [0.062]	ND [0.0003]	ND
	6/23/2011	ND [0.266]	ND [0.031]	0.00035 J	0.00035 J
	6/21/2012	ND [0.378]	ND [0.0620]	ND [0.0003]	ND
	7/11/2013	0.465 J	ND [0.0620]	ND [0.0003]	ND
	6/25/2014	0.211 J	ND [0.0500]	ND [0.00025]	ND
	6/25/2015	0.878	ND [0.05]	ND [0.00025]	ND
	6/15/2016	ND [0.3]	ND [0.05]	ND [0.0002]	0.00055 J
MW-8	6/23/1999	**7.53**	0.25	**0.103**	0.109
	9/30/1999	**5.34**	0.22	**0.0599**	0.0759
	2/2/2000	**12**	0.33	**0.172**	0.177
	5/26/2000	**4.73**	0.94	**0.473**	0.473
	9/13/2002[2]	**3.06**	0.464	**0.0158**	0.160
	12/4/2002	**2.31**	1.40	**0.00677**	0.449
	3/20/2003	**3.02**	1.04	**0.00489**	0.364
	6/26/2003	**4.78**	0.862	**0.726**	0.762
	9/23/2003	**2.37**	1.410	**0.019**	0.7762

TABLE 3, Continued - HISTORICAL GROUNDWATER ANALYTICAL RESULTS
ML&P TRANSFORMER SHOP

Compound (mg/L)		DRO	GRO	Benzene	Total BTEX
Nov 2016 Cleanup Level (18 AAC 75.345, Table C)		1.5	2.2	0.0046	--
Monitoring Well	**Date**				
MW-9[4]	5/26/2000	**18.8**	**31**	**7.97**	19.8
	8/25/2000	**36.1**	**47.6**	**3.42**	21.4
	12/1/2000	**11.92**	**44.9**	**3.3**	6.55
	9/13/2002[2]	**6.11**	**15.1**	**3.36**	5.94
	12/4/2002	**8.03**	**9.76**	**2.44**	3.52
	3/20/2003	**3.39**	**9.67**	**1.82**	3.38
	6/26/2003	**61.2**	**10.2**	**3.84**	6.97
	9/23/2003	**7.47**	**14.1**	**4.95**	9.25
	6/24/2004	**6.33**	**17.7**	**3.89**	7.40
	6/15/2005	**4.51**	**13.4**	**3.50**	5.81
	8/3/2006	**2.23**	**5.53**	**2.01**	3.20
	8/1/2007	**8.22**	**9.99**	**1.93**	3.74
	7/11/2008	**4.81**	**15.4**	**4.14**	8.26
	7/30/2010	**5.44**	**14.2**	**6.01 Q+**	8.49
	6/23/2011	**5.25/4.07**	**11.2/11.8**	**3.94/4.10**	5.71/5.80
	6/21/2012	**5.09/3.89**	**14.5/16.2**	**4.97/5.12**	7.18 QN/7.99 QN
	7/11/2013[3]	0.871 QN /**1.75 QN**	**8.31 QN/15.9 QN**	**2.14 QN/5.62 QN**	3.47 QN/7.94 QN
	7/12/2013	**2.61**	--	--	--
	6/25/2014[3]	**2.63/1.97**	**17.1 QN/2.87 QN**	**6.16 QN/0.996 QN**	8.79 QN/1.45 QN
	6/25/2015	**3.22/2.83**	**12.5/9.85**	**3.62 QH/2.79 QH**	5.24 QH/4.24 QH
	6/15/2016	**2.16/2.38**	**2.34/2.52**	**0.645/0.5**	0.8609 MN/0.7033 MN

Notes:

1. Sampling method prior to 2011 was purging 3 casing volumes with a bailer, followed by sample collection with a bailer. Starting in 2011, the sampling method switched to a low-flow sampling technique with purging and sampling performed with a peristaltic pump and tubing.

2. Analytical results are suspected to have been mislabeled or switched for monitoring wells MW-8 and MW-9 during sampling handling of 9/13/2002 samples. Analytical results in this table have been placed in corrected locations.

3. Sample collected without prior purging.

4. MW-9 is a poor producer of groundwater and typically was purged dry when trying to achieve standard parameters using a low-flow sampling technique. As of 2015, the standard sampling protocol for MW-9 is to purge the well dry and collect the sample approximately 24 -48 hours later. Water level recovery has been on the order of 40 to 50% at the time of sampling.

Coding

0.377 / 0.364	Primary sample concentration followed by duplicate sample concentration
4.81	Bold and Shaded - Concentration exceeded the 18 AAC 75.345, Table C groundwater cleanup level (November 2016).
ND [0.0900]	Analyte not detected above the practical quantitation limit (limit of quantitation, or LOQ). Data prior to 2012 analytes were not detect above the Detection Limit (DL).

Abbreviations:

AAC	Alaska Administration Code
B	Compound was positively identified in the trip blank or method blank.
BTEX	benzene, toluene, ethylbenzene, and total xylenes
DRO	diesel range organics
J	Compound was positively identified, above the detection limit, but below the Limit of Quantitation.
GRO	gasoline range organics
Q	The quantitation is an estimate. An "H", "L", or "N" indicates a potential high, low, or unknown bias respectively.
mg/L	milligrams/liter
M	The quantitation is an estimate due to a sample matrix quality control failure. An "H", "L", or "N" indicates a potential high, low, or unknown bias respectively.
ND	not detected
--	Sample not analyzed for parameter

N

0 275 550 1,100 1,650 2,200 Feet

WHEN PLOTTED AT 8.5 x 11 PAGE SIZE

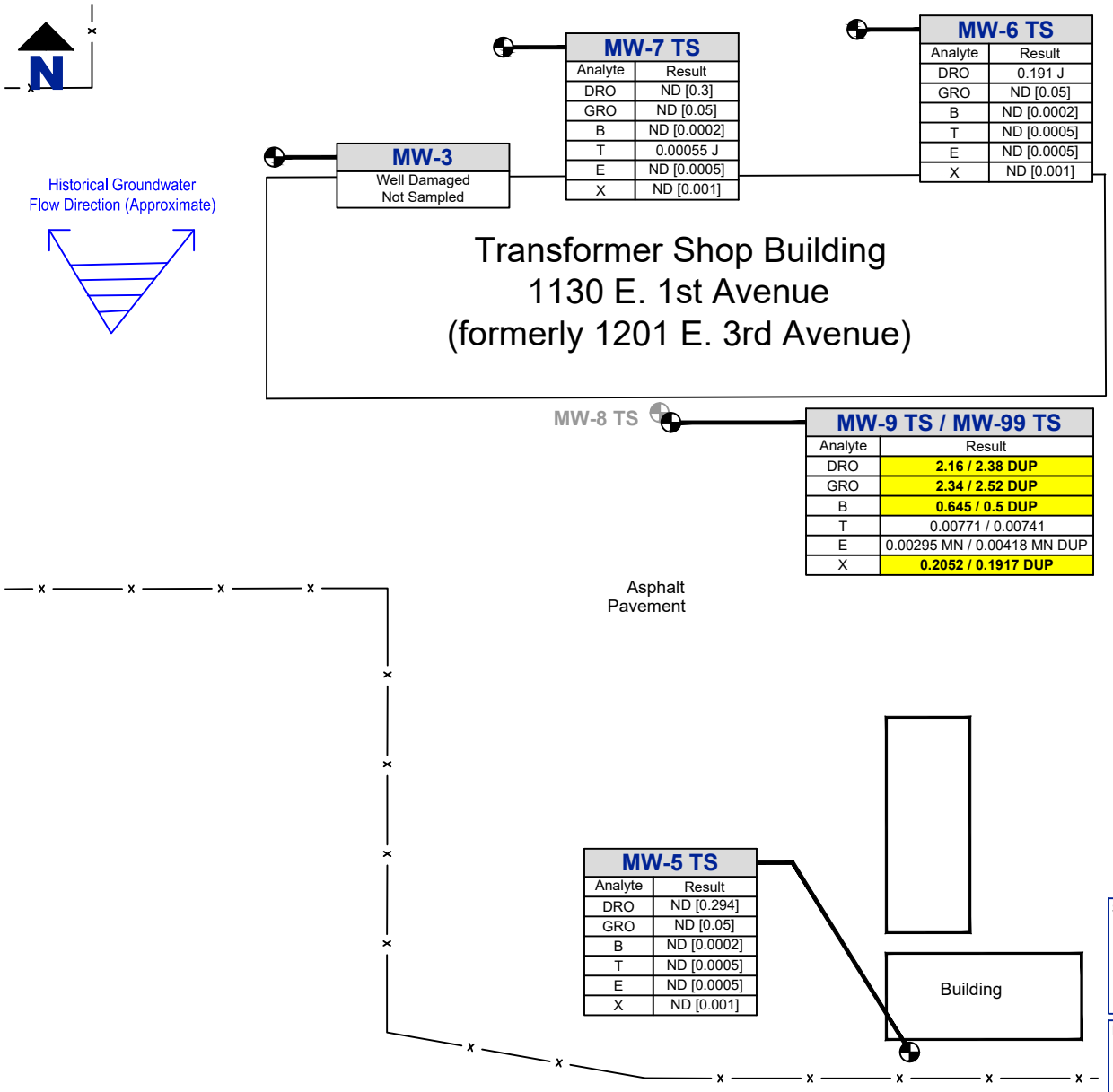
THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY.
ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

SLR

Site	MUNICIPAL LIGHT AND POWER 1130 EAST 1ST AVENUE (FORMERLY 1201 EAST 3RD AVENUE) ANCHORAGE, ALASKA
Report	TRANSFORMER SHOP 2016 GROUNDWATER SAMPLING
Drawing	GENERAL VICINITY MAP

Drawing	February 2017	Scale	1 in = 880 feet
File Name	F1 Transformer Shop Bldg_16.mxd	Project No.	101.00528.11001

Fig. No. 1



SCALE: 1" = 50'
WHEN PLOTTED AT 8.5 x 11 PAGE SIZE
0 50' 100' 150'

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

Legend

- GROUNDWATER MONITORING WELL
- GROUNDWATER MONITORING WELL - SAMPLING DISCONTINUED IN 2003
- CHAIN-LINK FENCE

Sampling Results Guidelines

AAC	ALASKA ADMINISTRATIVE CODE
ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DRO	DIESEL RANGE ORGANICS
GRO	GASOLINE RANGE ORGANICS
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
DUP	DUPLICATE SAMPLE
ND	ANALYTE IS NOT DETECTED ABOVE THE LIMIT OF DETECTION (LOD) SHOWN
J	RESULT IS AN ESTIMATION
F	COMPOUND WAS POSITIVELY IDENTIFIED AT A CONCENTRATION ABOVE THE DETECTION LIMIT BUT BELOW THE LIMIT OF QUANTITATION (LOQ).
0.00249	SAMPLE HAS **EXCEEDED** ADEC CLEANUP LEVEL LISTED IN 18 AAC 75.345 TABLE C [NOVEMBER 2016]
0.005	SAMPLE **DOES NOT EXCEED** ADEC CLEANUP LEVEL LISTED IN 18 AAC 75.345 TABLE C [NOVEMBER 2016]

Site
ML&P 1130 E. 1ST AVENUE
(FORMERLY 1201 E. 3RD AVENUE)
ANCHORAGE, ALASKA

Report
TRANSFORMER SHOP
2016 GROUNDWATER SAMPLING

Drawing
SITE PLAN AND JUNE 2016
GROUNDWATER SAMPLING RESULTS

Date	February 2017	Scale	1" = 50 Feet
File Name	F2 Trans Shop GW Results_16	Project No.	105.00528.11001

Fig. No. 2

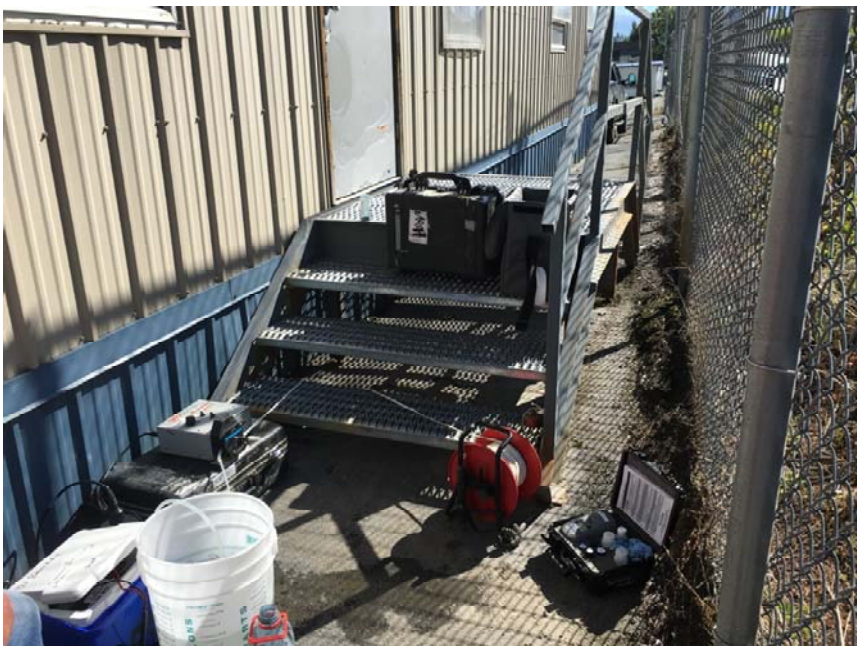


Photo 1: Monitoring Well MW-5, located under the stairs.

Photo 2: Monitoring Well MW-5 located in a cement utility enclosure under staircase.

SLR	Transformer Shop Groundwater Sampling ML&P Anchorage Alaska
SITE PHOTOGRAPHS June 15 2015	Job No: 105.00528.11001

Photo 3: MW-6 site prior to sampling. Location is near top of ramp north of Transformer Shop.

Photo 4: Monitoring Well MW-7, measuring the water level. Location is north of Transformer Shop.

Photo 5: Monitoring Well MW-9 after purging on 6/13/16. Well was allowed to recharge and sampled on 6/15/16. Well located south of Transformer Shop

Appendix A

Data Quality Assessment

DATA QUALITY ASSESSMENT REPORT

ML&P
2016 GROUNDWATER MONITORING AT TRANSFORMER SHOP AREA (1130 E. 1ST AVE., ANCHORAGE, AK)

SLR Project Number 105.00528.11001
ADEC File Number 2100.26.302

Prepared by Jennifer McLean
Reviewed by Bret Berglund
Date: 1/25/2017

This report summarizes a review of analytical data for samples collected on June 15, 2016 in support of ML&P Transformer Shop Area groundwater monitoring activities. Samples were collected by SLR International Corporation (SLR). SGS North America, Inc (SGS) provided analytical support to the project. SGS maintains a current Alaska Department of Environmental Conservation (ADEC) Contaminated Sites approval number (UST-005) for analytical methods of interest, as applicable. Table 1 provides a summary of work order, sample receipt, analytical methods, and analytes.

Table 1 Sample Summary

SDG	Date Collected	Date Received by Laboratory	Temperature Blank	Matrix	Analytical Method	Analyte	Trip Blank[1]
1163193	6/15/2016	6/15/2016	5.7°C	GW	SW8260B AK101 AK102	BTEX GRO DRO	Required Required NA

Notes:
1 – This type of sample requires a trip blank to be included in the cooler, with the trip blank noted on the chain of custody.
Acronyms:
°C – degrees Celsius
BTEX – benzene, toluene, ethylbenzene, and total xylenes
DRO – diesel range organics
GRO – gasoline range organics
GW - groundwater
SDG – sample delivery group

The laboratory final report was presented as a Level II deliverable and included documentation of the delivery group chain-of-custody (COC) and sample receipt condition. A Microsoft Access compatible electronic data deliverable (EDD) was also provided. The SGS laboratory report is provided as Appendix C.

Quality Assurance Program

A quality assurance (QA) program was followed for this project that addressed project administration, sampling, quality control, and data review. SLR adhered to required and established sampling and COC protocols. The select laboratory maintains an internal quality assurance program and standard operating procedures.

The analytical data was reviewed for consistency with *ADEC Technical Memorandum, Environmental Laboratory Data and Quality Assurance* (ADEC 2009a) requirements, analytical method criteria and laboratory criteria. An ADEC Laboratory Data Review Checklist was completed for the SDG, and is included as Appendix B following this Data Quality Assessment (DQA). A review for any anomalies to the project requirements for precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS) are noted in this DQA, and any data qualifications discussed.

The data review included the following, as applicable:

- Reviewing COC records for completeness, signatures, and dates;
- Identifying any sample receipt or preservation anomalies that could impact data quality;
- Verifying that quality control (QC) blanks (e.g. field blanks, equipment blanks, trip blanks, etc.) were properly prepared, identified, and analyzed;
- Evaluating whether laboratory reporting limits met project goals; reviewing calibration verification recoveries, to include confirming that the laboratory did not identify that any Calibration Verification (CCV) recoveries or other calibration related criteria were outside applicable acceptance limits;
- Verifying that surrogate analyses were within recovery acceptance limits;
- Verifying that Laboratory Control Samples (LCS) and Laboratory Control Sample Duplicates (LCSD) were within recovery acceptance limits;
- Evaluating the result relative percent difference (RPD) between primary and duplicate field samples and the LCS/LCSD; and
- Providing an overall assessment of laboratory data quality and qualifying sample results if necessary.

Data Qualifications

As part of the quality assurance review, qualifiers were applied to datum as determined necessary based on specified criteria, or professional judgement. In all cases, the basis for qualification and the applied data flag are discussed in this DQA. Table 2 provides a list of potential qualifiers (i.e. flags). These data flags were appended to the data where appropriate.

Table 2 Data Qualifiers

Qualifier	Definition
Q	One or more laboratory quality control criteria (for example, laboratory control sample (LCS) recovery or surrogate spike recovery) failed. Where applicable, an "H", "L", or "N" was appended to indicate positive, negative, or unknown bias, respectively.
J	Estimated: The analyte was positively identified but the result was outside the calibration range, between the limit of quantitation (LOQ) and the detection limit (DL); the quantitation was an estimate.
M	The concentration was an estimate due to a sample matrix quality control failure. Where applicable, an "H", "L", or "N" will be appended to indicate positive, negative, or unknown bias, respectively.
B	Blank contamination: The analyte was positively identified in the blank (e.g., trip blank and/or method blank) associated with the sample and the concentration reported for the sample was less than five times that of the blank (ten times for metals and common laboratory contaminants methylene chloride and acetone).
P	Sample preservation requirements were not satisfied.

A discussion of the project data quality relative to PARCCS goals and summary of any anomalies or failures requiring data qualifiers follows.

Data Validation

Data Packages
The data package was checked for transcription errors, omissions, or other anomalies. No issues were noted with regards to the data package.

Sample Receipt
The sample receipt documentation was checked for anomalies. No issues were noted with regards to the receipt of the samples.

Holding Times and Preservation
Samples were appropriately preserved and were submitted to SGS. Sample analyses were conducted within holding time criteria. No issues were noted with regards to sample preservation.

Laboratory Method Blanks
Laboratory method blanks were analyzed at the appropriate frequencies. Analytes were not detected at or above the limit of detection (LOD) in any method blanks.

Trip Blanks
One trip blank was analyzed for VOCs. Analytes were not detected at or above the LOD in the trip blank.

Reporting Limits
For non-detect results, limits of detection (LODs) were compared to applicable cleanup levels for the site. For groundwater samples, LODs were compared to 18 AAC 75.345, Table C, groundwater cleanup levels (ADEC, November 6, 2016). All results of non-detect had LODs at or below the applicable cleanup level for all analytes.

Calibration Verifications
CCVs were analyzed at the appropriate frequencies. CCV data was included only in the EDD, not in the case narrative. All CCV recoveries were within acceptable limits as reviewed in the EDD.

Internal Standards
No internal standards were noted in the case narrative as being outside of acceptance limits. Internal standard performance was not otherwise presented in the report or in the electronic data deliverable. Internal standards criteria were considered met.

Surrogate Recovery Results
Surrogate analysis was performed at the required frequencies. All surrogate recoveries were within analytical method and SGS percent recovery acceptance limits, except as noted below.

- For Method SW8260B, one of three surrogates, 1,2-dichloroethane–D4, recovered slightly above the acceptable upper control limit in the LCS for batch VXX29018. Associated samples were MW-5 TS, MW-6 TS, MW-7 TS, MW-99, and the trip blank. Since the LCS recovered within acceptable limits for all target analytes, and all project samples had acceptable surrogate recoveries, data was not impacted. All data was usable without qualification.

- For Method SW8260B, one of three surrogates, 1,2-dichloroethane–D4, recovered slightly above the acceptable upper control limit in the method blank for batch VXX29038. Only sample MW-9 TS was associated with this batch. Since a high bias was indicated and all target analytes had results of non-detect in the method blank, data was not impacted. Also, surrogate recovery was within acceptable limits in sample MW-9 TS. All data was usable without qualification.

Laboratory Control Samples and Laboratory Control Duplicate Samples
LCS and LCSDs were analyzed at the appropriate frequencies. All LCS and LCSD recoveries and RPDs were within acceptable limits.

Matrix Spike and Matrix Spike Duplicate Samples
No MS or MSDs were analyzed in association with these samples.

Field Duplicates
For groundwater, one field duplicate was analyzed for four primary samples for BTEX, GRO, and DRO. This satisfied the required frequency of one per 10 samples or less per matrix and analyte. The field duplicate was submitted blind to the laboratory.

The following field duplicate was collected.

- MW-99 was a field duplicate of MW-9 TS.

The parent sample/field duplicate RPDs was slightly outside of the ADEC required 30% for waters, as noted in Table 3. Ethylbenzene and total BTEX results for samples listed in the table are recommended for qualification with an “MN”, and should be considered estimated with unknown bias. All affected results were well below applicable cleanup limits defined by 18 AAC 75, Table C; therefore, data usability was not impacted.

Table 3 Relative Percent Difference Exceedances

Primary Sample (Duplicate Sample)	Method	Analyte	Primary Result (mg/L)	Duplicate Result (mg/L)	RPD	Flag
MW-9 TS (MW-99)	SW8260B	Ethylbenzene	0.00295	0.00418	35%	MN

Samples with both results below the LOQ were considered acceptable without qualification.

Laboratory Duplicate Samples
No laboratory duplicates were analyzed in association with these samples.

Overall Assessment

This data were considered of good quality acceptable for use with the noted qualifications. No data were rejected.

Precision, Accuracy, Representativeness, Comparability, Completeness, and Sensitivity Summary

- Precision: Precision goals were met, except as noted in the Field Duplicates section.
- Accuracy: Accuracy goals were met, except as noted in the Surrogate Recovery section.
- Representativeness: Representativeness goals were met. The samples were collected from usual locations.
- Comparability: Comparability goals were met. The same laboratory and methods were used.
- Completeness: Completeness goals were met. The data were 100% complete with respect to analysis.
- Sensitivity: Sensitivity goals were met.

References

Alaska Department of Environmental Conservation (ADEC), 2009a. Environmental Laboratory Data and Quality Assurance Requirements. Technical Memorandum. March.

ADEC, 2016b. 18 AAC 75, Oil and Other Hazardous Substances Pollution Control. November 6.

ADEC, 2002. Underground Storage Tanks Procedure Manual Guidance for Treatment of Petroleum – Contaminated Soil and Water and Standard Sampling Procedures. November.

United States Environmental Protection Agency (USEPA), 1991. Document 530/SW-846, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, fourth edition. November.

Appendix B

ADEC Laboratory Data Review Checklist

Laboratory Data Review Checklist

Completed by: Jennifer McLean

Title: Project Scientist Date: July 19, 2016

CS Report Name: ML&P Transformer Shop, 1201 E. 3rd Report Date: July 5, 2016

Consultant Firm: SLR International Corporation

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1163193

ADEC File Number: 2100.26.302 ADEC RecKey Number: 90210001102

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      ☐ Yes ☐ No ☒ NA (Please explain.) Comments:

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

   b. Correct analyses requested?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
☐ Yes ☐ No ☒ NA (Please explain.) Comments:

No discrepancies were noted.

e. Data quality or usability affected? (Please explain.)
Comments:

No impact.

4. Case Narrative
a. Present and understandable?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

c. Were all corrective actions documented?
☐ Yes ☐ No ☒ NA (Please explain.) Comments:

None were taken.

d. What is the effect on data quality/usability according to the case narrative?
Comments:

No impact.

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

b. All applicable holding times met?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?
☐ Yes ☐ No ☒ NA (Please explain.) Comments:

Only water samples were associated with this work order.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

e. Data quality or usability affected?
Comments:

No impact.

6. QC Samples
a. Method Blank
i. One method blank reported per matrix, analysis and 20 samples?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

ii. All method blank results less than PQL?
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

iii. If above PQL, what samples are affected?
Comments:

Not applicable.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
☐ Yes ☐ No ☒ NA (Please explain.) Comments:

v. Data quality or usability affected? (Please explain.)
Comments:

Data quality was not impacted.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)
☒ Yes ☐ No ☐ NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

☐ Yes ☐ No ☒ NA (Please explain.) Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Not applicable.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☐ Yes ☐ No ☒ NA (Please explain.) Comments:

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No impact.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

☐ Yes ☒ No ☐ NA (Please explain.) Comments:

For Method SW8260B, one of three surrogates (1,2-dichloroethane–D4) - recovered slightly above the acceptable upper control limit:
1 - in the LCS for batch VXX29018, and
2 - in the method blank for batch VXX29038.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☐ Yes ☒ No ☐ NA (Please explain.) Comments:

Regarding the LCS, associated samples were MW-5 TS, MW-6 TS, MW-7 TS, MW-99, and the trip blank. Since the LCS recovered within acceptable limits for all target analytes, and all project samples had acceptable surrogate recoveries; data was not impacted. No data were qualified.
Regarding the method blank, the associated sample was MW-9 TS. Since a high bias was indicated and all target analytes had results of non-detect in the method blank, data was not impacted. Also, surrogate recovery was within acceptable limits in sample MW-9 TS. No data were qualified.

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

All data was usable without qualification.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

iii. All results less than PQL?

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

Not applicable.

v. Data quality or usability affected? (Please explain.)

Comments:

No impact.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

One field duplicate was collected for four samples for BTEX, GRO, and DRO.

ii. Submitted blind to lab?

☒ Yes ☐ No ☐ NA (Please explain.) Comments:

Sample MW-99 was a field duplicate of MW-9TS.

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

☐ Yes ☒ No ☐ NA (Please explain.) Comments:

The RPD of 35% for ethylbenzene exceeded the recommended limit of 30%. Ethylbenzene and total BTEX results for MW-9 TS and MW-99 were qualified with a "MN", and should be considered estimated with unknown bias.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

All affected results were well below applicable cleanup limits defined by 18 AAC 75, Table C; therefore, data usability was not impacted.

f. Decontamination or Equipment Blank (If not used explain why).

☐ Yes ☐ No ☒ NA (Please explain.) Comments:

Disposable or dedicated sampling equipment was used for collection of all samples.

i. All results less than PQL?

☐ Yes ☐ No ☒ NA (Please explain.) Comments:

ii. If above PQL, what samples are affected?

Comments:

Not applicable.

iii. Data quality or usability affected? (Please explain.)

Comments:

Not applicable.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

Appendix C

SGS Laboratory Data Reports

Laboratory Report of Analysis

To: SLR Alaska-Anchorage
2700 Gambell Street, Suite 200
Anchorage, AK 99503
907-222-1112

Report Number: **1163193**

Client Project: **105.00528.11001 ML&P TransShop**

Dear Bret Berglund,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Justin at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

_____

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **SLR Alaska-Anchorage**
SGS Project: **1163193**
Project Name/Site: **105.00528.11001 ML&P TransShop**
Project Contact: **Bret Berglund**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1737525 [VXX/29018 (1332635) LCS

8260B - Surrogate recovery for 1,2-dichloroethane-D4 (120%) does not meet QC criteria. Surrogate recoveries for the associated samples were within QC criteria.

MB for HBN 1737800 [VXX/29038] (1333409) MB

8260B - Surrogate recovery for 1,2-dichloroethane-D4 (119%) does not meet QC criteria. The analytes associated with this surrogate were not detected above the LOQ.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW-9 TS	1163193001	06/15/2016	06/15/2016	Water (Surface, Eff., Ground)
MW-99	1163193002	06/15/2016	06/15/2016	Water (Surface, Eff., Ground)
MW-5 TS	1163193003	06/15/2016	06/15/2016	Water (Surface, Eff., Ground)
MW-7 TS	1163193004	06/15/2016	06/15/2016	Water (Surface, Eff., Ground)
MW-6 TS	1163193005	06/15/2016	06/15/2016	Water (Surface, Eff., Ground)
TB01	1163193006	06/15/2016	06/15/2016	Water (Surface, Eff., Ground)

Method	Method Description
AK102	DRO Low Volume (W)
AK101	Gasoline Range Organics (W)
SW8260B	Volatile Organic Compounds (W)

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **MW-9 TS**
Lab Sample ID: 1163193001
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	2.16	mg/L
Gasoline Range Organics	2.34	mg/L
Benzene	645	ug/L
Ethylbenzene	2.95	ug/L
o-Xylene	14.2	ug/L
P & M -Xylene	191	ug/L
Toluene	7.71	ug/L

Client Sample ID: **MW-99**
Lab Sample ID: 1163193002
Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	2.38	mg/L
Gasoline Range Organics	2.52	mg/L
Benzene	500	ug/L
Ethylbenzene	4.18	ug/L
o-Xylene	14.7	ug/L
P & M -Xylene	177	ug/L
Toluene	7.41	ug/L

Client Sample ID: **MW-7 TS**
Lab Sample ID: 1163193004
Volatile GC/MS

Parameter	Result	Units
Toluene	0.550J	ug/L

Client Sample ID: **MW-6 TS**
Lab Sample ID: 1163193005
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.191J	mg/L

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Results of **MW-9 TS**

Client Sample ID: **MW-9 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193001
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2.16		0.615	0.184	mg/L	1		06/25/16 23:30
Surrogates								
5a Androstane (surr)	73.1		50-150		%	1		06/25/16 23:30

Batch Information

Analytical Batch: XFC12462
Analytical Method: AK102
Analyst: S.G
Analytical Date/Time: 06/25/16 23:30
Container ID: 1163193001-A

Prep Batch: XXX35615
Prep Method: SW3520C
Prep Date/Time: 06/25/16 08:35
Prep Initial Wt./Vol.: 244 mL
Prep Extract Vol: 1 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Results of **MW-9 TS**

Client Sample ID: **MW-9 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193001
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.34		0.100	0.0310	mg/L	1		06/27/16 12:29
Surrogates								
4-Bromofluorobenzene (surr)	97.4		50-150		%	1		06/27/16 12:29

Batch Information

Analytical Batch: VFC13087
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/27/16 12:29
Container ID: 1163193001-C

Prep Batch: VXX29023
Prep Method: SW5030B
Prep Date/Time: 06/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW-9 TS**

Client Sample ID: **MW-9 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193001
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	645		4.00	1.20	ug/L	10		06/28/16 19:20
Ethylbenzene	2.95		1.00	0.310	ug/L	1		06/28/16 17:24
o-Xylene	14.2		1.00	0.310	ug/L	1		06/28/16 17:24
P & M -Xylene	191		20.0	6.20	ug/L	10		06/28/16 19:20
Toluene	7.71		1.00	0.310	ug/L	1		06/28/16 17:24
Surrogates								
1,2-Dichloroethane-D4 (surr)	108		81-118		%	1		06/28/16 17:24
4-Bromofluorobenzene (surr)	96.9		85-114		%	1		06/28/16 17:24
Toluene-d8 (surr)	96.6		89-112		%	1		06/28/16 17:24

Batch Information

Analytical Batch: VMS15912
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/28/16 19:20
Container ID: 1163193001-D

Prep Batch: VXX29038
Prep Method: SW5030B
Prep Date/Time: 06/28/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-99**

Client Sample ID: **MW-99**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193002
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2.38		0.588	0.176	mg/L	1		06/25/16 23:40
Surrogates								
5a Androstane (surr)	75.5		50-150		%	1		06/25/16 23:40

Batch Information

Analytical Batch: XFC12462
Analytical Method: AK102
Analyst: S.G
Analytical Date/Time: 06/25/16 23:40
Container ID: 1163193002-A

Prep Batch: XXX35615
Prep Method: SW3520C
Prep Date/Time: 06/25/16 08:35
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Results of **MW-99**

Client Sample ID: **MW-99**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193002
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.52		0.100	0.0310	mg/L	1		06/27/16 12:48
Surrogates								
4-Bromofluorobenzene (surr)	97		50-150		%	1		06/27/16 12:48

Batch Information

Analytical Batch: VFC13087
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/27/16 12:48
Container ID: 1163193002-C

Prep Batch: VXX29023
Prep Method: SW5030B
Prep Date/Time: 06/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-99**

Client Sample ID: **MW-99**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193002
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	500		4.00	1.20	ug/L	10		06/28/16 19:53
Ethylbenzene	4.18		1.00	0.310	ug/L	1		06/24/16 20:24
o-Xylene	14.7		1.00	0.310	ug/L	1		06/24/16 20:24
P & M -Xylene	177		20.0	6.20	ug/L	10		06/28/16 19:53
Toluene	7.41		1.00	0.310	ug/L	1		06/24/16 20:24
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		06/24/16 20:24
4-Bromofluorobenzene (surr)	95.1		85-114		%	1		06/24/16 20:24
Toluene-d8 (surr)	97		89-112		%	1		06/24/16 20:24

Batch Information

Analytical Batch: VMS15904
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/24/16 20:24
Container ID: 1163193002-D

Prep Batch: VXX29018
Prep Method: SW5030B
Prep Date/Time: 06/24/16 16:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS15912
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/28/16 19:53
Container ID: 1163193002-E

Prep Batch: VXX29038
Prep Method: SW5030B
Prep Date/Time: 06/28/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-5 TS**

Client Sample ID: **MW-5 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193003
Lab Project ID: 1163193

Collection Date: 06/15/16 11:10
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.294	U	0.588	0.176	mg/L	1		06/25/16 23:51
Surrogates								
5a Androstane (surr)	70.2		50-150		%	1		06/25/16 23:51

Batch Information

Analytical Batch: XFC12462
Analytical Method: AK102
Analyst: S.G
Analytical Date/Time: 06/25/16 23:51
Container ID: 1163193003-A

Prep Batch: XXX35615
Prep Method: SW3520C
Prep Date/Time: 06/25/16 08:35
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Results of **MW-5 TS**

Client Sample ID: **MW-5 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193003
Lab Project ID: 1163193

Collection Date: 06/15/16 11:10
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		06/27/16 13:06
Surrogates								
4-Bromofluorobenzene (surr)	97.4		50-150		%	1		06/27/16 13:06

Batch Information

Analytical Batch: VFC13087
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/27/16 13:06
Container ID: 1163193003-C

Prep Batch: VXX29023
Prep Method: SW5030B
Prep Date/Time: 06/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW-5 TS**

Client Sample ID: **MW-5 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193003
Lab Project ID: 1163193

Collection Date: 06/15/16 11:10
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		06/24/16 20:41
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/24/16 20:41
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/24/16 20:41
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/24/16 20:41
Toluene	0.500	U	1.00	0.310	ug/L	1		06/24/16 20:41
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		06/24/16 20:41
4-Bromofluorobenzene (surr)	107		85-114		%	1		06/24/16 20:41
Toluene-d8 (surr)	91.1		89-112		%	1		06/24/16 20:41

Batch Information

Analytical Batch: VMS15904
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/24/16 20:41
Container ID: 1163193003-D

Prep Batch: VXX29018
Prep Method: SW5030B
Prep Date/Time: 06/24/16 16:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Results of **MW-7 TS**

Client Sample ID: **MW-7 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193004
Lab Project ID: 1163193

Collection Date: 06/15/16 12:10
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.300	U	0.600	0.180	mg/L	1		06/26/16 00:01
Surrogates								
5a Androstane (surr)	71.4		50-150		%	1		06/26/16 00:01

Batch Information

Analytical Batch: XFC12462
Analytical Method: AK102
Analyst: S.G
Analytical Date/Time: 06/26/16 00:01
Container ID: 1163193004-A

Prep Batch: XXX35615
Prep Method: SW3520C
Prep Date/Time: 06/25/16 08:35
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Results of **MW-7 TS**

Client Sample ID: **MW-7 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193004
Lab Project ID: 1163193

Collection Date: 06/15/16 12:10
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		06/27/16 13:25
Surrogates								
4-Bromofluorobenzene (surr)	90.5		50-150		%	1		06/27/16 13:25

Batch Information

Analytical Batch: VFC13087
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/27/16 13:25
Container ID: 1163193004-C

Prep Batch: VXX29023
Prep Method: SW5030B
Prep Date/Time: 06/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-7 TS**

Client Sample ID: **MW-7 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193004
Lab Project ID: 1163193

Collection Date: 06/15/16 12:10
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		06/24/16 20:57
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/24/16 20:57
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/24/16 20:57
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/24/16 20:57
Toluene	0.550	J	1.00	0.310	ug/L	1		06/24/16 20:57
Surrogates								
1,2-Dichloroethane-D4 (surr)	112		81-118		%	1		06/24/16 20:57
4-Bromofluorobenzene (surr)	95.9		85-114		%	1		06/24/16 20:57
Toluene-d8 (surr)	98.5		89-112		%	1		06/24/16 20:57

Batch Information

Analytical Batch: VMS15904
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/24/16 20:57
Container ID: 1163193004-D

Prep Batch: VXX29018
Prep Method: SW5030B
Prep Date/Time: 06/24/16 16:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Results of **MW-6 TS**

Client Sample ID: **MW-6 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193005
Lab Project ID: 1163193

Collection Date: 06/15/16 13:05
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.191	J	0.588	0.176	mg/L	1		06/26/16 00:12
Surrogates								
5a Androstane (surr)	75.4		50-150		%	1		06/26/16 00:12

Batch Information

Analytical Batch: XFC12462
Analytical Method: AK102
Analyst: S.G
Analytical Date/Time: 06/26/16 00:12
Container ID: 1163193005-A

Prep Batch: XXX35615
Prep Method: SW3520C
Prep Date/Time: 06/25/16 08:35
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Results of **MW-6 TS**

Client Sample ID: **MW-6 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193005
Lab Project ID: 1163193

Collection Date: 06/15/16 13:05
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		06/27/16 13:43
Surrogates								
4-Bromofluorobenzene (surr)	97.9		50-150		%	1		06/27/16 13:43

Batch Information

Analytical Batch: VFC13087
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/27/16 13:43
Container ID: 1163193005-C

Prep Batch: VXX29023
Prep Method: SW5030B
Prep Date/Time: 06/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW-6 TS**

Client Sample ID: **MW-6 TS**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193005
Lab Project ID: 1163193

Collection Date: 06/15/16 13:05
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		06/24/16 21:14
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/24/16 21:14
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/24/16 21:14
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/24/16 21:14
Toluene	0.500	U	1.00	0.310	ug/L	1		06/24/16 21:14
Surrogates								
1,2-Dichloroethane-D4 (surr)	114		81-118		%	1		06/24/16 21:14
4-Bromofluorobenzene (surr)	97.1		85-114		%	1		06/24/16 21:14
Toluene-d8 (surr)	98.3		89-112		%	1		06/24/16 21:14

Batch Information

Analytical Batch: VMS15904
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/24/16 21:14
Container ID: 1163193005-D

Prep Batch: VXX29018
Prep Method: SW5030B
Prep Date/Time: 06/24/16 16:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Results of **TB01**

Client Sample ID: **TB01**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193006
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		06/27/16 11:33
Surrogates								
4-Bromofluorobenzene (surr)	96.3		50-150		%	1		06/27/16 11:33

Batch Information

Analytical Batch: VFC13087
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/27/16 11:33
Container ID: 1163193006-A

Prep Batch: VXX29023
Prep Method: SW5030B
Prep Date/Time: 06/27/16 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **TB01**

Client Sample ID: **TB01**
Client Project ID: **105.00528.11001 ML&P TransShop**
Lab Sample ID: 1163193006
Lab Project ID: 1163193

Collection Date: 06/15/16 09:50
Received Date: 06/15/16 13:43
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		06/24/16 19:35
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/24/16 19:35
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/24/16 19:35
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/24/16 19:35
Toluene	0.500	U	1.00	0.310	ug/L	1		06/24/16 19:35
Surrogates								
1,2-Dichloroethane-D4 (surr)	107		81-118		%	1		06/24/16 19:35
4-Bromofluorobenzene (surr)	97.5		85-114		%	1		06/24/16 19:35
Toluene-d8 (surr)	97		89-112		%	1		06/24/16 19:35

Batch Information

Analytical Batch: VMS15904
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 06/24/16 19:35
Container ID: 1163193006-B

Prep Batch: VXX29018
Prep Method: SW5030B
Prep Date/Time: 06/24/16 16:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/05/2016 8:27:55AM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1737525 [VXX/29018]
Blank Lab ID: 1332634

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1163193002, 1163193003, 1163193004, 1163193005, 1163193006

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	115	81-118		%
4-Bromofluorobenzene (surr)	96	85-114		%
Toluene-d8 (surr)	99	89-112		%

Batch Information

Analytical Batch: VMS15904
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 6/24/2016 4:30:00PM

Prep Batch: VXX29018
Prep Method: SW5030B
Prep Date/Time: 6/24/2016 4:00:00PM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163193 [VXX29018]
Blank Spike Lab ID: 1332635
Date Analyzed: 06/24/2016 17:11

Spike Duplicate ID: LCSD for HBN 1163193 [VXX29018]
Spike Duplicate Lab ID: 1332636
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1163193002, 1163193003, 1163193004, 1163193005, 1163193006

Results by **SW8260B**

	Blank Spike (ug/L)				Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	34.6	115		30	33.5	112	(79-120)	3.30	(< 20)
Ethylbenzene	30	34.0	113		30	34.2	114	(79-121)	0.79	(< 20)
o-Xylene	30	33.8	113		30	35.3	118	(78-122)	4.20	(< 20)
P & M -Xylene	60	65.7	110		60	67.8	113	(80-121)	3.10	(< 20)
Toluene	30	29.6	99		30	31.4	105	(80-121)	5.90	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)	30	120	120	*	30	106	106	(81-118)	12.00	
4-Bromofluorobenzene (surr)	30	101	101		30	97.6	98	(85-114)	3.00	
Toluene-d8 (surr)	30	91.8	92		30	96.2	96	(89-112)	4.60	

Batch Information

Analytical Batch: **VMS15904**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX29018**
Prep Method: **SW5030B**
Prep Date/Time: **06/24/2016 16:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 07/05/2016 8:28:00AM

Method Blank

Blank ID: MB for HBN 1737576 [VXX/29023]
Blank Lab ID: 1332702

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1163193001, 1163193002, 1163193003, 1163193004, 1163193005, 1163193006

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	96.5	50-150		%

Batch Information

Analytical Batch: VFC13087
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 6/27/2016 9:42:00AM

Prep Batch: VXX29023
Prep Method: SW5030B
Prep Date/Time: 6/27/2016 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1163193 [VXX29023]
Blank Spike Lab ID: 1332705
Date Analyzed: 06/27/2016 10:37

Spike Duplicate ID: LCSD for HBN 1163193 [VXX29023]
Spike Duplicate Lab ID: 1332706
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1163193001, 1163193002, 1163193003, 1163193004, 1163193005, 1163193006

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.820	82	1.00	0.786	79	(60-120)	4.30	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	103	103	0.0500	103	103	(50-150)	0.43	

Batch Information

Analytical Batch: **VFC13087**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX29023**
Prep Method: **SW5030B**
Prep Date/Time: **06/27/2016 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1737800 [VXX/29038]
Blank Lab ID: 1333409

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1163193001, 1163193002

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	119*	81-118		%
4-Bromofluorobenzene (surr)	100	85-114		%
Toluene-d8 (surr)	96.2	89-112		%

Batch Information

Analytical Batch: VMS15912
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 6/28/2016 9:53:00AM

Prep Batch: VXX29038
Prep Method: SW5030B
Prep Date/Time: 6/28/2016 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163193 [VXX29038]
Blank Spike Lab ID: 1333410
Date Analyzed: 06/28/2016 10:20

Spike Duplicate ID: LCSD for HBN 1163193 [VXX29038]
Spike Duplicate Lab ID: 1333411
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1163193001, 1163193002

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	31.7	106	30	31.6	105	(79-120)	0.32	(< 20)
Ethylbenzene	30	31.3	104	30	32.7	109	(79-121)	4.40	(< 20)
o-Xylene	30	30.5	102	30	32.6	109	(78-122)	6.70	(< 20)
P & M -Xylene	60	63.3	106	60	66.1	110	(80-121)	4.30	(< 20)
Toluene	30	27.0	90	30	29.6	99	(80-121)	9.30	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	117	117	30	109	109	(81-118)	6.70	
4-Bromofluorobenzene (surr)	30	103	103	30	91.9	92	(85-114)	11.50	
Toluene-d8 (surr)	30	89	89	30	96	96	(89-112)	7.50	

Batch Information

Analytical Batch: **VMS15912**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX29038**
Prep Method: **SW5030B**
Prep Date/Time: **06/28/2016 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 07/05/2016 8:28:07AM

Method Blank

Blank ID: MB for HBN 1737263 [XXX/35615]
Blank Lab ID: 1332184

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1163193001, 1163193002, 1163193003, 1163193004, 1163193005

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	77.5	60-120		%

Batch Information

Analytical Batch: XFC12462
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: S.G
Analytical Date/Time: 6/25/2016 10:59:00PM

Prep Batch: XXX35615
Prep Method: SW3520C
Prep Date/Time: 6/25/2016 8:35:23AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1163193 [XXX35615]
Blank Spike Lab ID: 1332185
Date Analyzed: 06/25/2016 23:09

Spike Duplicate ID: LCSD for HBN 1163193 [XXX35615]
Spike Duplicate Lab ID: 1332186
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1163193001, 1163193002, 1163193003, 1163193004, 1163193005

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	18.9	94	20	19.9	100	(75-125)	5.40	(< 20)
Surrogates									
5a Androstane (surr)	0.4	91.1	91	0.4	95.4	95	(60-120)	4.50	

Batch Information

Analytical Batch: **XFC12462**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **S.G**

Prep Batch: **XXX35615**
Prep Method: **SW3520C**
Prep Date/Time: **06/25/2016 08:35**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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SGS North America Inc.
CHAIN OF CUSTODY RECORD

1163193

Locations Nationwide
Alaska Maryland
New Jersey New York
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Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 1

Section 1

CLIENT: SLR International

CONTACT: Ben Siviec PHONE NO: 264-6953

PROJECT NAME: ML+P Transformer Shop GW PROJECT/ PWSID/ PERMIT#: 105.00529/11001

REPORTS TO: Ben S. E-MAIL: BSiviec@SLRconsulting.com

INVOICE TO: Bret Berglund QUOTE #: P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Preservative: DRO-AK102 - HCl	Preservative: GRO/BTEX AK101 - HCl 8260B	REMARKS/ LOC ID
①A-E	MW-9 TS	6-15-16	9:50	GW	5		X	X	
②A-E	MW-99	6-15-16	9:50	GW	5		X	X	
⑥A-C	TB01	6-15-16	9:50					X	
③A-E	MW-5TS	6-15-16	11:10	GW	5		X	X	
④A-E	MW-7 TS	6-15-16	12:10	GW	5		X	X	
⑤A-E	MW-6TS	6-15-16	13:05	GW	5		X	X	

Section 5

	Date	Time	
Relinquished By: (1) BRB	6/15/16	1343	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	6/15/16	1343	Received For Laboratory By:

Section 4

DOD Project? Yes (No)

Cooler ID:

Data Deliverable Requirements: LVL II

Requested Turnaround Time and/or Special Instructions: Standard

Temp Blank °C: 5.7, #D8 or Ambient [ ] (See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT (See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

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SGS North America Inc.

200 W. Potter Dr., Anchorage, AK 99518 (ph) 907-562-2343, (fax) 907-561-5301
3180 Peger Rd., Fairbanks, AK 99701 (ph) 907-474-8656, (fax) 907-474-9685

Sample Kit Request

☑ **Client pickup Date:** Tuesday 6/14 In AM **Time:** Afternoon
Be sure to ask if client will ship by ground (DOT) or air carrier (IATA)
☐ **Deliver to client:**
☐ **Ship by/Air Carrier:**
Airbill Number:
Date to ship by:
Notes:

Client Name: SLR Alaska
Ordered By: Ben Siwiec/Bret Berglund **e-mail:** sulting.com, bberglund@slrconsulting.com
Phone #: (907)264-6953
Project Name: ML&P Transformer Shop GW **Project/Permit#:** 105.00528.11001
Quote #: **Deliverables:** LVL2-ADEC, standard TAT
Delivery:

Kit request taken by: JM **Date:** 6/8/2016
Kit prepared by: CME **Date:** 6/13/2016
Kit *(including lid tightness for pres'd bottles)* checked by: CRH **Date:** 6/13/16
Kit packed & shipped by: CME **Date:** 6/13/2016

No. Samples	Matrix	Analysis	Container Size & Type		Pres.	Bottle Lot #	Preservative Lot #	Hold Time	# QC Bottles	Total Bottles
6	water	GRO/BTEX by AK 101/8021B	3 x 40-mL	VOA vials	HCl					18
6	water	DRO by AK 102	2 x 250-ml	amber glass	HCl					12

☐ Pack for Shipping via ***ground*** (DOT)
☐ Pack for Shipping via ***air carrier*** (IATA)
☑ Temperature Blank (***circle one:*** 120-ml OR 500-ml)
☐ Soil VOA Trip Blank - Lot#:
☑ Water VOA Trip Blank - Lot#:
☐ 524 VOA Trip Blank - Lot#:
☐ Low Level Mercury Trip Blank- Lot#:
☐ Coolers
☑ Gel Ice (***circle one:*** in each cooler OR in a separate cooler)
☐ Bubble Wrap
☑ Labels
☑ Custody Seals
☑ SGS COCs - ***Circle req'd format:*** * Blank COC * DW COC * COC initiated by PM (attached)
☐ Send additional instructions/documents *(**Note to PM:** Be sure to attach copy of requested form.)*

☐ Total # includes bottles for % Solids
☐ Track all Lot#
☐ Foreign Soil
☐ Pack similar bottles together OR custom packing ***(circle one)***

Other Notes/Reminders for Kit Prep:

Attention Client/Sampler:

1. Do not rinse container before filling and be aware of any acid preservative in container.
2. Fill container to top, but do not overfill (except volatiles which should be headspace free).
3. Label the container with your sample/site ID, as well as the date & time of collection.
4. Fill in the Chain of Custody.
5. Add frozen gel packs or ice to your cooler & pack to prevent breakage.

Charges may be invoiced for bottles which are unused or improperly used.
If you have any questions concerning this sample kit,
please contact your Project Manager for assistance. ***Thank you.***

SGS

e-SAMPLE RECEIPT FORM

1163193

Review Criteria	Y/N (yes/no)	Exceptions Noted below
		☐ exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Y	1-F, 1-B
COC accompanied samples?	Y	
☐ **exemption permitted if chilled & collected <8hrs ago or chlling not required (i.e., waste, oil)		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Y	Cooler ID: 1 @ 5.7 °C Therm ID: D8
		Cooler ID: @ °C Therm ID:
		Cooler ID: @ °C Therm ID:
		Cooler ID: @ °C Therm ID:
		Cooler ID: @ °C Therm ID:
If >6°C, were samples collected <8 hours ago?		
If <0°C, were sample containers ice free?		
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
		Note: Refer to form F-083 "Sample Guide" for hold times.
Were samples received within hold time?	Y	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Y	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous?	Y	
		☐ ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Y	Limited volume provided for the GRO and BTEX samples.
IF APPLICABLE		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Y	
Were all VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Y	
Were all soil VOAs field extracted with MeOH+BFB?		

Note to Client: Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1163193001-A	HCL to pH < 2	OK			
1163193001-B	HCL to pH < 2	OK			
1163193001-C	HCL to pH < 2	OK			
1163193001-D	HCL to pH < 2	OK			
1163193001-E	HCL to pH < 2	OK			
1163193002-A	HCL to pH < 2	OK			
1163193002-B	HCL to pH < 2	OK			
1163193002-C	HCL to pH < 2	OK			
1163193002-D	HCL to pH < 2	OK			
1163193002-E	HCL to pH < 2	OK			
1163193003-A	HCL to pH < 2	OK			
1163193003-B	HCL to pH < 2	OK			
1163193003-C	HCL to pH < 2	OK			
1163193003-D	HCL to pH < 2	OK			
1163193003-E	HCL to pH < 2	OK			
1163193004-A	HCL to pH < 2	OK			
1163193004-B	HCL to pH < 2	OK			
1163193004-C	HCL to pH < 2	OK			
1163193004-D	HCL to pH < 2	OK			
1163193004-E	HCL to pH < 2	OK			
1163193005-A	HCL to pH < 2	OK			
1163193005-B	HCL to pH < 2	OK			
1163193005-C	HCL to pH < 2	OK			
1163193005-D	HCL to pH < 2	OK			
1163193005-E	HCL to pH < 2	OK			
1163193006-A	HCL to pH < 2	OK			
1163193006-B	HCL to pH < 2	OK			
1163193006-C	HCL to pH < 2	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Appendix D

Groundwater Sampling Forms

SLR

Groundwater Sampling Form

Site/Client Name: MLTP Transformer Shop	**Well ID:** MW-5TS
Project # : 105.00528.11001	Sample ID: MW-5TS
Sampled By: B Seiwic, J. Gray	Sample Time: 11:10 Sample Date: 6-15-16
Weather Conditions: Clear, Calm, High 60s	Duplicate ID: —
Sampling Method: ☑ Low Flow ☐ Other_____	MS/MSD ☐ Yes ☑ No Trip Blank Required: ☑ Yes ☐ No

Well Information

Well Type: ☑ Permanent ☐ Temporary	Well Diameter 2 in.	Screen Interval: — ft BGS to — ft BGS
Well Condition: ☑ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes)		Stickup ☐ Yes ☑ No; If yes, _____ ft above ground

Gauging/Purging Information

Depth to Water (ft BTOC): 5.12'	Tubing/Pump Depth (ft. BTOC): 12
Total Depth (ft BTOC): 13.80'	Purge Start Time (24-hr) 10:30
Depth to Product (ft. BTOC) NA	Purge End Time (24-hr) 11:10
Product Thickness (ft) NA	Total Purge Time (min) 40

LOW FLOW: **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ X 0.25 = _____(ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.;

Min. purge volume if required: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

Well Diameter – gal/ft	1" – 0.041 gal/ft	2" – 0.163 gal/ft	4" – 0.653 gal/ft	6" – 1.469 gal/ft

Water Quality Parameters

(Achieve stable parameters for 3 consecutive reading. 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

Time (24-hr)	Flow Rate (liter/ minute)	Purge Volume (gal)	Temp (°C) (± 3 %)	Specific Conductance (µS/cm^c) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%, or <5 NTU)	DTW (ft BTOC)	Drawdown (ft) (Max____ft)
10:34	0.4	—	8.27	626	36.00	222.5	7.0	—	5.30	0.18'
10:39	4 "	0.5	8.76	622	18.54	245.9	6.32	16.8	5.40	0.28'
10:44	" "	1.0	9.09	627	17.71	239.3	6.41	3.55	5.45	0.32'
10:49	" "	1.5	9.20	630	14.97	235.9	6.46	0.98	5.50	0.37
10:54	0.25	1.6	9.37	633	12.31	234.5	6.54	0.98	5.47	0.34
10:59	0.25	1.8	9.40	634	11.15	229.0	6.57	1.23	5.47	0.34
11:04	" "	2.5	9.38	634	9.24	226.4	6.62	2.32	5.45	0.32
Parameter Stable (Check applicable)			✓	✓		✓	✓	✓		

Sample Color: Clear **Sample Odor:** None **Sheen:** No

Analytical Sampling

Analyses	Check Applicable	Comments
DRO	✓	
GRO / BTEX	✓	

Notes:

Equipment: Pump Type geopump / peristaltic Tubing (Type/Length) teflon-lined Bailer Type —

Water Level Meter Solinst 122 Int. probe Multi-Parameter Meter (Make/SN#) YSI 556 07L100513

Turbidity Meter (Make/SN#) LaMotte 2020e 14728 Filter Lot # —

Purge Water Handling: ☐ Discharged to surface ☑ Containerized ☐ Treated (how?)_____

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

SLR

Groundwater Sampling Form

BS 6/15/16

Site/Client Name: MLP 105.00578.11001	**Well ID:** ~~MW-6~~ MW-6TS
Project # : MLP Transformer Shop	Sample ID: MW-6TS
Sampled By: Ben Seiwit, J. Gray	Sample Time: 1305 Sample Date: 6/15/16
Weather Conditions: Sunny, 70°, calm breeze	Duplicate ID: ~
Sampling Method: ☑ Low Flow ☐ Other ____	MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No

Well Information

Well Type: ☑ Permanent ☐ Temporary	Well Diameter 2" in.	Screen Interval: ~ ft BGS to ~ ft BGS
Well Condition: ☑ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes)		Stickup ☐ Yes ☒ No; If yes, ____ ft above ground

Gauging/Purging Information

Depth to Water (ft BTOC): 15.43	Tubing/Pump Depth (ft. BTOC): 19.5
Total Depth (ft BTOC): 20.90	Purge Start Time (24-hr) 12:25
Depth to Product (ft. BTOC) NA	Purge End Time (24-hr) 13:00
Product Thickness (ft) NA	Total Purge Time (min) 35

LOW FLOW: **Max Draw Down** = (Tubing Depth – Top of Screen Depth)____ X 0.25 = ____(ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.

Min. purge volume if required: purge volume (gal) = volume of water/ft____(gal/ft) X Water column thickness____(ft) X # of casing volumes____ = ____gal

Well Diameter – gal/ft	1" – 0.041 gal/ft	2" – 0.163 gal/ft	4' – 0.653 gal/ft	6' – 1.469 gal/ft

Water Quality Parameters

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

Time (24-hr)	Flow Rate (liter/ minute)	Purge Volume (gal)	Temp (°C) (± 3 %)	Specific Conductance (µS/cm^c) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%, or <5 NTU)	DTW (ft BTOC)	Drawdown (ft) (Max____ft)
12:30	0.350	0.3	7.97	685	8.09	132.7	5.78	17.1	15.45	0.02
12:35	0.35	0.5	7.98	676	10.20	134.3	5.55	17.9	15.45	0.02
12:40	" "	1.0	7.82	675	8.36	122.0	5.53	11.2	15.45	0.02
12:45	" "	1.5	7.74	674	6.33	103.9	5.62	6.96	15.45	0.02
12:50	" "	2.0	7.74	671	7.70	90.9	5.71	3.67	15.45	" "
12:55	" "	2.5	7.86	672	7.00	73.8	5.86	3.30	15.45	" "
13:00	" "	2.9	8.05	669	7.13	63.3	5.93	2.35	15.45	" "
Parameter Stable (Check applicable)			✓	✓	✓			✓		

Sample Color: Rusty-Green → Clear **Sample Odor:** ~ **Sheen:** ~

Analytical Sampling

Analyses	Check Applicable	Comments
DRO	✓	
GRO / BTEX	✓	

Notes:

Equipment: Pump Type Geopump peristaltic Tubing (Type/Length) teflon-lined Bailer Type ~

Water Level Meter Solinst 122 Int. probe Multi-Parameter Meter (Make/SN#) YSI 556 07L100513

Turbidity Meter (Make/SN#) La Motte 2020e 14728 Filter Lot # ~

Purge Water Handling: ☐ Discharged to surface ☒ Containerized ☐ Treated (how?)____

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

SLR

Groundwater Sampling Form

Site/Client Name: MLeP Transformer Shop	**Well ID:** MW-7TS
Project #: 105.00528.1100	Sample ID: MW-7TS
Sampled By: B. Seivic, J. Gray	Sample Time: 12:10 Sample Date: 6/15/16
Weather Conditions: Calm, Sunny, 60s	Duplicate ID: —
Sampling Method: ☒ Low Flow ☐ Other_____	MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No

Well Information

Well Type: ☒ Permanent ☐ Temporary	Well Diameter 2 in.	Screen Interval: — ft BGS to — ft BGS
Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes)		Stickup ☐ Yes ☒ No; If yes, _____ ft above ground

Gauging/Purging Information

Depth to Water (ft BTOC): 17.30	Tubing/Pump Depth (ft. BTOC): 19
Total Depth (ft BTOC): 21.00	Purge Start Time (24-hr) 11:37
Depth to Product (ft. BTOC) —	Purge End Time (24-hr) 12:06
Product Thickness (ft) —	Total Purge Time (min) 29

LOW FLOW: **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ X 0.25 = _____(ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.;

Min. purge volume if required: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

Well Diameter – gal/ft	1" – 0.041 gal/ft	2" – 0.163 gal/ft	4' – 0.653 gal/ft	6' – 1.469 gal/ft

Water Quality Parameters

(Achieve stable parameters for 3 consecutive reading, 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

Time (24-hr)	Flow Rate (liter/ minute)	Purge Volume (gal)	Temp (°C) (± 3 %)	Specific Conductance (µS/cm°) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%, or <5 NTU)	DTW (ft BTOC)	Drawdown (ft) (Max____ft)
11:40	0.25	0.25	9.19	915	9.28	216.5	6.12	11.1	17.33	0.03
11:45	" "	0.5	9.07	914	10.01	255.4	5.57	5.57	17.33	0.03
11:50	" "	0.7	9.10	918	6.40	225.3	5.56	3.11	17.33	0.03
11:55	" "	0.85	9.17	922	9.90	249.3	5.71	3.66	17.33	0.03
12:00	" "	1.2	9.20	924	7.95	241.4	5.80	2.53	17.33	0.03
12:05	" "	1.4	8.95	925	9.13	238.2	5.80	3.09	17.33	0.03
Parameter Stable (Check applicable)			✓	✓		✓	✓	✓		

Sample Color: rusty then clear **Sample Odor:** No **Sheen:** No

Analytical Sampling

Analyses	Check Applicable	Comments
DRO	✓	
GRO / BTEX	✓	

Notes:

Equipment: Pump Type geopump peristaltic Tubing (Type/Length) teflon-lined Bailer Type —

Water Level Meter Solinst - 122 Int. Probe Multi-Parameter Meter (Make/SN#) YSI 556 07L100513

Turbidity Meter (Make/SN#) La Motte 2020e 14728 Filter Lot # —

Purge Water Handling: ☐ Discharged to surface ☒ Containerized ☐ Treated (how?)_____

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

SLR

Groundwater Sampling Form

Site/Client Name: ML&P Transformer Shop	**Well ID:** MW-9TS
Project #: 105.00528.11001	Sample ID: MW-9TS
Sampled By: BSiwiec JGray	Sample Time: 9:50 Sample Date: 6-15-16
Weather Conditions: Clear, Calm, 60s	Duplicate ID: MW-99TS
Sampling Method: ☐ Low Flow ☒ Other See notes	MS/MSD ☐ Yes ☒ No Trip Blank Required: ☒ Yes ☐ No

Well Information

Well Type: ☒ Permanent ☐ Temporary	Well Diameter 2 in.	Screen Interval: — ft BGS to — ft BGS
Well Condition: ☒ Good ☐ Fair ☐ Poor (if fair or poor explain in Notes)		Stickup ☐ Yes ☒ No; If yes, _____ ft above ground

Gauging/Purging Information

Depth to Water (ft BTOC): 6.07	Tubing/Pump Depth (ft. BTOC): 8.80
Total Depth (ft BTOC): ~~10.88~~ 8.85	Purge Start Time (24-hr) 1147 on 6/13/16
Depth to Product (ft. BTOC) NA	Purge End Time (24-hr) 1227 on 6/13/16
Product Thickness (ft) NA	Total Purge Time (min) 40

LOW FLOW: **Max Draw Down** = (Tubing Depth – Top of Screen Depth)_____ X 0.25 = _____(ft); if screen interval is not known or water table is below top of screen, then use default value of 0.3 ft.;

Min. purge volume if required: purge volume (gal) = volume of water/ft_____(gal/ft) X Water column thickness_____(ft) X # of casing volumes_____ =_____gal

Well Diameter – gal/ft	1" – 0.041 gal/ft	2" – 0.163 gal/ft	4' – 0.653 gal/ft	6' – 1.469 gal/ft

Water Quality Parameters

(Achieve stable parameters for 3 consecutive reading. 4 parameters if practical [each reading taken after pumping a minimum of 1 flow through cell volume])

Time (24-hr)	Flow Rate (liter/ minute)	Purge Volume (gal)	Temp (°C) (± 3 %)	Specific Conductance (µS/cm°) (± 3%)	DO (mg/L) (± 10%)	ORP (mV) (± 10mV)	pH (± 0.1)	Turbidity (NTU) (± 10%, or <5 NTU)	DTW (ft BTOC)	Drawdown (ft) (Max___ft)
9:50	—	—	13.24	1297	15.5	255	6.88	14.0	6.70	NA
Parameter Stable (Check applicable)			NA	NA	NA	NA	NA	NA	NA	

Sample Color: Clear **Sample Odor:** Light gasoline **Sheen:** Not seen

Analytical Sampling

Analyses	Check Applicable	Comments
PRO	✓	
GRO/BTEX	✓	

Notes: This well is known to recharge very slowly, therefore it was purged dry on 6/15/16. water that had recharged was sampled 6/15/16 without further purge. field parameters were collected in a cup after sampling.

Equipment: Pump Type Geopump peristaltic Tubing (Type/Length) teflon-lined Bailer Type —

Water Level Meter Solinst 122 Int. probe Multi-Parameter Meter (Make/SN#) YSI 556 07L100513

Turbidity Meter (Make/SN#) La Motte 2020e 14728 Filter Lot # —

Purge Water Handling: ☐ Discharged to surface ☒ Containerized ☐ Treated (how?)_____

BGS = Below Ground Surface, BTOC= Below Top of Casing, NA = Not Applicable

Water Parameter Meter Calibration Log

SLR

Date: 6/15/16 Time: 0830 Calibration By: Ben Siviec

Meter Manufacturer and Identification #: YSI 556 07L100513

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00	7.01	TP1	6/15/16	11/2017	—	7.01	± 0.10
	4.00	4.00	TT1	6/15/16	7/2017	—	4.00	± 0.10
	10.00	10.06	TU2	~~6/14/16~~ 6/15/16	6/2017	—	10.06	± 0.10
Sp Cond (mS/cm)	1.413	1.413	TS2	5/14/16 6/15/16	8/2017	—	1.413	± 10%
ORP (mV)	240	240	7657	7/29/14	05/2019	—	240	——
DO*	Water	——	——	——	——	——	98%	± 2%

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: 6/16/16 Time: 1230 Calibration By: Ben Siviec

Meter Manufacturer and Identification #: YSI 556 07L100513

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00	7.01	TP1	6/15/16	11/2017	7.03	—	± 0.10
	4.00	4.00	TT1	6/15/16	7/2017	3.98	—	± 0.10
	10.00	10.06	TU1	5/14/16	6/2017	10.04	—	± 0.10
Sp Cond (mS/cm)	1.413	1.413	TS2	6/15/16	8/2017	1.413	—	± 10%
ORP (mV)	240	240	7657	7/29/14	05/2019	232	—	——
DO*	Water	——	——	——	——	98%	—	± 2%

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table

Date: _____ Time: _____ Calibration By: _____

Meter Manufacturer and Identification #: _____

Parameter	Standard	True Value	Lot #	Date Opened	Expiration Date	PreCalibration Reading	Reading After Calibration	Calibration Acceptance Criteria
pH	7.00							± 0.10
	4.00							± 0.10
	10.00							± 0.10
Sp Cond (mS/cm)	1.413							± 10%
ORP (mV)	240							——
DO*								± 2%

If parameter not included in sampling event, fill in box with NA (not applicable)

* Note that the True Value for DO is dependent on pressure and altitude; reference the DO Calibration Table