

Kinder Morgan Liquids Terminals, LLC

# 2020 ANNUAL GROUNDWATER MONITORING REPORT

Harbor Island Terminal  
Seattle, Washington



## 2020 ANNUAL GROUNDWATER MONITORING REPORT



Lauren Selleck  
Engineer II



Matt Annis  
Project Manager



Rebecca Andresen, L.G.  
Senior Vice President



Rebecca K. Andresen

Harbor Island Terminal  
Seattle, Washington

Prepared for:  
Kinder Morgan Liquids Terminals, LLC  
Harbor Island Terminal  
2720 13<sup>th</sup> Avenue Southwest  
Seattle  
Washington 98134

Prepared by:  
Arcadis U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle  
Washington 98101  
Tel 206 325 5254  
Fax 206 325 8218

Our Ref.:  
30050809

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# 1 INTRODUCTION

Arcadis U.S., Inc. (Arcadis) has prepared this report on behalf of Kinder Morgan Liquids Terminals, LLC, a wholly owned indirect subsidiary of Kinder Morgan, Inc., to present the results of the first and second semiannual 2020 groundwater monitoring events at the Harbor Island Terminal. The site is located at 2720 13<sup>th</sup> Avenue Southwest in Seattle, Washington. A site location map is presented on **Figure 1**.

Groundwater monitoring events were completed between March 25 and March 27, 2020 and October 19 and October 23, 2020, in accordance with the *Compliance Monitoring Plan* (KHM 1999) and associated addenda, included as **Appendix A**. Remedial performance monitoring was performed periodically in 2020.

## 1.1 Site Description

The site is a 14-acre bulk petroleum storage facility located east of 13<sup>th</sup> Avenue Southwest on Harbor Island in Seattle, King County, Washington. The site has operated as a bulk petroleum storage terminal since 1944 and is surrounded by industrial facilities, including shipyards, bulk petroleum storage facilities, and the Port of Seattle. The topography is relatively flat with an elevation of approximately 9 to 16 feet above the North American Vertical Datum of 1988 (NAVD 88). A site plan is presented on **Figure 2**.

The site consists of five distinct operational yards (A, B, C, D, and E). Features include aboveground storage tanks (ASTs) containing refined petroleum products in the B and C Yards. The A Yard, located in the southern portion of the site, consists of the terminal office, a truck loading rack, and other support structures. The B Yard, located north of the A Yard and south of the D Yard, contains 15 ASTs and associated piping and is surrounded by a 15-foot-high concrete wall. The D Yard, located north of the B Yard, is composed of a driveway and a maintenance building and is the primary corridor for site utilities. The C Yard, located north of the D Yard and south of the E Yard, contains six ASTs and associated piping and is surrounded by a 15-foot-high concrete wall. The E Yard, located at the north end of the site, is leased to other parties and consists of an office building and vehicle storage facilities.

## 1.2 Regulatory Background

Site-specific cleanup levels (SSCLs) for groundwater were established by the Washington Department of Ecology (Ecology) as part of Consent Decree 00-2-07760-2SEA (CD [Ecology 2000]). The groundwater SSCLs were established on the basis that site groundwater is, and is anticipated to remain, non-potable. As such, the SSCLs were derived to meet surface water standards that are protective of aquatic organisms in the Duwamish River and Elliott Bay. The *Cleanup Action Plan* (Exhibit B of the CD [Ecology 1999]) outlines site-specific constituents of concern (COCs) and applicable cleanup levels. The SSCLs for each COC are as follows:

Constituent	Cleanup Level
Benzene	0.071 mg/L
Ethylbenzene	29.0 mg/L
Lead	0.0058 mg/L
Toluene	200 mg/L
GRO	1.0 mg/L
DRO	10 mg/L
HO	10 mg/L
Product	No sheen

mg/L = milligrams per liter

The *Compliance Monitoring Plan* (Exhibit F of the CD [KHM 1999]) provides groundwater monitoring objectives for site compliance. Groundwater monitoring compliance requirements have been amended in the *Site-Wide Groundwater Compliance Monitoring Plan - Proposed Reduced Monitoring* (Delta 2007), *Technical Revision Request – Low Flow Groundwater Sampling* (Delta 2008), *Revised Site Groundwater Monitoring Plan* (Arcadis 2014), and the *Groundwater Analytical Reduction Request* (Arcadis 2016). Groundwater monitoring compliance documents and approvals are included in **Appendix A**. The compliance status, most recent detections of COCs above SSCLs, and most recent separate phase hydrocarbons (SPH) observations in monitoring wells at the site are presented in **Table 1**.

### 1.3 Remedial Sulfate Application

In July 2013, gypsum and Epsom salt were applied to the ground surface in the B and D Yards to enhance anaerobic biological oxidation (ABOx) of residual petroleum hydrocarbons in the soil and groundwater by using sulfate as a terminal electron acceptor, as summarized in the *B and D Yards Groundwater Remediation – Engineering Design Report* (Arcadis 2012). Approximately 264,000 pounds of gypsum and 42,000 pounds of Epsom salt were applied across 30,000 square feet (SF) of permeable soil to supply sulfate to the vadose zone soils and groundwater.

Supplemental applications of Epsom salt in targeted areas of the B, C, and D Yards were conducted in accordance with the *B and D Yards Groundwater Remediation – Engineering Design Report* (Arcadis 2012) in September 2015, October 2016, April 2018, November 2018, and December 2019. The scope and timing of supplemental sulfate applications is informed by performance monitoring, which includes analytical results from semiannual groundwater monitoring and periodic measurements of groundwater conductivity using a water quality meter. To maintain the target sulfate concentration of 900 mg/L in groundwater, the following supplemental applications have been completed:

- September 2015 – 16,000 pounds of Epsom salt were distributed over approximately 19,650 SF in the B, C and D Yards.

- October 2016 – 15,000 pounds of Epsom salt were distributed over approximately 17,500 SF in the B, C and D Yards.
- April 2018 – 10,000 pounds of Epsom salt were applied in the B, C and D Yards.
- November 2018 – 5,000 pounds of Epsom salt were applied in the C and D Yard application area near MW-19.
- December 2019 – approximately 14,400 pounds of Epsom salt were applied in the B, C, and D Yards.

The remedial sulfate application extents are presented on **Figure 3**.

## 2 SCOPE OF WORK

Semiannual groundwater monitoring, remedial sulfate application, and remedial performance monitoring activities were completed in 2020, as described below.

### 2.1 Semiannual Groundwater Monitoring Events

The 2020 semiannual groundwater monitoring events were performed in accordance with the groundwater monitoring compliance requirements presented in Section 1.2 and included as **Appendix A**. The scope of work for the 2020 semiannual monitoring events included:

- Measuring depth to water and SPH (where present) in 50 monitoring wells in March 2020 and 51 monitoring wells in October 2020. A-23R was not accessible in March 2020.
- Purging monitoring wells using low-flow sampling methods; collecting field parameters, including dissolved oxygen (DO), oxygen-reduction potential (ORP), pH, temperature, turbidity, and specific conductivity; and collecting groundwater samples from:
  - 19 monitoring wells in the first semiannual groundwater monitoring event; and
  - 40 monitoring wells in the second semiannual groundwater monitoring event.
- Submitting groundwater samples to Pace National Center for Testing and Innovation (Pace) of Mount Juliet, Tennessee, for laboratory analysis.

Monitoring wells were purged using low-flow methodology with a peristaltic pump and groundwater quality field parameters were measured using an Aqua TROLL 600 multiparameter sonde and an optical turbidimeter. Monitoring wells were sampled after depth to water, pH, specific conductivity, DO, ORP, turbidity and temperature had stabilized in accordance with the *Technical Revision Request – Low-Flow Groundwater Sampling* (Delta 2008). Groundwater elevation data are presented in **Table 2** and groundwater monitoring field data sheets are included in **Appendix B**.

Groundwater samples were collected in laboratory-provided bottles, placed in coolers with ice, and submitted to Pace under standard chain-of-custody protocol. Groundwater samples were analyzed for some or all of the following constituents in accordance with the *Groundwater Analytical Reduction Request* (Arcadis 2016) included in **Appendix A**:

- Gasoline Range Organics (GRO) by Northwest Method NWTPH-Gx.
- Diesel Range Organics and Heavy Oil by Northwest Method NWTPH-Dx (with silica gel cleanup).



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- Benzene, toluene, ethylbenzene, and total xylenes (BTEX, collectively) by United States Environmental Protection Agency (EPA) Method 8260D.
- Dissolved lead by EPA Method 6020B.
- Total lead by EPA Method 6020B.
- Sulfate by EPA Method 9056A.

During the second semiannual groundwater monitoring event, groundwater samples collected from five monitoring wells located in the 13<sup>th</sup> Avenue Southwest area were also analyzed for the following geochemical parameters:

- Methane by EPA Method RSK-175.
- Ferrous iron by Standard Method 3500Fe B-2011.
- Nitrate by EPA Method 353.2.
- Sulfide by Standard Method 4500S2 D-2011.

Blind duplicate samples were collected from MW-21 and MW-23 in the first semiannual groundwater monitoring event and from MW-7 and MW-21 in the second groundwater monitoring event for quality assurance purposes. Laboratory analytical reports and chain-of-custody documentation are included as **Appendix C**.

### 2.2 Remedial Performance Monitoring and Irrigation

Performance monitoring of the remedial application in the B, C, and D Yards has been performed on a periodic basis since the initial remedial sulfate application was completed in July 2013. Specific conductivity was measured at nine monitoring wells within the sulfate application area (12, MW-7, MW-19, and TMW-1 through TMW-6) using a multi-parameter water quality meter. Field measurements of specific conductivity have been correlated to groundwater sulfate concentrations to monitor remedial performance between semiannual monitoring events to obtain more frequent sulfate concentration information.

Precipitation and infiltration are the primary mechanism for delivering sulfate to the groundwater to support ABOx reactions. The irrigation system present in the B, C and D Yards is typically used to supplement natural rainfall during the summer, when precipitation is less frequent, to drive dissolution of Epsom salt and gypsum on the ground surface and infiltration of sulfate to the groundwater. The irrigation system was not operated in 2020 due to malfunctions in the controllers. The system will be repaired in 2021 ahead of planned operation in late spring or early summer depending on natural precipitation rates. Monthly precipitation, including irrigation and natural rainfall, are shown on **Graphs 1** through **10**.

## 3 SUMMARY OF RESULTS

Sample analytical results and field measurements collected during the first and second semiannual 2020 groundwater monitoring events are presented below.

### 3.1 Water Level Measurements

Depth-to-groundwater in monitoring wells was measured on March 25, 2020 and October 19, 2020 using electronic water level meters and an oil/water interface probe. Monitoring well A-23R could not be accessed during the first semiannual monitoring event. Groundwater elevations were calculated using depth-to-water measurements and wellhead survey elevations obtained in July 2003. Depth-to-groundwater for the March 25, 2020 gauging event ranged from 1.50 feet (monitoring well 12) to 10.23 feet (A-27) with groundwater elevations (relative to NAVD 88) ranging from 5.94 feet (MW-25) to 9.28 feet (MW-19). Depth-to-groundwater during the October 19, 2020 monitoring event ranged from 2.35 (monitoring well 12) to 10.74 (A-27) with groundwater elevations (relative to NAVD 88) ranging from 5.58 feet (MW-25) to 8.22 feet (MW-20). Groundwater direction is generally to the south from the D Yard toward the A Yard with an approximate hydraulic gradient ranging from 0.003 to 0.006 foot per foot (measured between MW-19 and A-6), which is consistent with previous monitoring events. The groundwater elevation data are presented in **Table 2**, and potentiometric contour maps for the two semiannual groundwater monitoring events are presented on **Figures 4** and **5**.

### 3.2 Passive Separate Phase Hydrocarbon Recovery

Monitoring wells A-6 and A-16 were gauged using an oil/water interface probe on January 28, 2020 (first quarter of 2020). SPH was not observed and an absorbent sock was placed in each well. SPH was not observed in monitoring wells A-6 and A-16 during the first semiannual groundwater monitoring event on March 25, 2020 and the existing socks were left in place.

During the second semiannual groundwater monitoring event (October 19, 2020), SPH was observed in monitoring well A-16 at a thickness of 0.01 foot. No SPH was observed in monitoring well A-6. The existing sock was removed from A-16 and a new absorbent sock was installed following gauging.

Quarterly gauging and sock management will continue through 2021 consistent with Ecology's approval of the *Revised Site Groundwater Monitoring Plan* (Ecology 2014).

### 3.3 Groundwater Analytical and Geochemical Results

Concentrations of COCs exceeding SSCLs in groundwater samples collected from monitoring wells at the site during 2020 are summarized below:

COC	Number of Wells Exceeding SSCL	Number of Wells Analyzed	Maximum Concentration (mg/L)	Location of Maximum Concentration
<b>First Semiannual Groundwater Monitoring Event</b>				
GRO	5	19	2.16	TMW-6
Benzene	2	19	0.305	MW-23
<b>Second Semiannual Groundwater Monitoring Event</b>				
GRO	8	40	9.00	MW-24
Benzene	4	40	0.859	MW-24
Total Lead	2	19	0.0239	12

During the second semiannual 2020 groundwater monitoring event, groundwater samples from five monitoring wells (A-27, A-28R, TMW-B1, MW-23, and MW-24) were analyzed for geochemical parameters to monitor natural attenuation along 13<sup>th</sup> Avenue Southwest:

- Methane was detected in all five monitoring wells at concentrations ranging from 4.46 mg/L (A-28R) to 18.7 mg/L (MW-24).
- Ferrous iron was detected in all five monitoring wells at concentrations ranging from 12.1 mg/L (TMW-B1) to 55.2 mg/L (MW-24).
- Nitrate was detected in one monitoring well at a concentration of 0.105 mg/L (MW-23).
- Sulfate was detected in one monitoring well at a concentration of 46.2 mg/L (A-27).

Sulfide was also analyzed, but not detected above laboratory reporting limits in any groundwater samples. Groundwater analytical results are presented in **Table 3**. Groundwater geochemical data, including field measurements, are presented in **Table 4**. Laboratory analytical reports and chain-of-custody documentation are included in **Appendix C**, historical groundwater elevations are included in **Appendix D**, and historical groundwater analytical results are included in **Appendix E**.

### 3.4 Remedial Performance Results

During the semiannual 2020 monitoring events, samples from 10 monitoring wells (11, 12, MW-7, MW-19, and TMW-1 through TMW-6) within the target remedial application areas were analyzed for sulfate and compared to the target sulfate concentration to support ABOx of petroleum hydrocarbons (900 mg/L).

During the first semiannual event, sulfate concentrations in the targeted ABOx treatment area ranged from 1,050 mg/L in well 12 to 3,720 mg/L in well TMW-6. During the second semiannual event, sulfate concentrations in the targeted ABOx treatment area ranged from 557 mg/L in well MW-19 to 1,680 mg/L in well TMW-4. Sulfate concentrations greater than the target of 900 mg/L within the remedial treatment area were observed in the following locations:

- Monitoring wells 12, MW-7, MW-19, TMW-2, TMW-3, TMW-4, TMW-5, and TMW-6 during the first event.
- Monitoring wells 12, TMW-2, TMW-3, TMW-4, TMW-5, and TMW-6 during the second event.

Groundwater from MW-9 and A-27 was also analyzed for sulfate to evaluate downgradient migration of sulfate from the remedial application area. Sulfate concentrations detected in MW-9 during the first and second semiannual monitoring events were 47.1 mg/L and 16.1 mg/L, respectively. Sulfate concentrations detected in A-27 were below the laboratory detection limit of 5 mg/L during the first semiannual monitoring event and 46.2 mg/L during the second semiannual monitoring event.

Groundwater analytical results for geochemical parameters are presented in **Table 4**. Constituent trend graphs for the performance monitoring of wells within the sulfate application area are presented on **Graphs 1** through **10**. Laboratory analytical reports and chain-of-custody documentation are included in **Appendix C**. Historical groundwater analytical results are included in **Appendix E**.

### 3.5 Data Validation Results

Analytical data produced as part of the first and second semiannual 2020 groundwater monitoring events (sample delivery groups L1203707, L1276973, L1276975, L1277202, L1277245, and L1277788 [Appendix C]) were reviewed for completeness and technical compliance. All field samples from both semiannual monitoring events were analyzed within their specified hold times with the exception of the samples analyzed for ferrous iron by Method 3500-Fe B-2011. Ferrous iron is considered “out of hold” as received at the laboratory in accordance with the method, but the results are minimally impacted. Reported concentrations of ferrous iron should be considered minimum values. Two field duplicates, DUP-1 (MW-23) and DUP-2 (MW-21) during the first event, and DUP-1 (MW-7) and DUP-2 (MW-21) during the second event, were collected and analyzed. The relative percent differences between the parent and the duplicates were acceptable at less than 35%. Quality control samples analyzed by the laboratory were within established acceptance criteria.

## 4 COMPLIANCE AND CONCLUSIONS

### 4.1 A Yard

Passive recovery of SPH using absorbent socks is conducted in accordance with the procedure outlined in the Ecology email approval of the *Revised Site Groundwater Monitoring Plan* (Arcadis 2014), which requires quarterly gauging and sock replacement for four quarters following the observance of sheen or measurable SPH during a semiannual monitoring event (Ecology 2014). During the second semiannual event, SPH was observed in A-16 at 0.01 foot. A new absorbent sock was placed in A-16 to passively recover SPH. No SPH was observed in A-6 in 2020. The wells will continue to be gauged on a quarterly basis to monitor for SPH in accordance with the *Revised Site Groundwater Monitoring Plan* (Arcadis 2014) and absorbent socks will be deployed as needed when SPH is observed.

Groundwater samples were collected from within the A Yard at one monitoring well (A-5) during the first groundwater monitoring event and five monitoring wells (A-5, A-8, A-10, A-14R, and MW-25) during the second groundwater monitoring event. COCs in groundwater samples collected from the A Yard monitoring wells have been below SSCLs since 2012. There were no exceedances in the A Yard in 2020. Analytical results are presented on **Figures 6** and **Figure 7** and presented in **Table 3**.

### 4.2 B, C and D Yards

#### 4.2.1 Remedial Application Area

Concentrations of COCs during the first and second semiannual 2020 groundwater monitoring events in the 10 performance monitoring wells within the sulfate application area (11, 12, MW-7, MW-19, and TMW-1 through TMW-6) were generally consistent with or lower than concentrations observed during previous groundwater monitoring events, except for benzene in monitoring well 12. Concentrations of COCs were below SSCLs for all constituents in seven performance monitoring wells (11, MW-7, MW-19, TMW-1, TMW-2, TMW-3, and TMW-5) for both monitoring events. Concentrations of COCs in the samples collected from monitoring well 12 in the first groundwater monitoring event were below SSCLs. Three performance monitoring wells (12, TMW-4, and TMW-6) had GRO concentrations exceeding the SSCL

during one or both of the 2020 monitoring events. Benzene was detected above the SSCL in monitoring well 12 (0.116 mg/L). Analytical results of the 10 performance monitoring wells within the remedial footprint for the first and second groundwater monitoring events are presented on **Figures 6 and 7**, respectively. Trend graphs showing the remedial performance and historical concentrations of COCs and sulfate are presented on **Graphs 1 through 10**. In general, COC concentrations in the remedial application area demonstrate stable to decreasing trends.

Sulfate concentrations in groundwater were above the target threshold of 900 mg/L, which is supportive of ABOx of petroleum hydrocarbons, at performance monitoring wells 12, MW-7, MW-19, TMW-2, TMW-3, TMW-4, TMW-5, and TMW-6 during the first groundwater monitoring event. During the second groundwater monitoring event, performance monitoring wells 12, TMW-2, TMW-3, TMW-4, TMW-5, and TMW-6 were above the target of 900 mg/L of sulfate. Monitoring well A-27, which is considered a sentinel well to monitor for excess sulfate cross-gradient from the ABOx treatment area, had a sulfate concentration of 46.2 mg/L during the second groundwater monitoring event. This concentration is well below the secondary water quality level of 250 mg/L.

During the second semiannual 2020 groundwater monitoring event, total lead was detected in monitoring well 12 at concentrations that exceeded the SSCL. Lead impacts at the site have been attributed to former offsite smelting operations and the former smelter located on Harbor Island. Lead impacted shallow soil removal from the B and C Yards was completed in 2002 (KHM 2002). Residual total lead and dissolved lead impacts to groundwater are monitored in accordance with the CD (Ecology 2000).

### 4.2.2 Non-Remedial Application Area

There are seven monitoring wells in the B, C and D Yards (MW-3, MW-5, MW-8, MW-9, MW-14, MW-20, and MW-21) that are sampled either annually or semiannually and are not located within the remedial application area. Concentrations of all site COCs were below SSCLs in six of the seven monitoring wells and are in compliance with the requirements of the CD (Ecology 2000). Concentrations of total lead measured in monitoring well MW-8 exceeded the SSCL during the second semiannual 2020 groundwater monitoring event at a concentration of 0.0130 mg/L. SPH has not been observed in the B Yard since April 2014, the C Yard since gauging was initiated in 2000 (KHM 2001), or the D yard since May 2002 (KHM 2002). Analytical results for both semiannual groundwater monitoring events in non-remedial application area wells are presented on **Figures 6 and 7** and in **Table 3**. Analytical results for select monitoring wells with recent or historical concentrations exceeding SSCLs (MW-5, MW-8 and MW-14) are presented on **Graphs 11 through 13**.

### 4.3 E Yard

Groundwater sampling is conducted annually in one well (MW-1) located within the E Yard. Concentrations of site COCs have been below SSCLs in the E Yard since 2002.

### 4.4 13th Avenue Southwest Monitored Natural Attenuation Area

Concentrations of COCs in wells within the 13<sup>th</sup> Avenue Southwest monitored natural attenuation (MNA) area (A-27, A-28R, TMW-B1, MW-23, and MW-24) are consistent with historical concentrations, which show generally stable to decreasing trends.

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In the 13<sup>th</sup> Avenue Southwest MNA area, concentrations of GRO in three of the wells sampled in the first semiannual monitoring event and five of the wells sampled in the second semiannual monitoring event exceeded the SSCL. Benzene concentrations exceeded the SSCL in two of the wells sampled during the first semiannual monitoring event and three of the wells sampled during the second semiannual monitoring event. Constituent trend graphs for monitoring wells exceeding SSCLs are presented on **Graphs 14** through **18**.

Concentrations of geochemical parameters in the 13<sup>th</sup> Avenue Southwest MNA wells are consistent with previous groundwater monitoring events. Concentrations of DO in wells A-27, A-28R, TMW-B1, MW-23, and MW-24 are between 0.05 mg/L and 0.34 mg/L, indicating that groundwater conditions are typically anaerobic. Concentrations of methane and ferrous iron in wells A-27, A-28R, TMW-B1, MW-23, and MW-24 are elevated compared to wells without detectable petroleum impacts.

These data demonstrate that natural attenuation is occurring in wells located in the 13<sup>th</sup> Avenue Southwest MNA area and that anaerobic biological degradation is occurring through iron reduction and methanogenesis (Ecology 2005).

## 5 REFERENCES

- Arcadis. 2012. B and D Yards Groundwater Remediation – Engineering Design Report. October 12.
- Arcadis. 2014. 2014 Revised Site Groundwater Monitoring Plan, Kinder Morgan Liquid Terminals. April 30.
- Arcadis. 2016. Groundwater Analytical Reduction Request. Kinder Morgan Harbor Island Terminal. February 11.
- Delta. 2007. Site-Wide Groundwater Compliance Monitoring Plan – Proposed Reduced Monitoring. June 21.
- Delta. 2008. Technical Revision Request – Low-Flow Groundwater Sampling. September 4.
- Ecology. 1999. Cleanup Action Plan. GATX Terminal Corporation Harbor Island. November 2.
- Ecology. 2000. Final Consent Decree No. 00-2-07760-2SEA. April 12.
- Ecology. 2005. Guidance on Remediation of Petroleum-Contaminated Ground Water by Natural Attenuation. July.
- Ecology. 2014. Email Approval of Revised Site Groundwater Monitoring Plan. August 13.
- KHM. 1999. Compliance Monitoring Plan. Kinder Morgan Liquid Terminals, LLC, Harbor Island Terminal. October 27.
- KHM. 2001. Groundwater Monitoring Report Third Quarter 2000. Kinder Morgan Liquid Terminals, LLC, Harbor Island Terminal. January.
- KHM. 2002. Annual Groundwater Monitoring Report, Second Quarter 2002. Kinder Morgan Liquid Terminals, LLC, Harbor Island Terminal. December.

# TABLES





**Table 1**  
**Monitoring Well Compliance Status**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Location	Date of Last SPH or Sheen Observation	Date of Last Exceedance of SSCL	Constituent(s)	Comments
A-4	A Yard	05/23/11	--	--	SPH Skimmer
A-5	A Yard	09/15/03	03/28/18	GRO	
A-6	A Yard	10/01/19	--	--	SPH Skimmer, EFR, PR
A-8	A Yard	11/18/03	--	--	
A-10	A Yard	05/10/04	06/07/05	DRO	
A-11	A Yard	09/19/05	--	--	
A-12	A Yard	03/08/05	--	--	
A-14R	A Yard	09/19/05	12/14/04	Total Lead	
A-16	A Yard	10/19/20	--	--	SPH, EFR, PR
A-18	A Yard	09/19/05	--	--	
A-19	13th Ave	09/11/06	--	--	EFR
A-20	13th Ave	09/19/05	05/25/11	GRO	
A-21	13th Ave	05/20/02	08/25/12	GRO	
A-22R	13th Ave	10/12/05	05/25/11	GRO, Benzene	EFR
A-23R	13th Ave	Never	12/11/07	Benzene	
A-25	A Yard	11/15/10	06/16/11	GRO, Benzene	
A-26R	13th Ave	09/19/05	05/25/11	GRO, Benzene	EFR
A-27	13th Ave	12/18/00	10/22/20	GRO	
A-28R	13th Ave	Never	10/22/20	GRO	
11	B Yard	Never	--	--	ABOX
12	B Yard	03/28/17	10/21/20	GRO, Benzene, Total Lead	ABOX
MW-1	E Yard	Never	11/05/02	Total Lead	
MW-2	13th Ave	Never	06/08/10	Total Lead	
MW-3	C Yard	Never	10/02/19	Total Lead	
MW-4	11th Ave	12/13/04	09/21/05	DRO	
MW-5	D Yard	Never	04/09/13	Total Lead	
MW-6	13th Ave	12/18/00	12/13/05	GRO	
MW-7	B Yard	11/16/09	10/03/19	GRO	ABOX
MW-8	B Yard	05/20/02	10/21/20	Total Lead	
MW-9	B Yard	05/23/11	10/04/18	Total Lead	
MW-12R	11th Ave	Never	08/26/04	Benzene	
MW-14	D Yard	Never	10/11/16	GRO	
MW-16	13th Ave	Never	--	--	
MW-17	13th Ave	Never	--	--	
MW-18	13th Ave	Never	06/08/06	GRO, Benzene	
MW-19	D Yard	05/20/02	10/02/19	GRO	ABOX
MW-20	C Yard	Never	09/25/01	Benzene	
MW-21	B Yard	03/01/12	09/22/09	GRO	
MW-22	13th Ave	Never	11/05/02	Benzene	
MW-23	13th Ave	08/29/11	10/22/20	GRO, Benzene	EFR
MW-24	13th Ave	08/29/11	10/22/20	GRO, Benzene	EFR
MW-25	A Yard	02/24/04	09/20/05	Total Lead	
SH-02R	11th Ave	Never	09/16/03	Total Lead	
SH-04	13th Ave	Never	--	--	
SH-05	11th Ave	Never	12/20/00	Total Lead	

**Table 1**  
**Monitoring Well Compliance Status**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Location	Date of Last SPH or Sheen Observation	Date of Last Exceedance of SSCL	Constituent(s)	Comments
SH-05R	11th Ave	11/18/03	12/15/04	DRO	
MW-07R	11th Ave	Never	09/13/06	Total Lead	
TMW-B1	13th Ave	Never	10/22/20	GRO, Benzene	
TMW-1	D Yard	Never	09/29/15	GRO	ABOX
TMW-2	D Yard	Never	--	--	ABOX
TMW-3	B Yard	Never	10/04/18	GRO	ABOX
TMW-4	B Yard	Never	10/20/20	GRO	ABOX
TMW-5	B Yard	Never	04/03/19	GRO	ABOX
TMW-6	B Yard	Never	10/21/20	GRO	ABOX

**Notes:**

Shading indicates SPH observance or SSCL exceedance in 2020

-- = No data/not applicable

ABOX = Sulfate application area

DRO = Diesel range organics

EFR = Enhanced fluids recovery, pilot test

GRO = Gasoline range organics

PR = Passive recovery absorbent sock

SSCL = Site-specific cleanup level

SPH = Separate phase hydrocarbons

**Table 2**  
**Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet BTOC)	SPH Thickness (feet)	Groundwater Elevation <sup>1</sup> (feet)
A-4	03/25/20	13.22	6.71	--	6.51
	10/19/20	13.22	7.10	--	6.12
A-5	03/25/20	14.13	7.52	--	6.61
	10/19/20	14.13	7.89	--	6.24
A-6	03/25/20	12.81	6.44	--	6.37
	10/19/20	12.81	6.81	--	6.00
A-8	03/25/20	14.61	7.63	--	6.98
	10/19/20	14.61	7.97	--	6.64
A-10	03/25/20	13.51	6.69	--	6.82
	10/19/20	13.51	7.02	--	6.49
A-11	03/25/20	14.40	7.51	--	6.89
	10/19/20	14.40	7.87	--	6.53
A-12	03/25/20	12.95	6.31	--	6.64
	10/19/20	12.95	6.65	--	6.30
A-14R	03/25/20	14.21	7.43	--	6.78
	10/19/20	14.21	7.76	--	6.45
A-16	03/25/20	14.39	7.69	--	6.70
	10/19/20	14.39	8.03	0.01	6.37
A-18	03/25/20	14.74	7.85	--	6.89
	10/19/20	14.74	8.21	--	6.53
A-19	03/25/20	14.57	7.79	--	6.78
	10/19/20	14.57	8.14	--	6.43
A-20	03/25/20	14.19	7.42	--	6.77
	10/19/20	14.19	7.78	--	6.41
A-21	03/25/20	14.35	7.53	--	6.82
	10/19/20	14.35	7.89	--	6.46
A-22R	03/25/20	14.11	7.29	--	6.82
	10/19/20	14.11	7.65	--	6.46
A-23R <sup>2</sup>	--	15.57	--	--	--
	10/19/20	15.57	9.13	--	6.44
A-25	03/25/20	13.90	7.13	--	6.77
	10/19/20	13.90	7.56	--	6.34
A-26R	03/25/20	14.19	7.35	--	6.84
	10/19/20	14.19	7.75	--	6.44
A-27	03/25/20	17.22	10.23	--	6.99
	10/19/20	17.22	10.74	--	6.48
A-28R	03/25/20	14.93	7.70	--	7.23
	10/19/20	14.93	8.33	--	6.60
11	03/25/20	12.08	3.86	--	8.22
	10/19/20	12.08	4.79	--	7.29
12	03/25/20	9.79	1.50	--	8.29
	10/19/20	9.79	2.35	--	7.44
MW-1	03/25/20	13.21	5.07	--	8.14
	10/19/20	13.21	5.89	--	7.32
MW-2	03/25/20	15.22	6.43	--	8.79
	10/19/20	15.22	7.63	--	7.59

**Table 2**  
**Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet BTOC)	SPH Thickness (feet)	Groundwater Elevation <sup>1</sup> (feet)
MW-3	03/25/20	11.39	2.44	--	8.95
	10/19/20	11.39	3.57	--	7.82
MW-4	03/25/20	14.69	6.02	--	8.67
	10/19/20	14.69	6.79	--	7.90
MW-5	03/25/20	11.13	2.21	--	8.92
	10/19/20	11.13	3.25	--	7.88
MW-6	03/25/20	15.17	6.34	--	8.83
	10/19/20	15.17	7.57	--	7.60
MW-7	03/25/20	10.62	2.03	--	8.59
	10/19/20	10.62	3.05	--	7.57
MW-8	03/25/20	10.63	3.18	--	7.45
	10/19/20	10.63	3.71	--	6.92
MW-9	03/25/20	9.75	2.36	--	7.39
	10/19/20	9.75	3.02	--	6.73
MW-12R	03/25/20	15.47	7.08	--	8.39
	10/19/20	15.47	7.74	--	7.73
MW-14	03/25/20	11.44	2.56	--	8.88
	10/19/20	11.44	3.65	--	7.79
MW-16	03/25/20	15.23	6.22	--	9.01
	10/19/20	15.23	7.56	--	7.67
MW-18	03/25/20	15.49	6.33	--	9.16
	10/19/20	15.49	7.52	--	7.97
MW-19	03/25/20	11.39	2.11	--	9.28
	10/19/20	11.39	3.32	--	8.07
MW-20	03/25/20	11.72	2.75	--	8.97
	10/19/20	11.72	3.50	--	8.22
MW-21	03/25/20	9.41	2.55	--	6.86
	10/19/20	9.41	2.99	--	6.42
MW-22	03/25/20	16.32	7.41	--	8.91
	10/19/20	16.32	8.68	--	7.64
MW-23	03/25/20	14.15	7.29	--	6.86
	10/19/20	14.15	7.66	--	6.49
MW-24	03/25/20	14.34	7.29	--	7.05
	10/19/20	14.34	7.66	--	6.68
MW-25	03/25/20	13.05	7.11	--	5.94
	10/19/20	13.05	7.47	--	5.58
SH-02R	03/25/20	13.40	4.90	--	8.50
	10/19/20	13.40	5.69	--	7.71
SH-05R	03/25/20	13.89	6.70	--	7.19
	10/19/20	13.89	7.18	--	6.71
MW-07R	03/25/20	13.92	5.82	--	8.10
	10/19/20	13.92	6.54	--	7.38
TMW-B1	03/25/20	--	7.12	--	--
	10/19/20	--	8.24	--	--
TMW-1	03/25/20	--	2.53	--	--
	10/19/20	--	3.77	--	--

**Table 2**  
**Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet)	Depth to Groundwater (feet BTOC)	SPH Thickness (feet)	Groundwater Elevation <sup>1</sup> (feet)
TMW-2	03/25/20	--	2.74	--	--
	10/19/20	--	3.86	--	--
TMW-3	03/25/20	--	2.88	--	--
	10/19/20	--	3.96	--	--
TMW-4	03/25/20	--	2.66	--	--
	10/19/20	--	3.64	--	--
TMW-5	03/25/20	--	2.55	--	--
	10/19/20	--	3.65	--	--
TMW-6	03/25/20	--	2.01	--	--
	10/19/20	--	2.71	--	--

**Notes:**

-- = not measured/not applicable

BTOC = below top of casing (TOC); depth to groundwater measured from TOC

SPH = separate phase hydrocarbons

1. Prior to the September 2003 monitoring event, TOC elevations were relative to National Geodetic Vertical Datum (N.G.V.D.) 1929 TIDAL 2 (survey benchmark elev=10.617). All TOC elevations were resurveyed in July 2003, relative to North American Vertical Datum (N.A.V.D.) 1988 with modified benchmark elevations to account for shifts from February 2001 earthquake.

2. A-23R was inaccessible during the first semiannual groundwater monitoring event and therefore not gauged.

**Table 3**  
**Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO, SGC mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>	<b>0.0058</b>
A-5	03/27/20	<0.500	--	--	<b>0.00195</b>	<b>0.00146</b>	<0.00100	<0.00300	--	--
	10/23/20	<b>0.585 B</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-8	10/23/20	<b>0.249 B</b>	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-10	10/23/20	<0.100	<b>0.704</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-14R	10/23/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
A-21	03/27/20	<0.500	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/23/20	<b>0.201 B</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
A-23R	10/19/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-27	03/27/20	<b>0.950 B</b>	--	--	<b>0.0135</b>	<0.00100	<b>0.0277</b>	<b>0.00357</b>	--	--
	10/22/20	<b>1.73 B</b>	--	--	<b>0.0185</b>	<b>0.00123</b>	<0.00100	<b>0.00315</b>	--	--
A-28R	03/26/20	<b>1.96</b>	--	--	<b>0.00593</b>	<0.00100	<b>0.0740</b>	<b>0.00677</b>	--	--
	10/22/20	<b>3.72</b>	--	--	<b>0.0398</b>	<b>0.00334</b>	<b>0.0538</b>	<b>0.00876</b>	<0.00500	<0.00500
11	03/26/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/20/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
12	03/26/20	<b>0.520</b>	--	--	<b>0.00213</b>	<b>0.00132</b>	<b>0.00808</b>	<b>0.0141</b>	--	--
	10/21/20	<b>2.73</b>	<b>1.57</b>	<0.250	<b>0.116</b>	<b>0.00918</b>	<b>0.0913</b>	<b>0.0490</b>	<b>0.0239</b>	<0.00500
MW-1	10/22/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-2	10/21/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-3	10/22/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-4	10/20/20	<b>0.217 B</b>	<b>0.929</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-5	10/19/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-6	10/22/20	<b>0.250 B</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-7	03/26/20	<b>0.394</b>	--	--	<0.00100	<0.00100	<b>0.00853</b>	<b>0.00701</b>	--	--
	10/20/20	<b>0.173 B</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-7 (DUP)	10/20/20	<b>0.119 B</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-07R	10/20/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-8	10/21/20	<0.100	<b>0.290</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<b>0.0130</b>	<0.00500
MW-9	03/26/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/21/20	<b>0.130 B</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-12R	10/20/20	<b>0.103 B</b>	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
MW-14	10/19/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-16	10/22/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-18	03/27/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/21/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-19	03/25/20	<b>0.276</b>	--	--	<b>0.00107</b>	<0.00100	<b>0.00863</b>	<0.00300	--	--
	10/20/20	<b>0.856</b>	--	--	<b>0.00409</b>	<0.00100	<0.00100	<0.00300	--	--
MW-20	10/21/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--

**Table 3**  
**Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO, SGC mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>	<b>0.0058</b>
MW-21	03/26/20	<0.500	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/21/20	<b>0.188</b>	<b>1.67</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-21 (DUP)	03/26/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/21/20	<b>0.281 B</b>	<b>2.21</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-22	10/21/20	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-23	03/27/20	<b>1.66</b>	--	--	<b>0.258</b>	<b>0.00539</b>	<b>0.00555</b>	<0.0150	--	--
	10/22/20	<b>3.77</b>	--	--	<b>0.309</b>	<b>0.00859</b>	<b>0.00968</b>	<0.0150	<0.00500	<0.00500
MW-23 (DUP)	03/27/20	<b>1.60</b>	--	--	<b>0.305</b>	<b>0.00562</b>	<b>0.00635</b>	<b>0.00662</b>	--	--
MW-24	03/27/20	<b>2.15</b>	--	--	<b>0.222</b>	<0.010	<b>0.144</b>	<b>0.0412</b>	--	--
	10/22/20	<b>9.00</b>	--	--	<b>0.859</b>	<b>0.0371</b>	<b>0.708</b>	<b>0.244</b>	<0.00500	<0.00500
MW-25	10/23/20	<0.100	<b>0.633</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
SH-02R	10/21/20	<b>0.220 B</b>	<b>0.252</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
SH-05R	10/21/20	<b>0.180 B</b>	<b>0.314</b>	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500
TMW-B1	10/22/20	<b>6.00</b>	--	--	<b>0.0796</b>	<b>0.00869</b>	<b>0.0293</b>	<b>0.0124</b>	--	--
TMW-1	03/25/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/20/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
TMW-2	03/25/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/20/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
TMW-3	03/26/20	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	10/20/20	<b>0.136 B</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
TMW-4	03/26/20	<b>1.35</b>	--	--	<b>0.00132</b>	<b>0.00324</b>	<b>0.275</b>	<b>0.00576</b>	--	--
	10/20/20	<b>2.49 B</b>	--	--	<0.00500	<0.00500	<b>0.00512</b>	<0.0150	--	--
TMW-5	03/26/20	<b>0.316</b>	--	--	<0.00100	<0.00100	<b>0.00506</b>	<0.00300	--	--
	10/20/20	<b>0.790</b>	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
TMW-6	03/26/20	<b>2.16</b>	--	--	<0.00100	<0.00100	<b>0.145</b>	<b>0.0812</b>	--	--
	10/21/20	<b>6.74</b>	--	--	<0.00100	<b>0.00123</b>	<b>0.300</b>	<b>0.313</b>	--	--

**Notes:**

-- = Not applicable/Sample not analyzed for this parameter

< = Denotes compound was not detected at designated detection limit.

**Bold** = Analyte detected at a concentration above the laboratory reporting limit

**Highlight** = Detected concentration above the Site-Specific Cleanup Level

mg/L = milligrams per liter (parts per million [ppm])

B = The same analyte is found in the associated blank.

N/A = Not applicable

SGC = A silica gel wash as performed on the solvent extract before analysis. Silica gel cleanup was completed for samples with TPH-DRO and TPH-HO detections above the method reporting limit. All samples analyzed since September 2015 were performed with SGC for all TPH-DRO and TPH-HO analysis.

1. Total Petroleum Hydrocarbons (TPH) as gasoline range organics (GRO) - Analysis by Washington Method WTPH-G prior to 5/20/98; analysis by Northwest Method NWTPH-Gx from 5/20/98 through present.

2. Total Petroleum Hydrocarbons (TPH) as diesel range organics (DRO) and heavy oil range organics (HO) - Analysis by Washington Method WTPH-D+ extended prior to 5/20/98; analysis by Northwest Method NWTPH-Dx from 5/20/98 through present.

3. Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) Compounds - Analysis by EPA Method 8020 prior to 5/20/98; analysis by EPA Method 8260B from 5/20/98 through present.

**Table 4**  
**Groundwater Geochemical Parameters**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	Dissolved Oxygen <sup>1</sup> mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L
A-5	03/27/20	0.17	--	--	--	--	--	--	--
	10/23/20	-- <sup>2</sup>	--	--	--	--	--	--	--
A-8	10/23/20	0.14	--	--	--	--	--	--	--
A-10	10/23/20	0.16	--	--	--	--	--	--	--
A-14R	10/23/20	0.11	--	--	--	--	--	--	--
A-21	03/27/20	0.25	--	--	--	--	--	--	--
	10/23/20	0.27	--	--	--	--	--	--	--
A-23R	10/19/20	0.22	--	--	--	--	--	--	--
A-27	03/27/20	0.21	--	--	--	--	--	<5.00	--
	10/22/20	0.34	<b>5.14</b>	--	--	<b>14.2 T8</b>	<0.100	<b>46.2</b>	<0.0500
A-28R	03/26/20	0.18	--	--	--	--	--	--	--
	10/22/20	0.07	<b>4.46</b>	--	--	<b>34.8 T8</b>	<0.100	<5.00	<0.0500
11	03/26/20	7.31	--	--	--	--	--	<b>408</b>	--
	10/20/20	4.01	--	--	--	--	--	<b>247</b>	--
12	03/26/20	0.66	--	--	--	--	--	<b>1,050</b>	--
	10/21/20	0.45	--	--	--	--	--	<b>1,270</b>	--
MW-1	10/22/20	0.10	--	--	--	--	--	--	--
MW-2	10/21/20	1.11	--	--	--	--	--	--	--
MW-3	10/22/20	4.84	--	--	--	--	--	--	--
MW-4	10/20/20	0.04	--	--	--	--	--	--	--
MW-5	10/19/20	1.37	--	--	--	--	--	--	--
MW-6	10/22/20	0.50	--	--	--	--	--	--	--
MW-7	03/26/20	0.18	--	--	--	--	--	<b>2,270</b>	--
	10/20/20	0.25	--	--	--	--	--	<b>681</b>	--
MW-7 (DUP)	10/20/20	0.25	--	--	--	--	--	<b>755</b>	--
MW-07R	10/20/20	0.17	--	--	--	--	--	--	--
MW-8	10/21/20	1.14	--	--	--	--	--	--	--
MW-9	03/26/20	5.24	--	--	--	--	--	<b>47.1</b>	--
	10/21/20	1.73	--	--	--	--	--	<b>16.1</b>	--
MW-12R	10/20/20	0.03	--	--	--	--	--	--	--
MW-14	10/19/20	2.42	--	--	--	--	--	--	--
MW-16	10/22/20	0.40	--	--	--	--	--	--	--
MW-18	03/27/20	0.25	--	--	--	--	--	--	--
	10/21/20	0.09	--	--	--	--	--	--	--
MW-19	03/25/20	0.29	--	--	--	--	--	<b>1,690</b>	--
	10/20/20	0.04	--	--	--	--	--	<b>557</b>	--
MW-20	10/21/20	0.18	--	--	--	--	--	--	--



**Table 4**  
**Groundwater Geochemical Parameters**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	Dissolved Oxygen <sup>1</sup> mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L
MW-21	03/26/20	0.96	--	--	--	--	--	--	--
	10/21/20	0.41	--	--	--	--	--	--	--
MW-21 (DUP)	03/26/20	0.96	--	--	--	--	--	--	--
	10/21/20	0.41	--	--	--	--	--	--	--
MW-22	10/21/20	0.10	--	--	--	--	--	--	--
MW-23	03/27/20	0.16	--	--	--	--	--	--	--
	10/22/20	0.09	<b>17.7</b>	--	--	<b>13.0 T8</b>	<b>0.105</b>	<5.00	<0.0500
MW-23 (DUP)	03/27/20	0.16	--	--	--	--	--	--	--
MW-24	03/27/20	0.32	--	--	--	--	--	--	--
	10/22/20	0.12	<b>18.7</b>	--	--	<b>55.2 T8</b>	<0.100	<5.00	<0.0500 J6
MW-25	10/23/20	0.07	--	--	--	--	--	--	--
SH-02R	10/21/20	0.08	--	--	--	--	--	--	--
SH-05R	10/21/20	0.14	--	--	--	--	--	--	--
TMW-B1	10/22/20	0.05	<b>10.8</b>	--	--	<b>12.1 T8</b>	<0.100	<5.00	<0.0500
TMW-1	03/25/20	9.59	--	--	--	--	--	<b>669</b>	--
	10/20/20	4.46	--	--	--	--	--	<b>331</b>	--
TMW-2	03/25/20	7.42	--	--	--	--	--	<b>1,390</b>	--
	10/20/20	0.03	--	--	--	--	--	<b>1,160</b>	--
TMW-3	03/26/20	0.21	--	--	--	--	--	<b>1,100</b>	--
	10/20/20	0.16	--	--	--	--	--	<b>912</b>	--
TMW-4	03/26/20	3.36	--	--	--	--	--	<b>1,520</b>	--
	10/20/20	0.15	--	--	--	--	--	<b>1,680</b>	--
TMW-5	03/26/20	0.21	--	--	--	--	--	<b>1,940</b>	--
	10/20/20	0.23	--	--	--	--	--	<b>1,210</b>	--
TMW-6	03/26/20	0.26	--	--	--	--	--	<b>3,720</b>	--
	10/21/20	0.20	--	--	--	--	--	<b>1,010</b>	--

**Notes:**

< = Denotes compound was not detected above the designated detection limit.

-- = Not applicable/Sample not analyzed for this parameter

**Bold** = Analyte detected at a concentration above the laboratory reporting limit

mg/L = milligrams per liter (parts per million)

J6 = The sample matrix interfered with the ability to make any accurate determination; spike value is low.

T8 = Sample was received by the lab outside the hold time for the analyte; value should be considered a minimum.

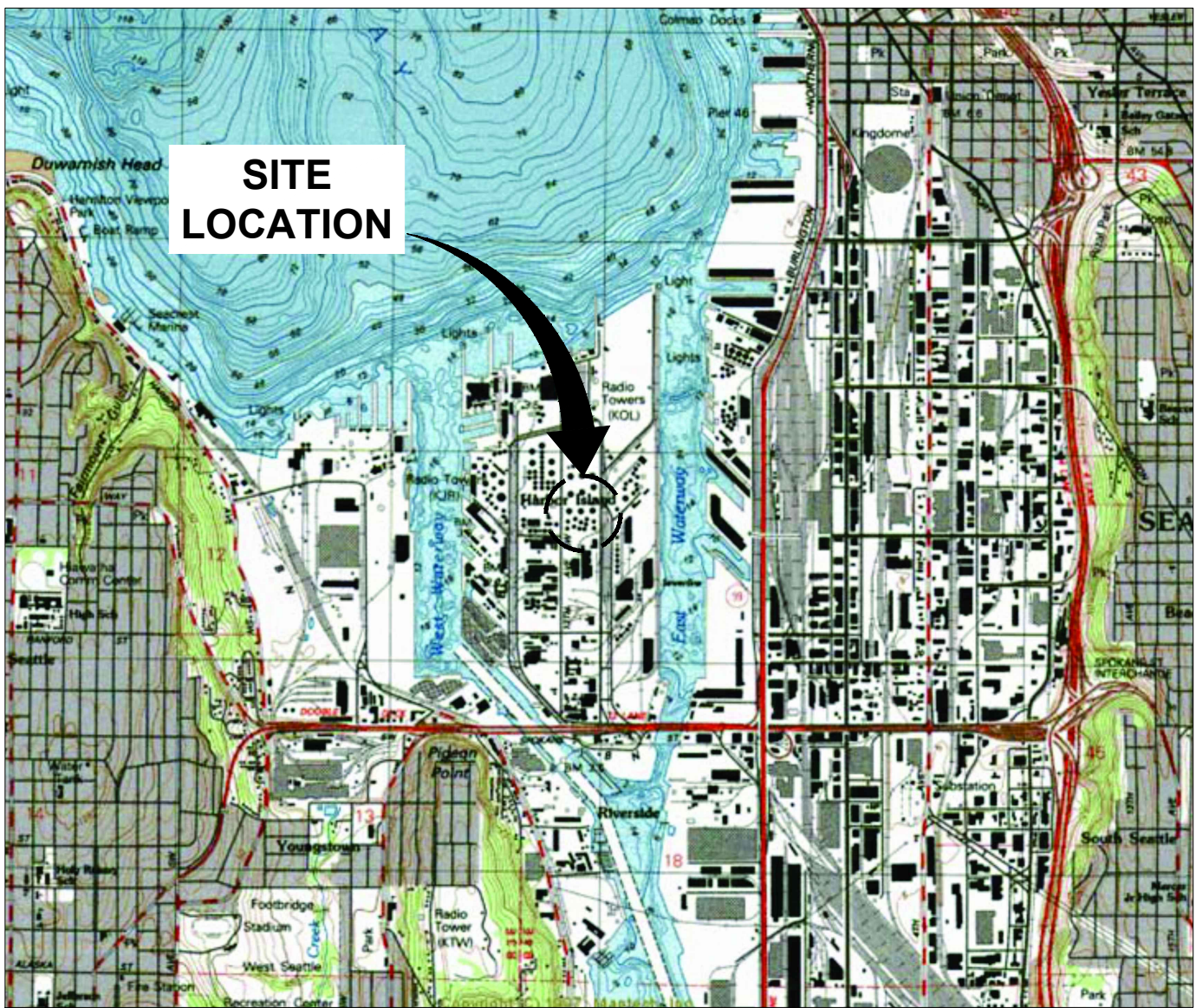
1. Dissolved oxygen measurements were collected in the field and reflect the final reading recorded following stabilization and prior to sample collection.

2. Dissolved oxygen was not recorded at this well due to a technical error with the data recording system.

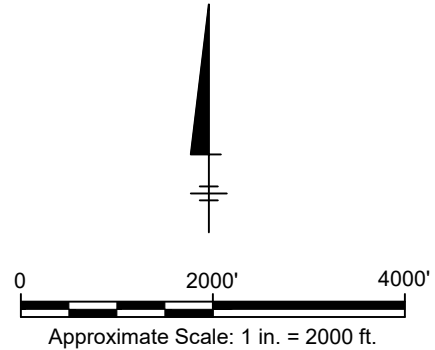
# FIGURES



CITY:\Reed\ DIV\GROUP\Reed\ DB\Reed\ LD\Opt\ PIC\Opt\ PM\Reed\ TM\Opt\ L\YR\Opt\ON\--OFF=REF-  
 C:\Users\machhi\1256\BIM\360\Arcadis\ANA - KINDER MORGAN ENERGY PARTNERS\Project Files\Harbor Island 2017\WDR\2020\30050809\01-DWG\2020-FIG01-SLM.dwg LAYOUT: 1 SAVED: 11/20/2020 1:51 PM ACADVER: 23.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ARCADIS.CTB  
 PLOTTED: 11/20/2020 1:36 PM BY: MACHHIWAR, RAVANEELA



REFERENCE: BASE MAP USGS 7.5. MINUTE TOPOGRAPHIC MAP SEATTLE SOUTH, WASHINGTON 1083



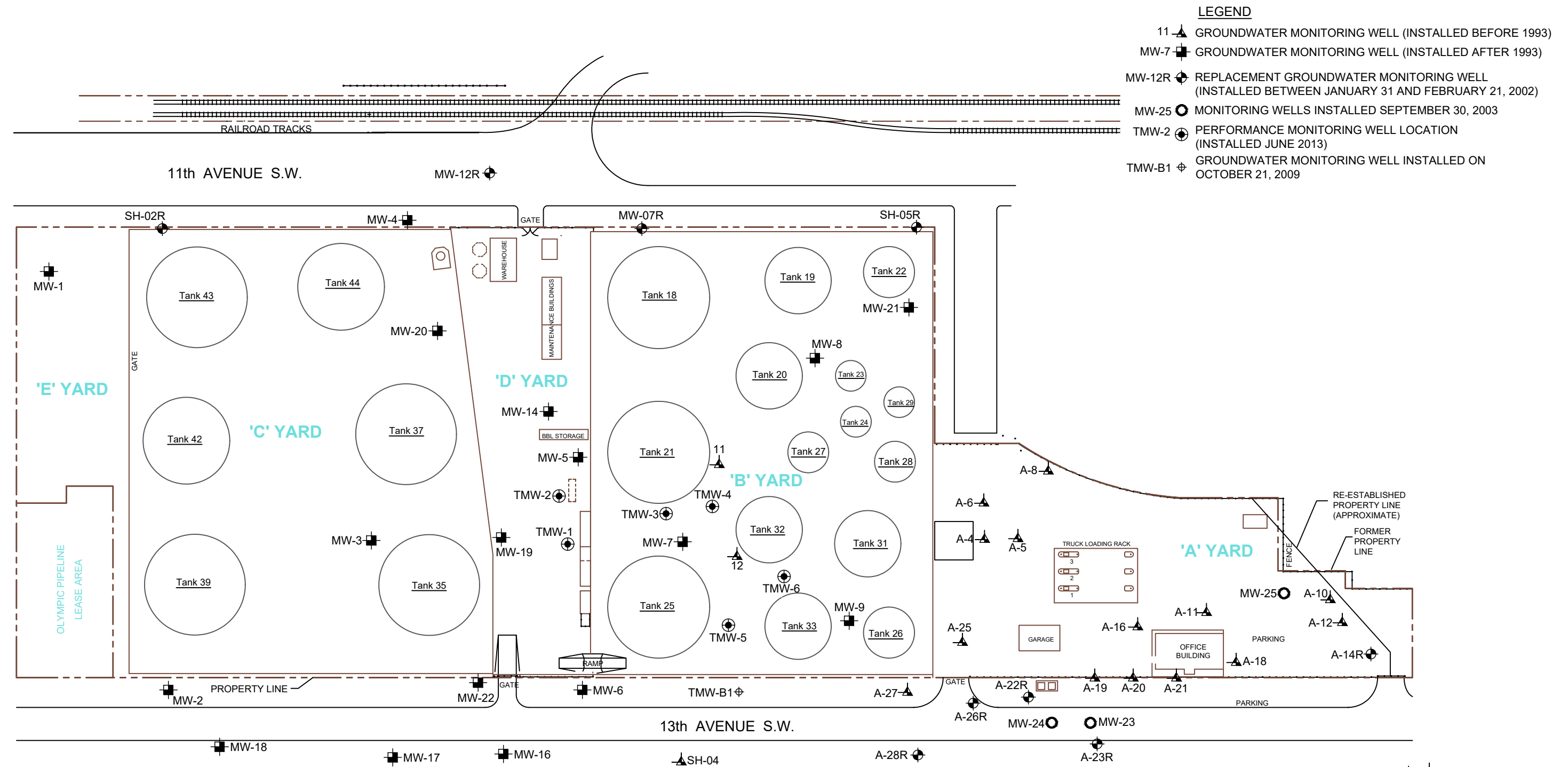
KINDER MORGAN LIQUIDS TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2020 ANNUAL GROUNDWATER MONITORING REPORT**

**SITE LOCATION MAP**

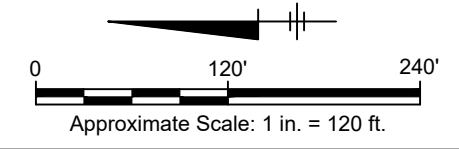


FIGURE  
**1**

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 PLOTTED: 11/20/2020 2:02 PM BY: MACHCHIHAR, RAVANEELA  
 XREFS: IMAGES: PROJECTNAME: X-SITEBASE WA000004



- LEGEND**
- 11 ▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
  - MW-7 ■ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
  - MW-12R ● REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
  - MW-25 ○ MONITORING WELLS INSTALLED SEPTEMBER 30, 2003
  - TMW-2 ⊕ PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
  - TMW-B1 ⊕ GROUNDWATER MONITORING WELL INSTALLED ON OCTOBER 21, 2009



KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2020 ANNUAL GROUNDWATER MONITORING REPORT**

**SITE PLAN**

**ARCADIS** Design & Consultancy for natural and built assets

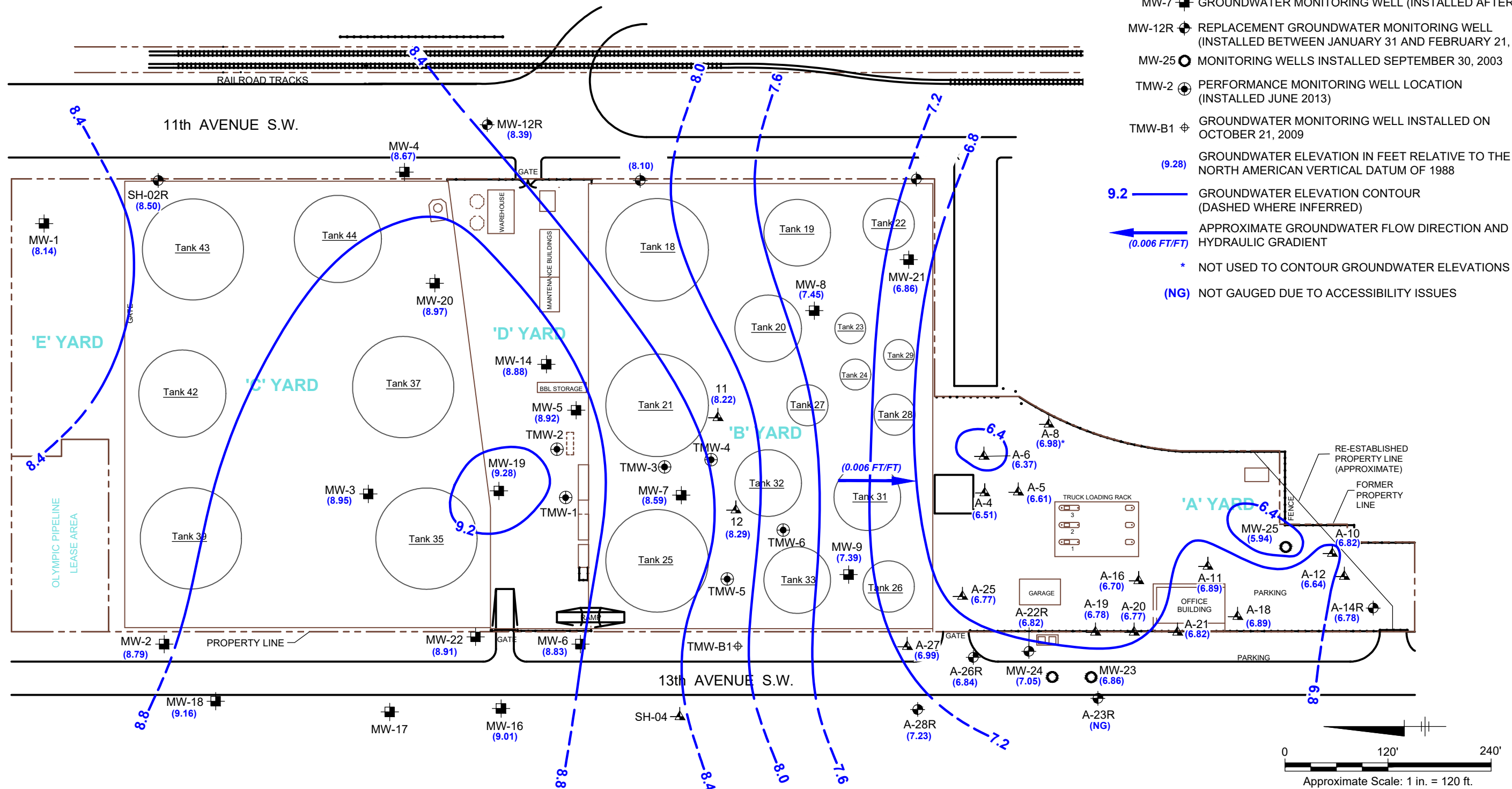
FIGURE **2**



CITY: (Red) DIV/GRP: (Red) DB: (Red) LD: (Red) PIC: (Red) PM: (Red) TM: (Red) LVR: (Red) OFF: (Red) REF: C:\Users\brayra\p3\6161M\360\Arcadis\ANA - KINDER MORGAN ENERGY PARTNERS\Project Files\Harbor Island 2017\MDR\2021\3005080901-DWG\GWM-2020-F04-GW ELEVATION CONTOURS.dwg LAYOUT: 4 SAVED: 2/9/2021 11:07 AM ACADVER: 23.15 (LMS TECH) PAGESETUP: ---- PLOT STYLE TABLE: ACAD.CTB PLOTTED: 2/9/2021 2:03 PM BY: BYRAPPA, BYRAPPEYD XREFS: IMAGES: PROJECTNAME: X-SITEBASE WA000004

**LEGEND**

- 11 ▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
- MW-7 ■ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
- MW-12R ● REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
- MW-25 ○ MONITORING WELLS INSTALLED SEPTEMBER 30, 2003
- TMW-2 ⊕ PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-B1 ⊕ GROUNDWATER MONITORING WELL INSTALLED ON OCTOBER 21, 2009
- (9.28) GROUNDWATER ELEVATION IN FEET RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988
- 9.2 ——— GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- ← (0.006 FT/FT) APPROXIMATE GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT
- \* NOT USED TO CONTOUR GROUNDWATER ELEVATIONS
- (NG) NOT GAUGED DUE TO ACCESSIBILITY ISSUES



KINDER MORGAN LIQUID TERMINALS, LLC  
HARBOR ISLAND TERMINAL  
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2020 ANNUAL GROUNDWATER MONITORING REPORT**

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**GROUNDWATER ELEVATION CONTOURS  
MARCH 25, 2020**

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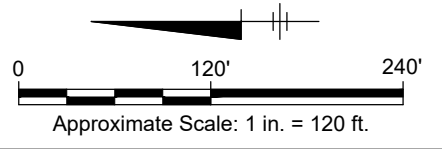
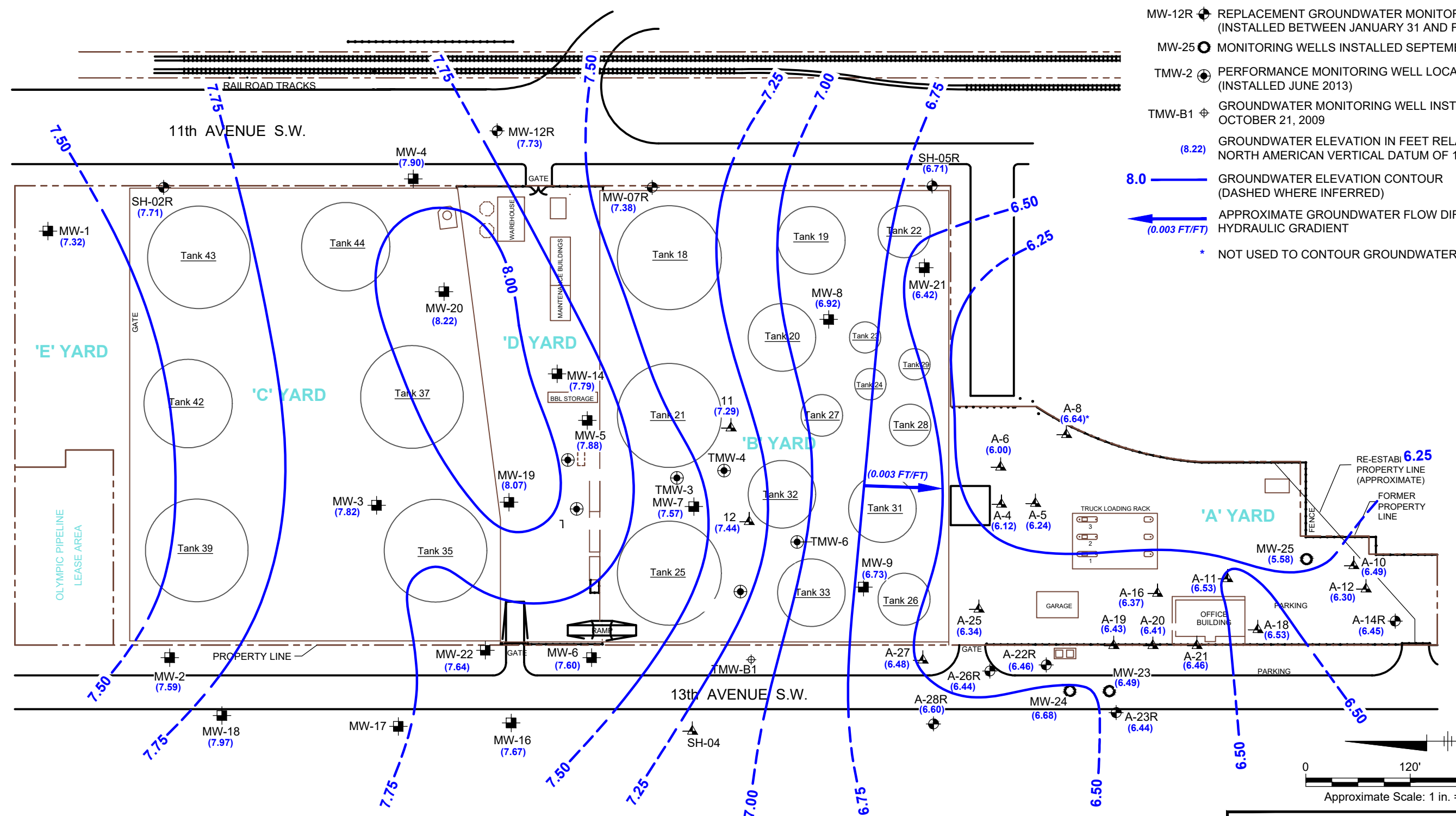

Design & Consultancy  
for natural and built assets

FIGURE  
**4**

CITY:\Redd\DIV\GROUP\Redd\DB\Redd\LD\Opt\PM\Redd\TM\Opt\LYR\Opt\ON\*OFF+REF  
 C:\Users\brapapa3461\BIM\360\Arcadis\ANA - KINDER MORGAN ENERGY PARTNERS\Project Files\Harbor Island 2017\WDR\2021\10\05\08\09\01-DWG\GWM-2020-F05-GW ELEVATION CONTOURS.dwg LAYOUT: 5 SAVED: 29/2021 11:05 AM ACADVER: 23.15 (LMS TECH) PAGESETUP: ----  
 PLOT STYLE TABLE: ACAD.CTB PLOTTED: 29/2021 11:05 AM BY: BYRAPPA, BYRAPREDDY  
 XREFS: IMAGES: PROJECTNAME: X-SITEBASE WA000004

**LEGEND**

- 11 ▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
- MW-7 ■ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
- MW-12R ● REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
- MW-25 ○ MONITORING WELLS INSTALLED SEPTEMBER 30, 2003
- TMW-2 ● PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-B1 ⊕ GROUNDWATER MONITORING WELL INSTALLED ON OCTOBER 21, 2009
- (8.22) GROUNDWATER ELEVATION IN FEET RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988
- 8.0 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- ← (0.003 FT/FT) APPROXIMATE GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT
- \* NOT USED TO CONTOUR GROUNDWATER ELEVATIONS



KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2020 ANNUAL GROUNDWATER MONITORING REPORT**

**GROUNDWATER ELEVATION CONTOURS**  
**OCTOBER 19, 2020**



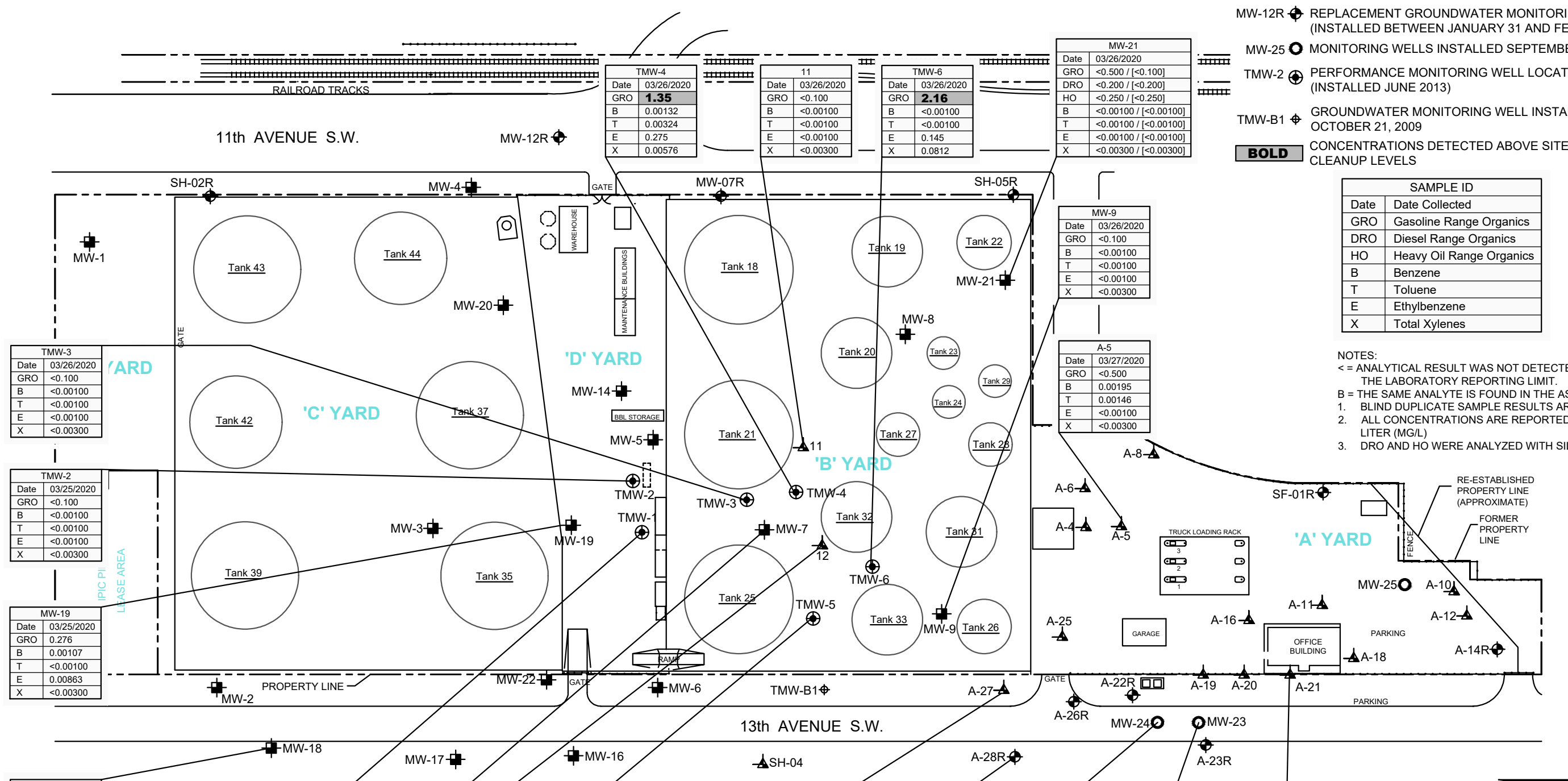
CITY:\Red\DIV\GROUP\Red\ DB\Red\ LD\Opt\ PIC\Opt\ PM\Red\ TM\Opt\ LVR\Opt\ON\*OFF=REF  
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**LEGEND**

- 11 ▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
- MW-7 ■ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
- MW-12R ● REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
- MW-25 ○ MONITORING WELLS INSTALLED SEPTEMBER 30, 2003
- TMW-2 ⊕ PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-B1 ⊕ GROUNDWATER MONITORING WELL INSTALLED ON OCTOBER 21, 2009
- BOLD** CONCENTRATIONS DETECTED ABOVE SITE-SPECIFIC CLEANUP LEVELS

SAMPLE ID	
Date	Date Collected
GRO	Gasoline Range Organics
DRO	Diesel Range Organics
HO	Heavy Oil Range Organics
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total Xylenes

- NOTES:**
- < = ANALYTICAL RESULT WAS NOT DETECTED, VALUE SHOWN IS THE LABORATORY REPORTING LIMIT.
  - B = THE SAME ANALYTE IS FOUND IN THE ASSOCIATED BLANK.
  - 1. BLIND DUPLICATE SAMPLE RESULTS ARE SHOWN IN BRACKETS.
  - 2. ALL CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER LITER (MG/L)
  - 3. DRO AND HO WERE ANALYZED WITH SILICA GEL CLEANUP.



TMW-3	
Date	03/26/2020
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-2	
Date	03/25/2020
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-19	
Date	03/25/2020
GRO	0.276
B	0.00107
T	<0.00100
E	0.00863
X	<0.00300

MW-18	
Date	03/27/2020
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-1	
Date	03/25/2020
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-7	
Date	03/26/2020
GRO	0.394
B	<0.00100
T	<0.00100
E	0.00853
X	0.00701

12	
Date	03/26/2020
GRO	0.520
B	0.00213
T	0.00132
E	0.00808
X	0.0141

TMW-5	
Date	03/26/2020
GRO	0.316
B	<0.00100
T	<0.00100
E	0.00506
X	<0.00300

A-27	
Date	03/27/2020
GRO	0.950 B
B	0.0135
T	<0.00100
E	0.0277
X	0.00357

A-28R	
Date	03/26/2020
GRO	<b>1.96</b>
B	0.00593
T	<0.00100
E	0.0740
X	0.00677

MW-24	
Date	03/27/2020
GRO	<b>2.15</b>
B	<b>0.222</b>
T	<0.010
E	0.144
X	0.0412

MW-23	
Date	03/27/2020
GRO	<b>1.66 / [1.60]</b>
B	<b>0.258 / [0.305]</b>
T	0.00539 / [0.00562]
E	0.00555 / [0.00635]
X	<0.0150 / [0.00662]

A-21	
Date	03/27/2020
GRO	<0.500
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-4	
Date	03/26/2020
GRO	<b>1.35</b>
B	0.00132
T	0.00324
E	0.275
X	0.00576

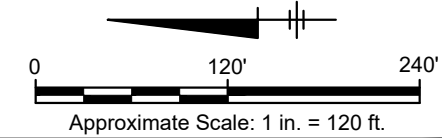
11	
Date	03/26/2020
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-6	
Date	03/26/2020
GRO	<b>2.16</b>
B	<0.00100
T	<0.00100
E	0.145
X	0.0812

MW-21	
Date	03/26/2020
GRO	<0.500 / [<0.100]
DRO	<0.200 / [<0.200]
HO	<0.250 / [<0.250]
B	<0.00100 / [<0.00100]
T	<0.00100 / [<0.00100]
E	<0.00100 / [<0.00100]
X	<0.00300 / [<0.00300]

MW-9	
Date	03/26/2020
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

A-5	
Date	03/27/2020
GRO	<0.500
B	0.00195
T	0.00146
E	<0.00100
X	<0.00300



KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2020 ANNUAL GROUNDWATER MONITORING REPORT**

**GROUNDWATER ANALYTICAL RESULTS - MARCH 2020**



CITY: (Read) DIV: (Group) (Read) DB: (Opt) LD: (Opt) PIC: (Opt) PM: (Read) TM: (Opt) LVR: (Opt) (ON) OFF = REF  
 C:\Users\1012\Desktop\Task\Harbor Island - 2020\3020-FG07-GWEAM.dwg LAYOUT: 7 - SAVED: 11/26/2020 4:22 PM ACADVER: 23.1S (LMS TECH) PAGES: 23 PLOTTED: 11/26/2020 4:28 PM BY: THORWATH, CHANDRAKANTH  
 XREFS: IMAGES: PROJECTNAME: -  
 X-SITEBASE WA00004

**LEGEND**

- 11-▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
- MW-7-■ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
- MW-12R-● REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
- MW-25-○ MONITORING WELLS INSTALLED SEPTEMBER 30, 2003
- TMW-2-⊕ PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-B1-⊕ GROUNDWATER MONITORING WELL INSTALLED ON OCTOBER 21, 2009
- BOLD** CONCENTRATIONS DETECTED ABOVE SITE-SPECIFIC CLEANUP LEVELS

**NOTES:**  
 < = ANALYTICAL RESULT WAS NOT DETECTED, VALUE SHOWN IS THE LABORATORY REPORTING LIMIT.  
 1. BLIND DUPLICATE SAMPLE RESULTS ARE SHOWN IN BRACKETS.  
 2. ALL CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER LITER (MG/L)  
 3. DRO AND HO WERE ANALYZED WITH SILICA GEL CLEANUP.

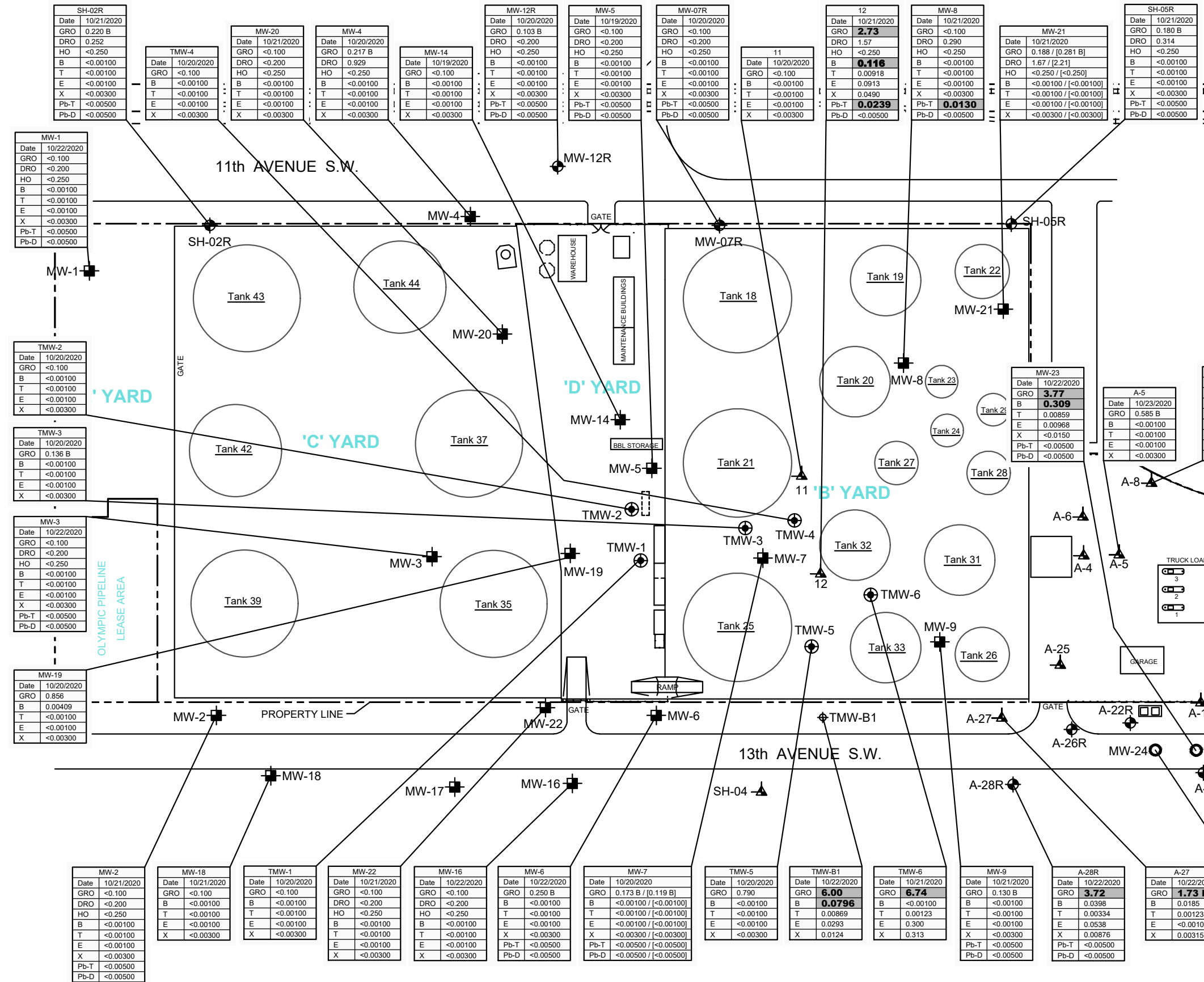
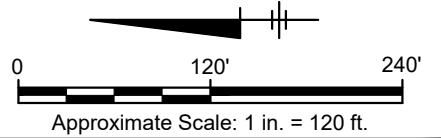
SAMPLE ID	
Date	Date Collected
GRO	Gasoline Range Organics
DRO	Diesel Range Organics
HO	Heavy Oil Range Organics
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total Xylenes
Pb-T	Total Lead
Pb-D	Dissolved Lead

MW-25	
Date	10/23/2020
GRO	<0.100
DRO	0.633
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00500
Pb-D	<0.00500

A-10	
Date	10/23/2020
GRO	<0.100
DRO	0.704
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

A-14R	
Date	10/23/2020
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00500
Pb-D	<0.00500

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Pb-T	<0.00500
Pb-D	<0.00500



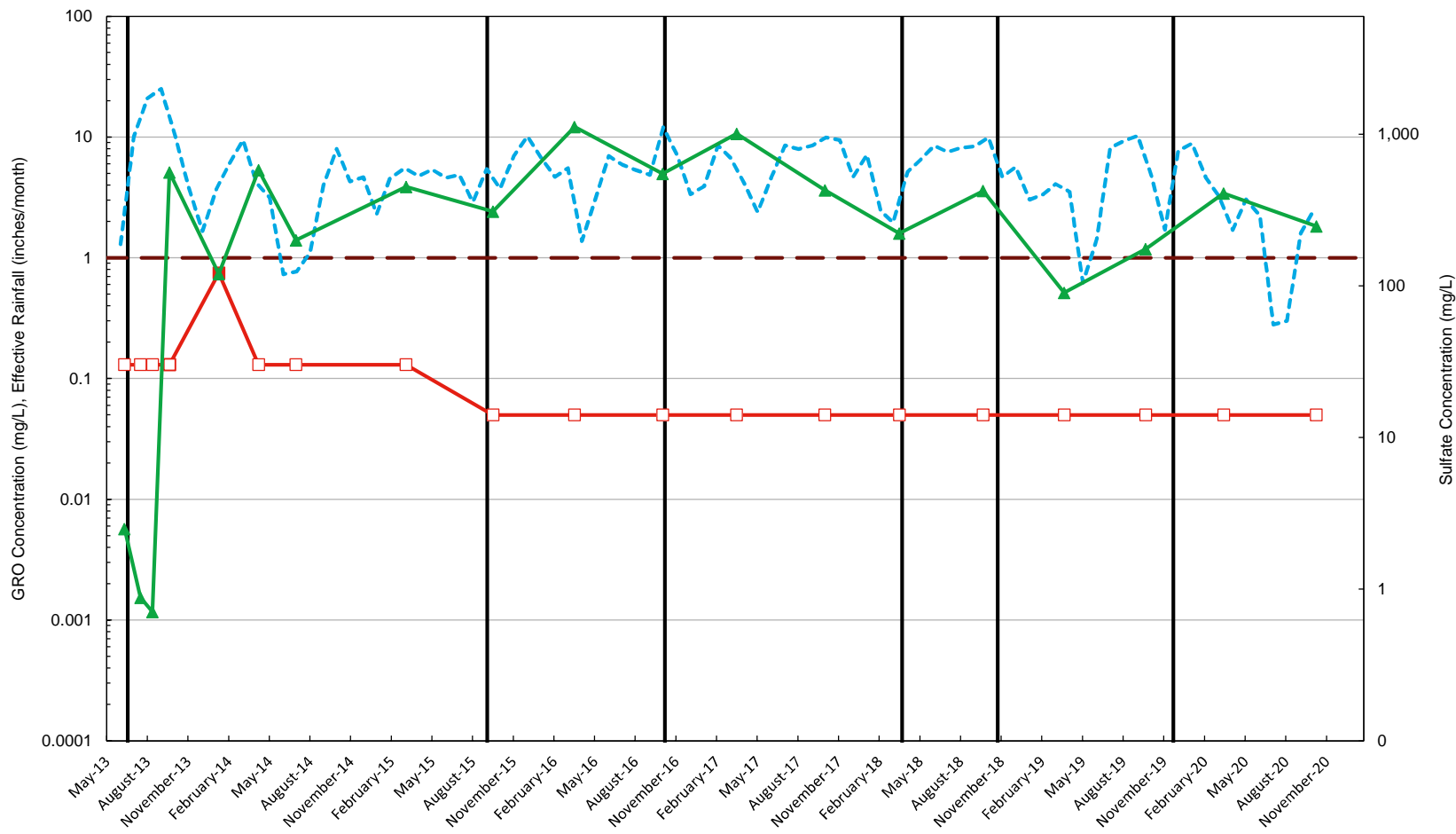
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**GROUNDWATER ANALYTICAL RESULTS - OCTOBER 2020**



# GRAPHS

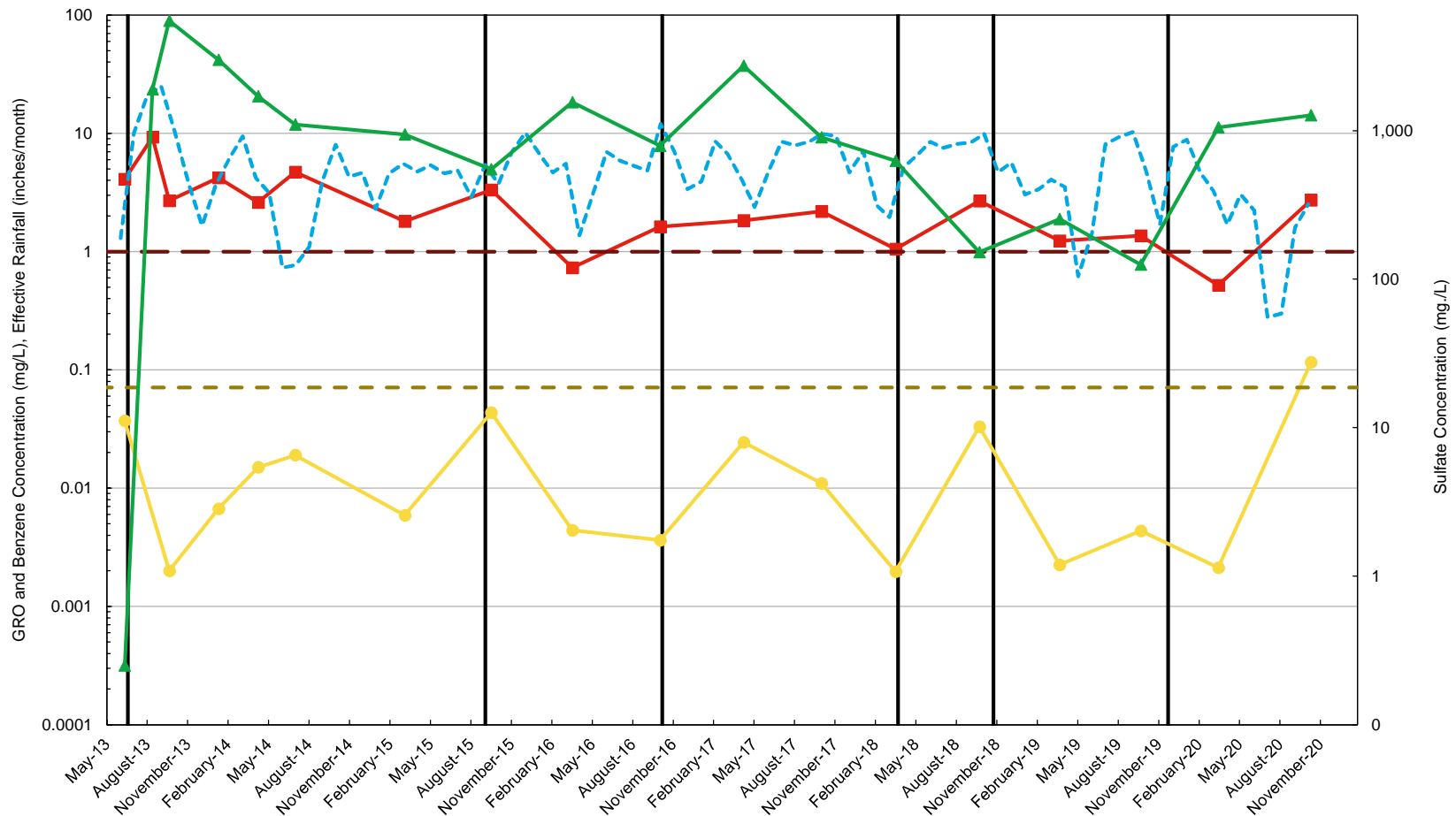




- Sulfate Land Application
- GRO
- Site-Specific Cleanup Level; GRO
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

KINDER MORGAN LIQUID TERMINALS, LLC HARBOR ISLAND TERMINAL 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON <b>GROUNDWATER MONITORING REPORT</b>	
<b>11 CONSTITUENT TREND PLOT</b>	
<b>ARCADIS</b>	Design & Consultancy for natural and built assets
GRAPH <b>1</b>	



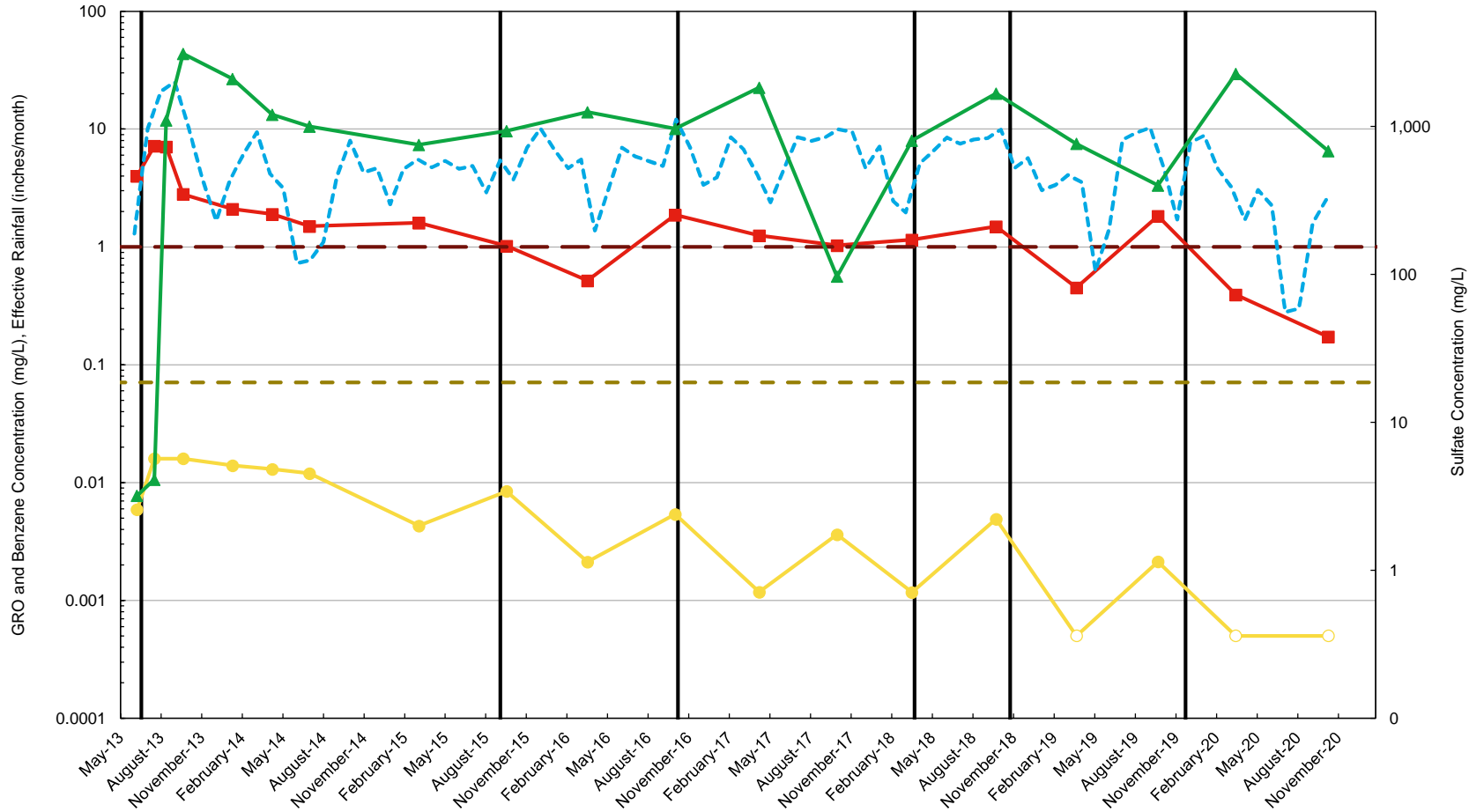
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- Benzene
- Site-Specific Cleanup Level; Benzene
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter

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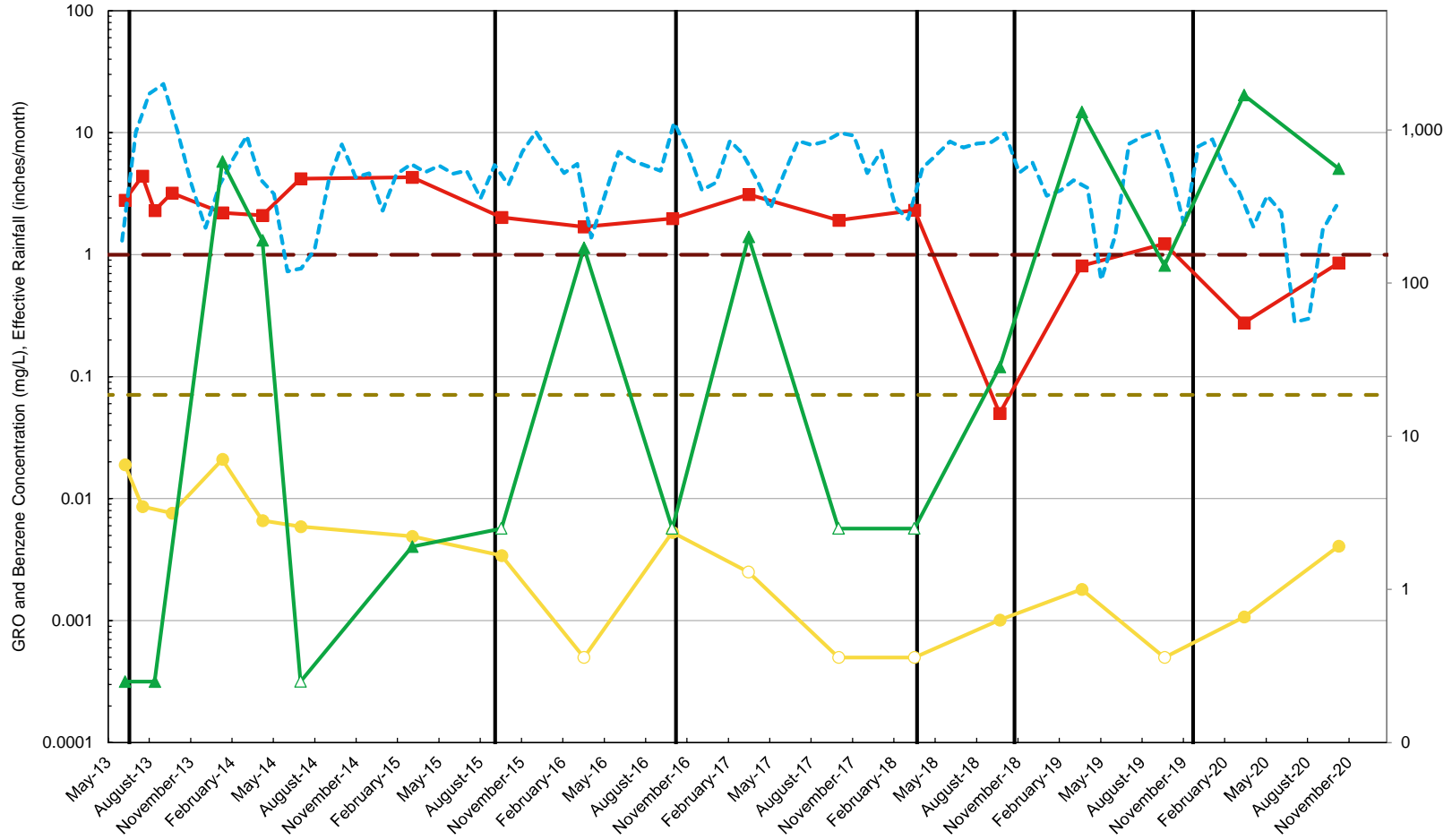
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- Site-Specific Cleanup Level; GRO
- Benzene
- Site-Specific Cleanup Level; Benzene
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

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**MW-7 CONSTITUENT TREND PLOT**





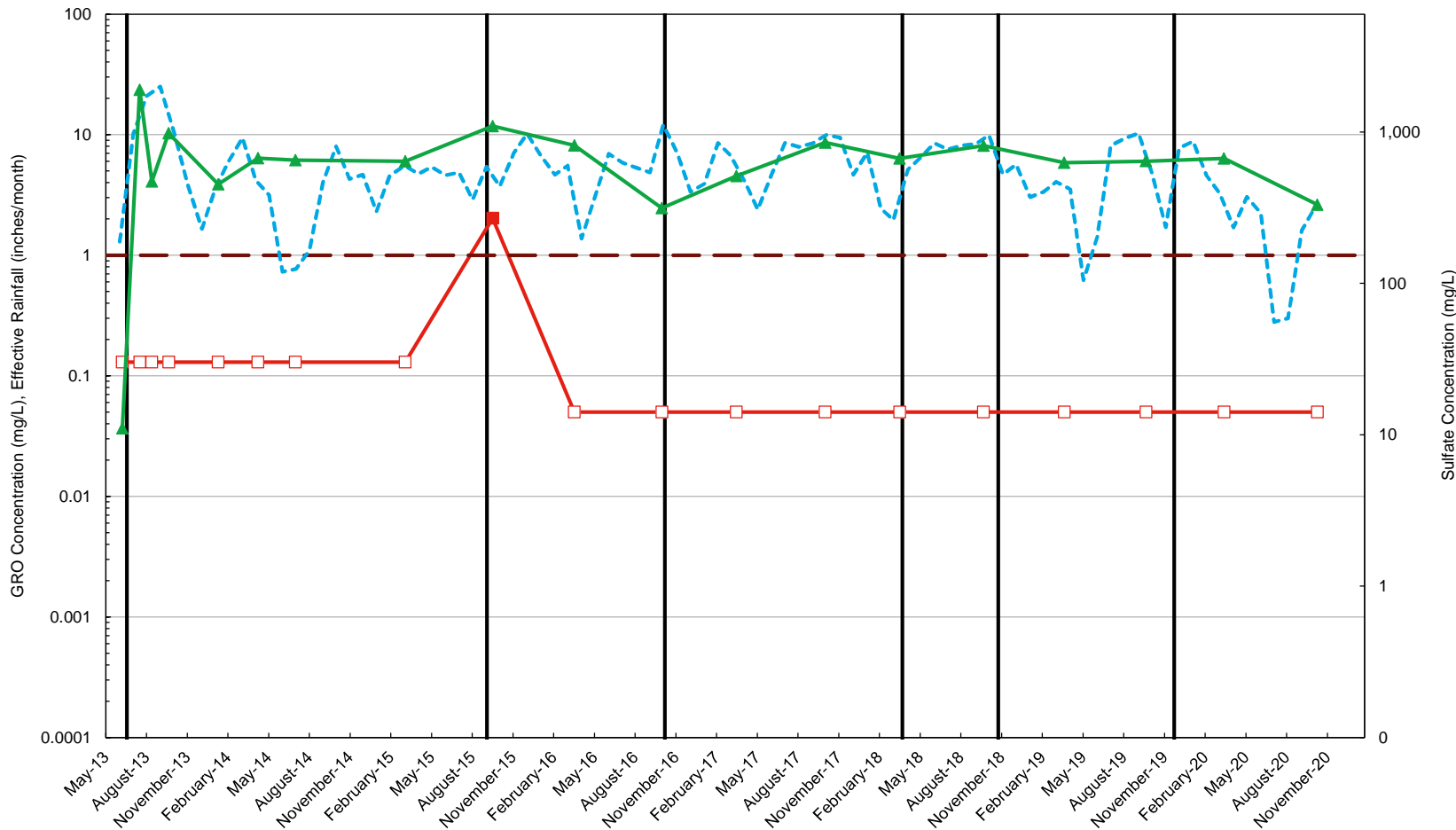
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- Site-Specific Cleanup Level; GRO
- Benzene
- Site-Specific Cleanup Level; Benzene
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
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 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

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**MW-19 CONSTITUENT TREND PLOT**





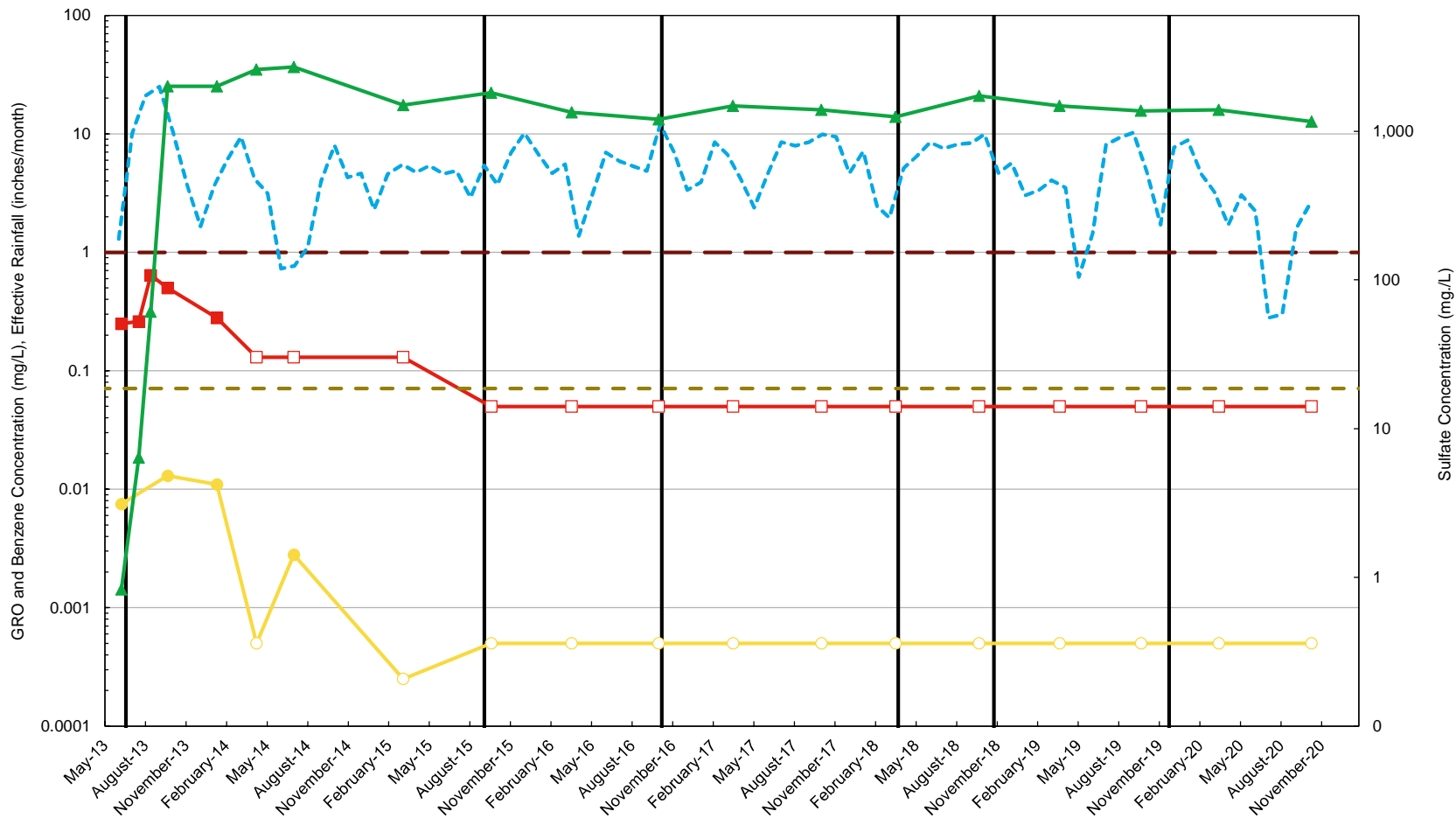
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- GRO
- Site-Specific Cleanup Level; GRO
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲— Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
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**TMW-1 CONSTITUENT TREND PLOT**

	Design & Consultancy for natural and built assets	GRAPH
		5



- Sulfate Land Application
- GRO
- Site-Specific Cleanup Level; GRO
- Benzene
- Site-Specific Cleanup Level; Benzene
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

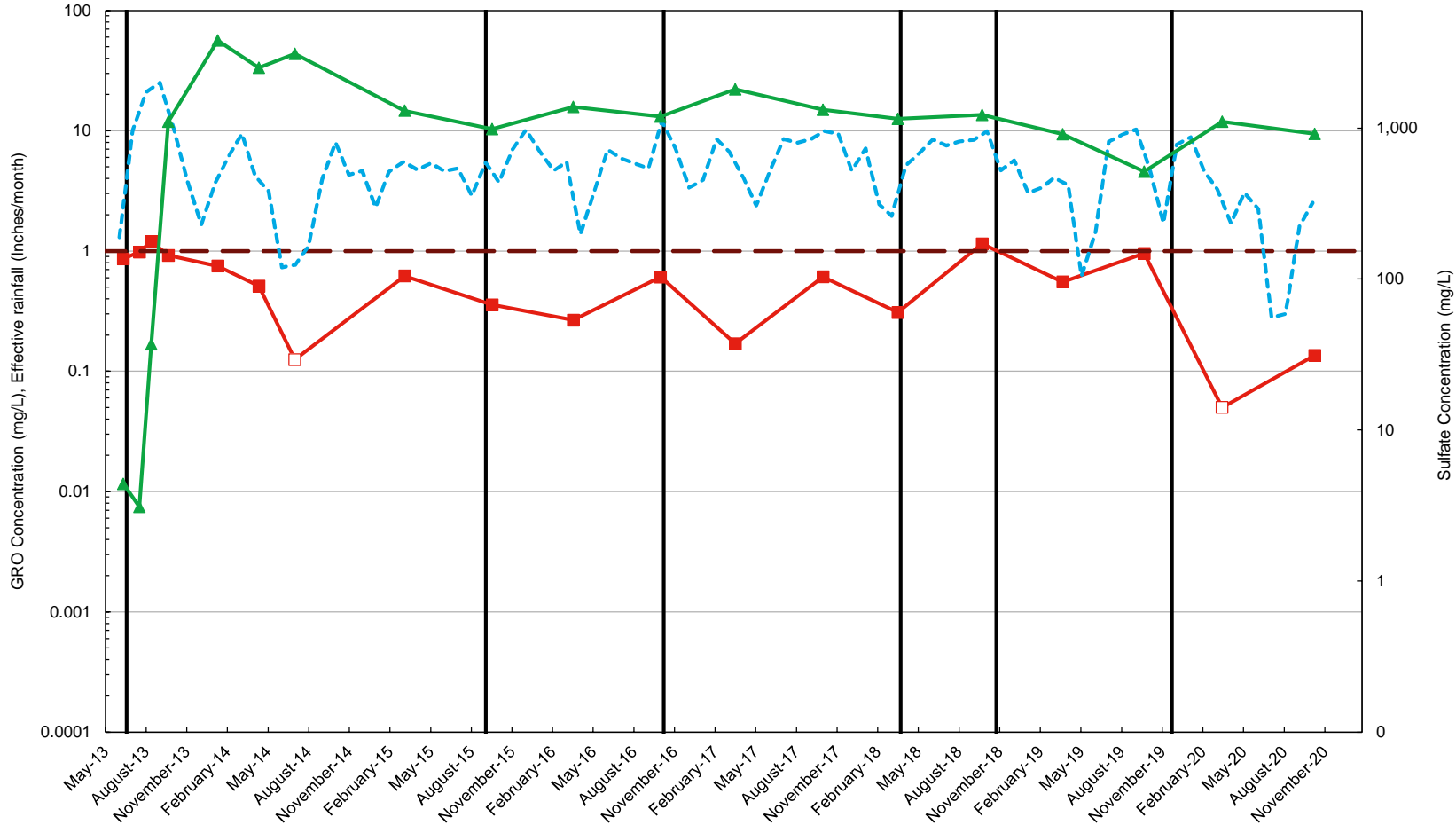
Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

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**TMW-2 CONSTITUENT TREND PLOT**

	Design & Consultancy for natural and built assets	GRAPH
		6





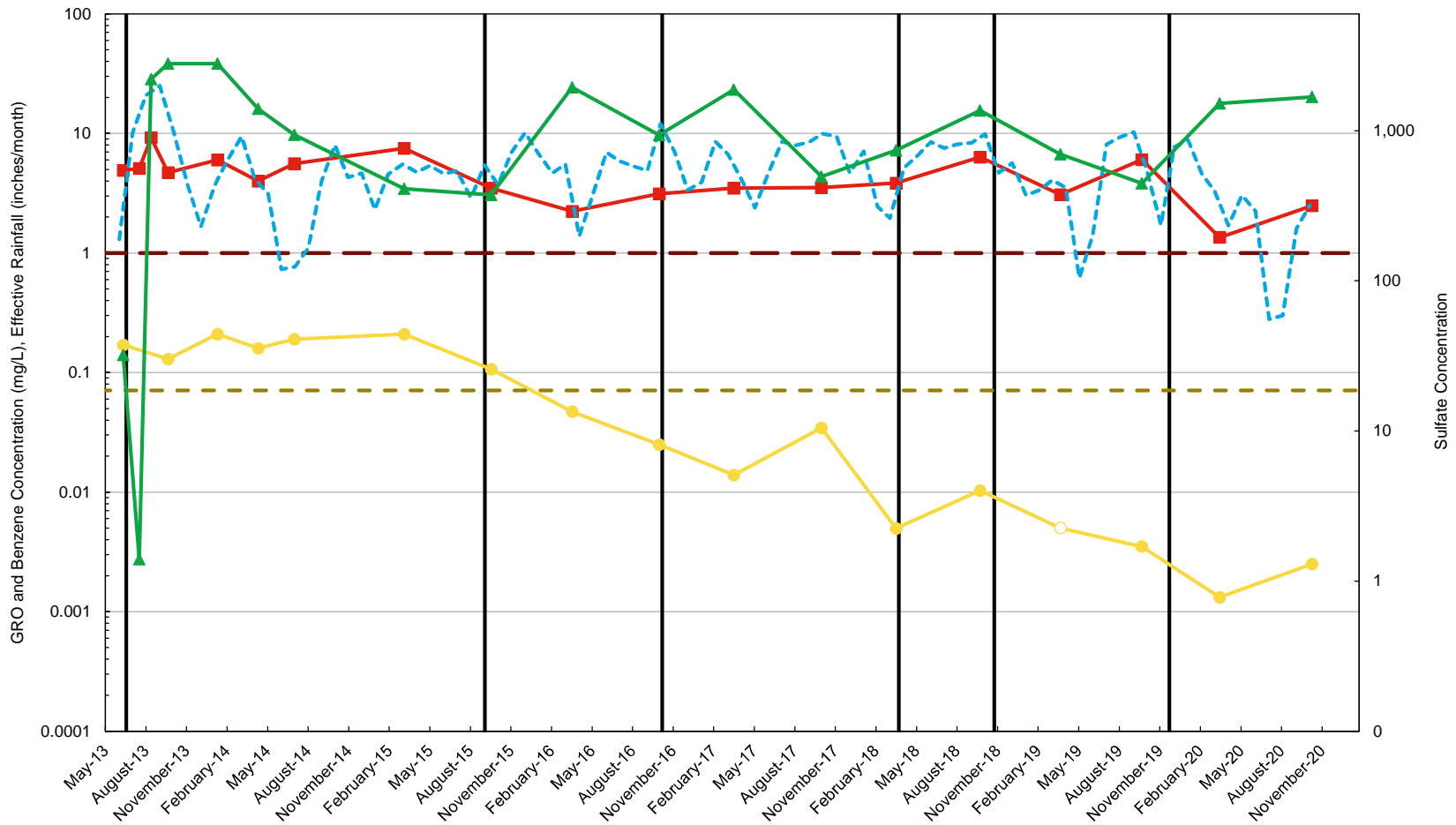
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- GRO
- Site-Specific Cleanup Level; GRO
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

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**TMW-3 CONSTITUENT TREND PLOT**

	Design & Consultancy for natural and built assets	GRAPH <b>7</b>
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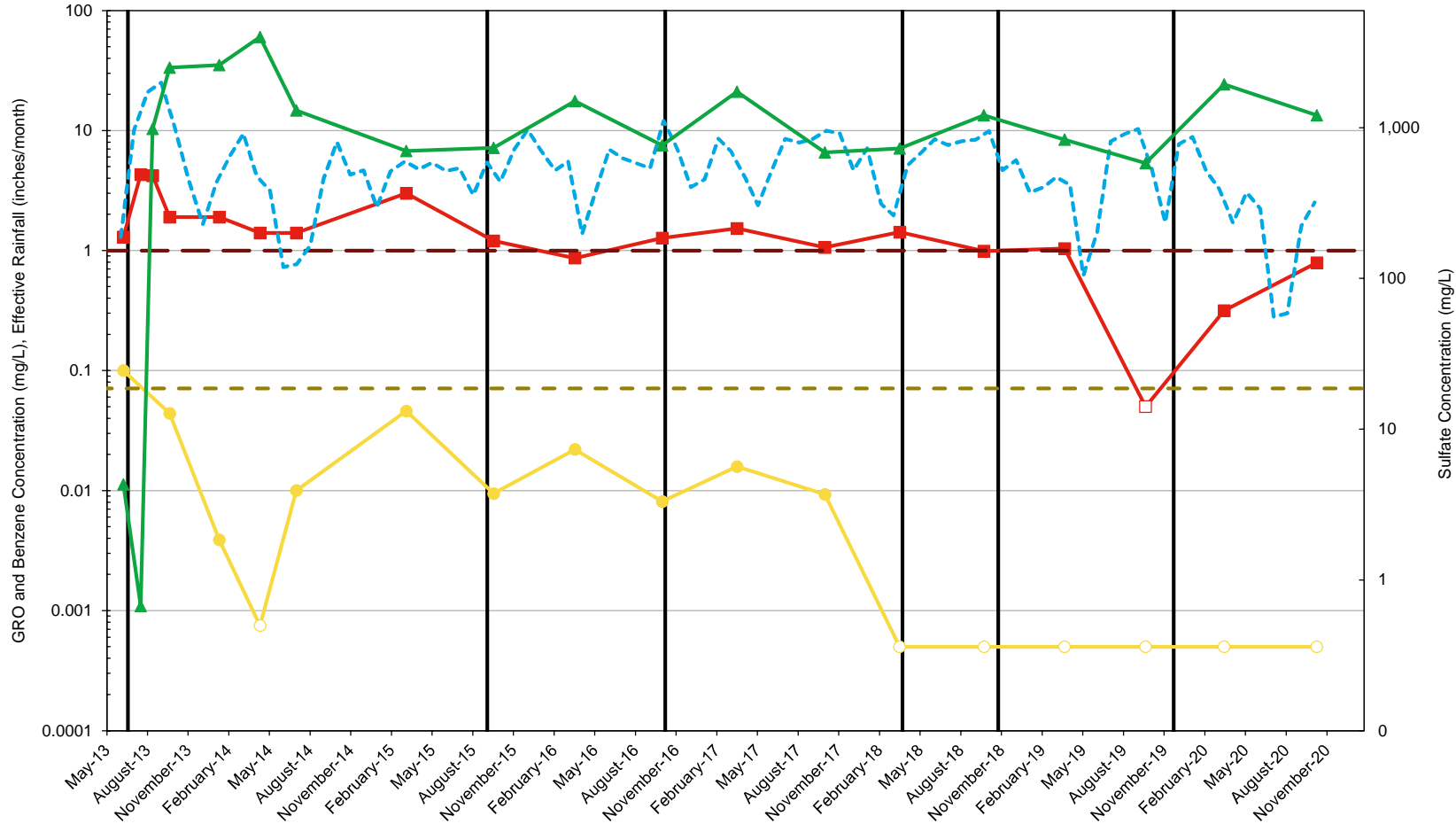
- Sulfate Land Application
- GRO
- Site-Specific Cleanup Level; GRO
- Benzene
- Site-Specific Cleanup Level; Benzene
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

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**TMW-4 CONSTITUENT TREND PLOT**

	Design & Consultancy for natural and built assets	GRAPH
		8



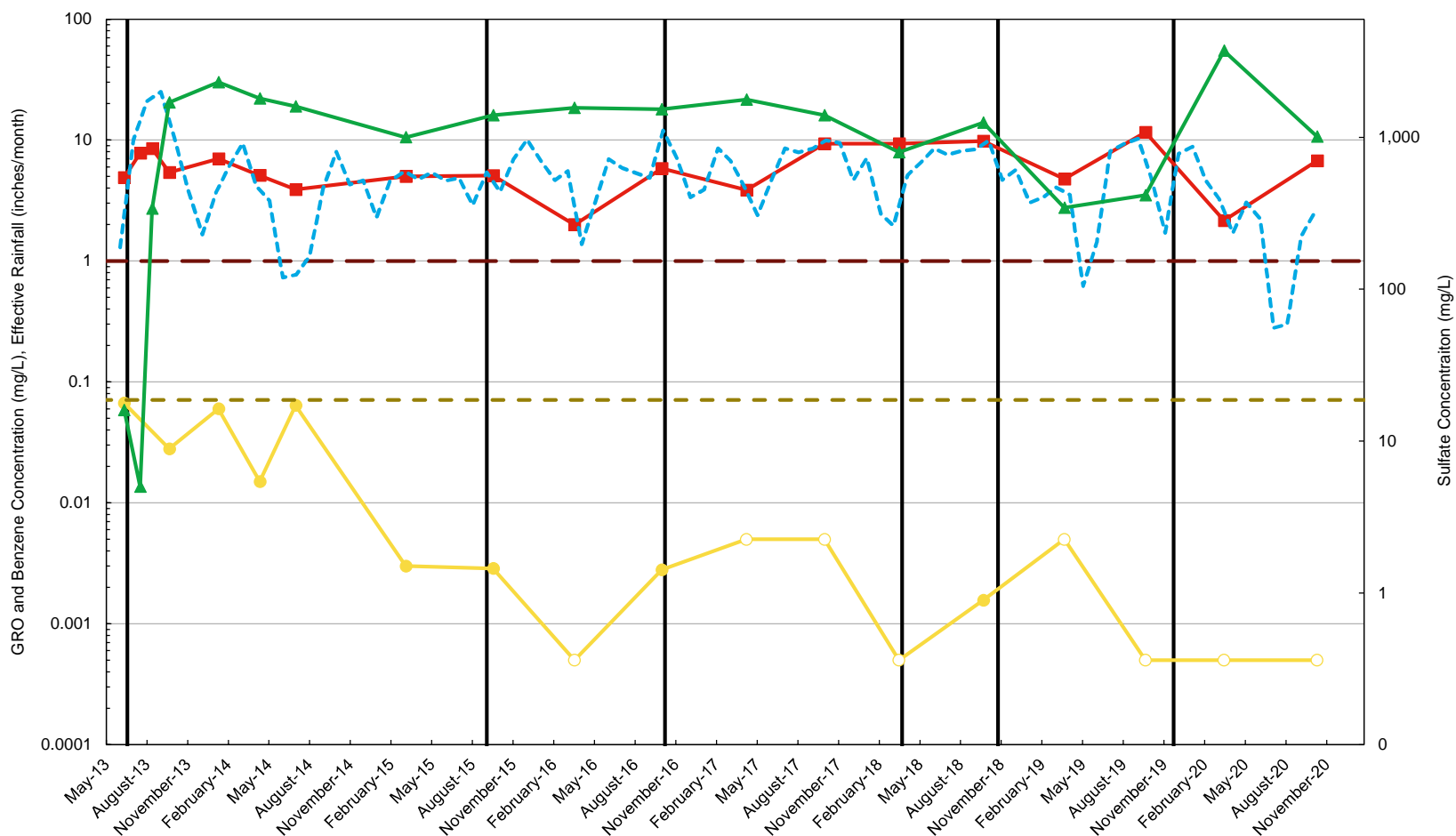
- Sulfate Land Application
- GRO
- Site-Specific Cleanup Level; GRO
- Benzene
- Site-Specific Cleanup Level; Benzene
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

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**TMW-5 CONSTITUENT TREND PLOT**

	Design & Consultancy for natural and built assets	GRAPH
		9



- Sulfate Land Application
- GRO
- Site Specific Cleanup Level; GRO
- Benzene
- Site Specific Cleanup Level; Benzene
- - - Effective Rainfall (Precipitation + Irrigation)
- ▲ Sulfate

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

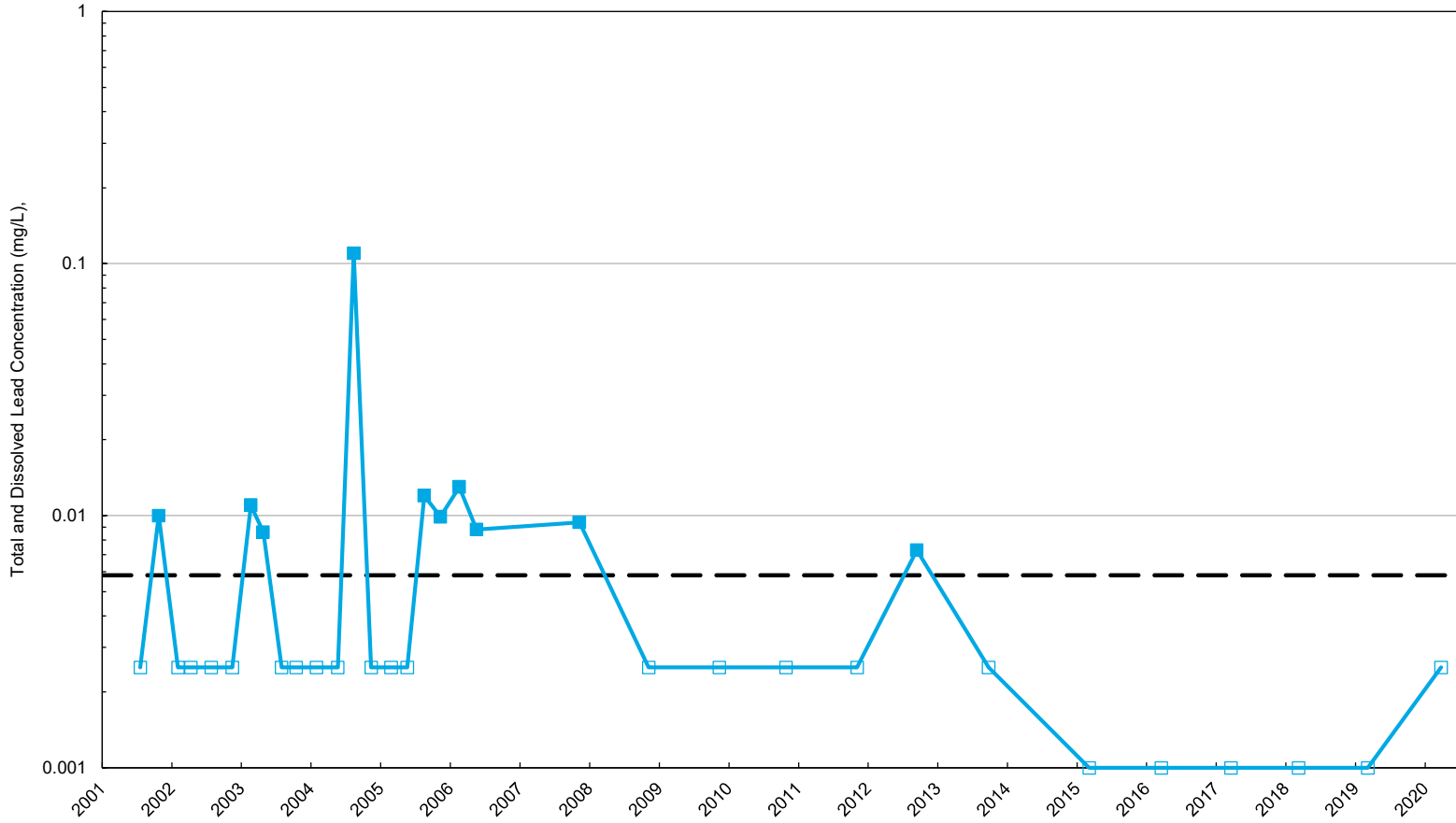
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**TMW-6 CONSTITUENT TREND PLOT**



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 for natural and  
 built assets

GRAPH  
**10**



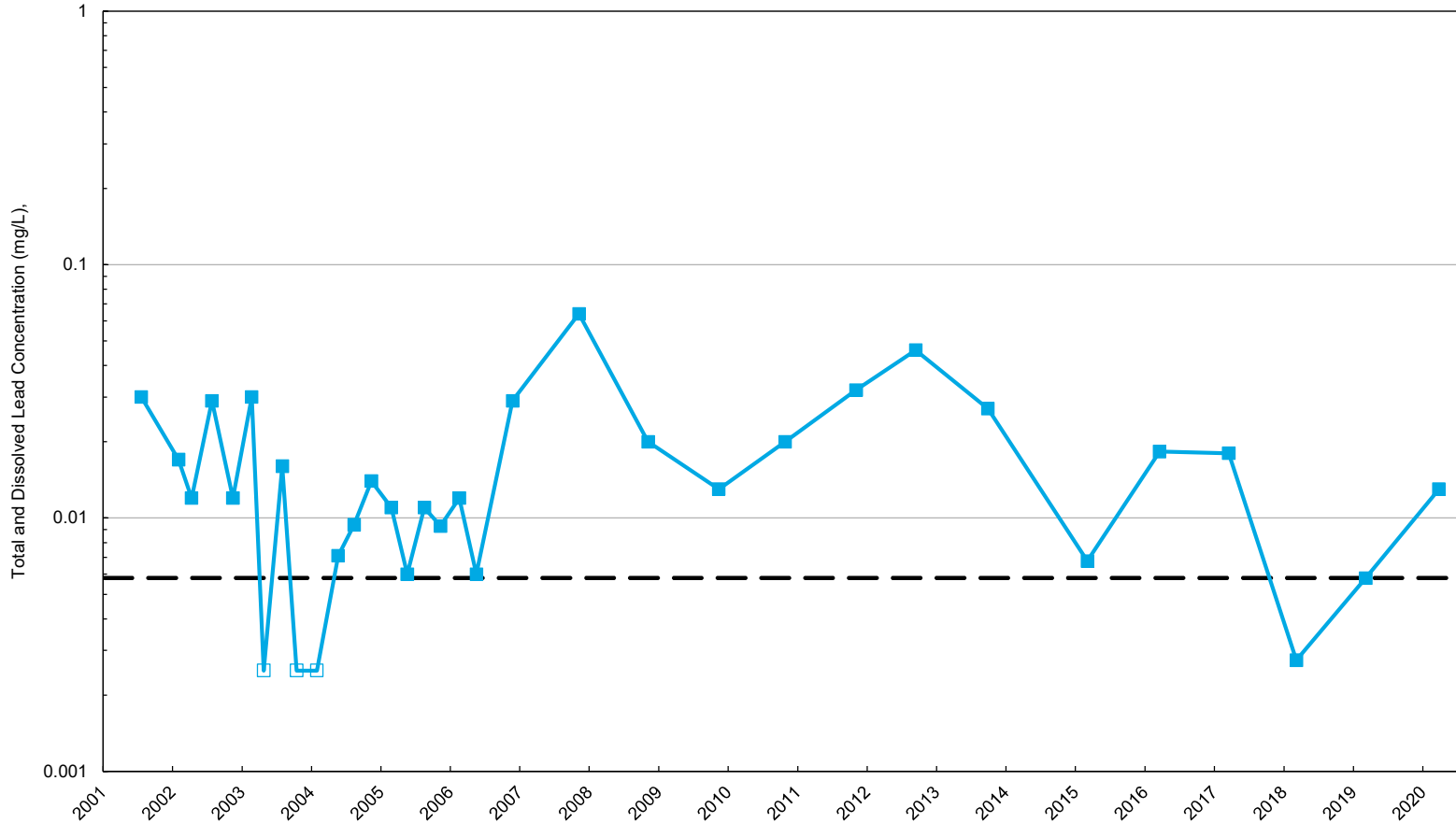
— • Site-Specific Cleanup Level; Total and Dissolved Lead  
 —□— Total Lead

Notes:  
 1. mg/L = milligrams per liter  
 2. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL  
 3. Dissolved lead was analyzed prior to 2006 and in the 2015 and 2016 groundwater monitoring events. Concentrations were below the method detection limit.

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**MW-5 CONSTITUENT TREND PLOT**





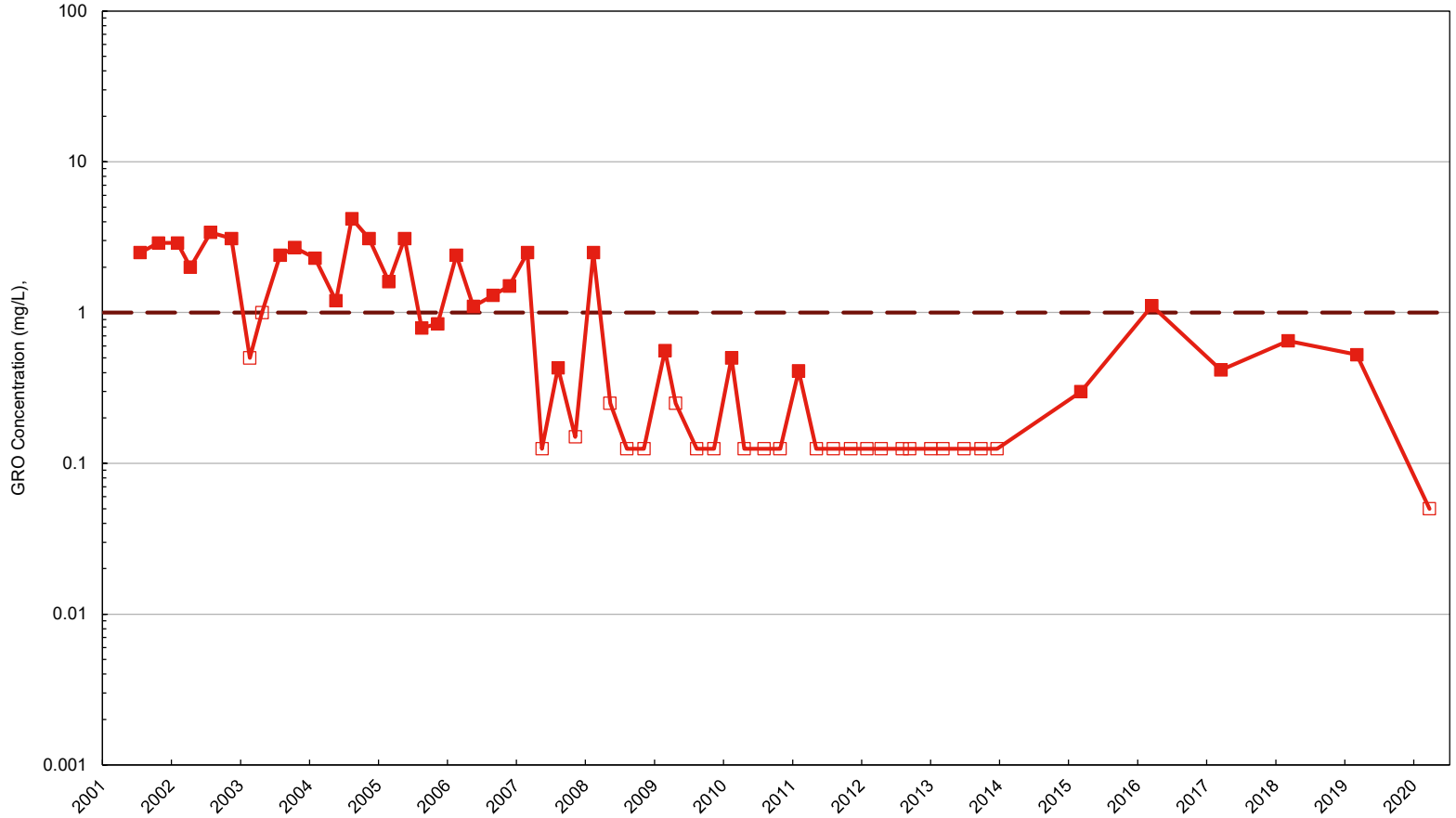
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 — Total Lead

Notes:  
 1. mg/L = milligrams per liter  
 2. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL  
 3. Dissolved lead was analyzed prior to 2006 and in the 2015 and 2016 groundwater monitoring events. Concentrations were below the method detection limit.

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**MW-8 CONSTITUENT TREND PLOT**





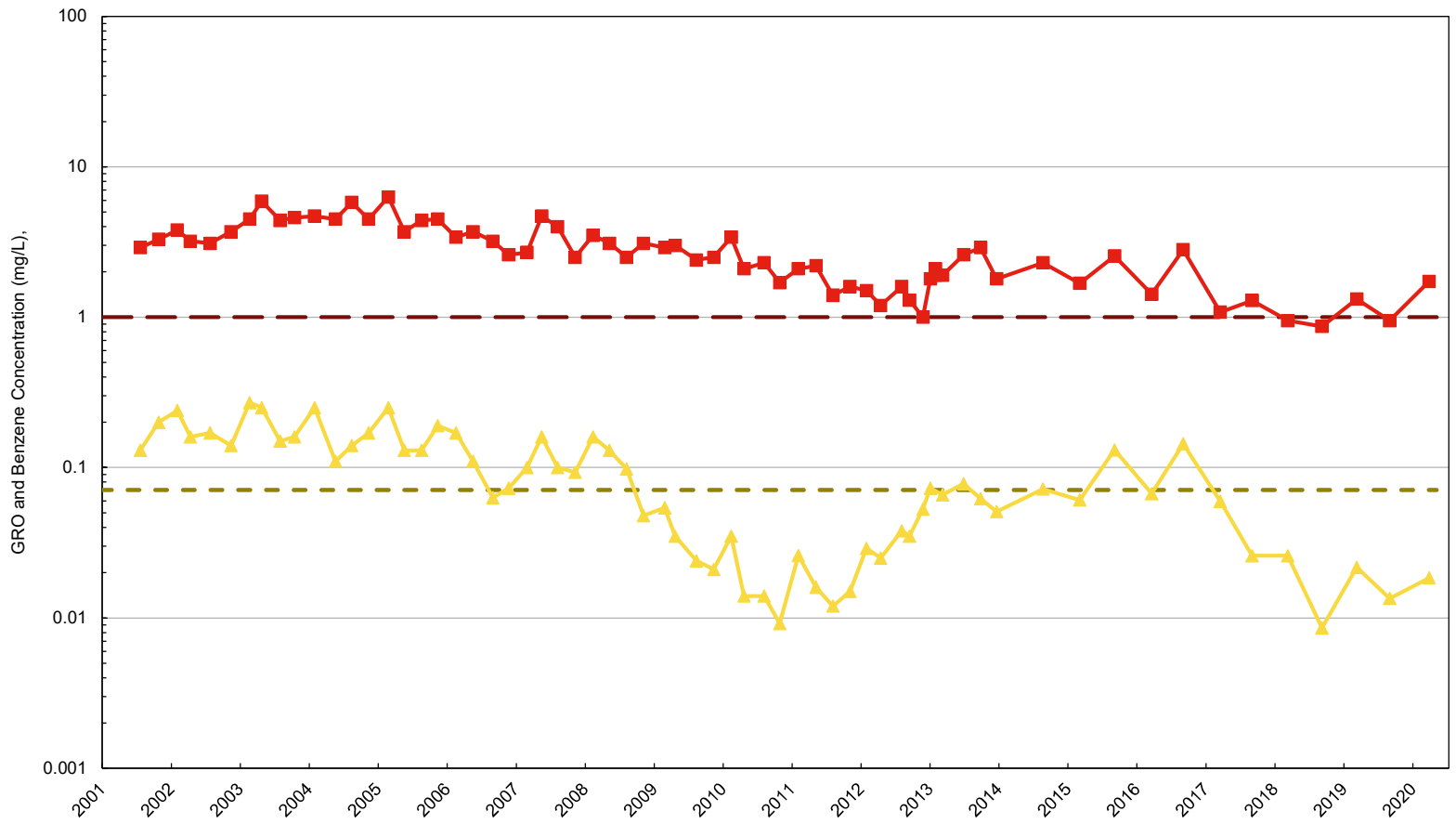
— • Site-Specific Cleanup Level; GRO  
—■ GRO

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL

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- Site-Specific Cleanup Level; GRO
- GRO
- ▲— Site-Specific Cleanup Level; Benzene
- ▲— Benzene

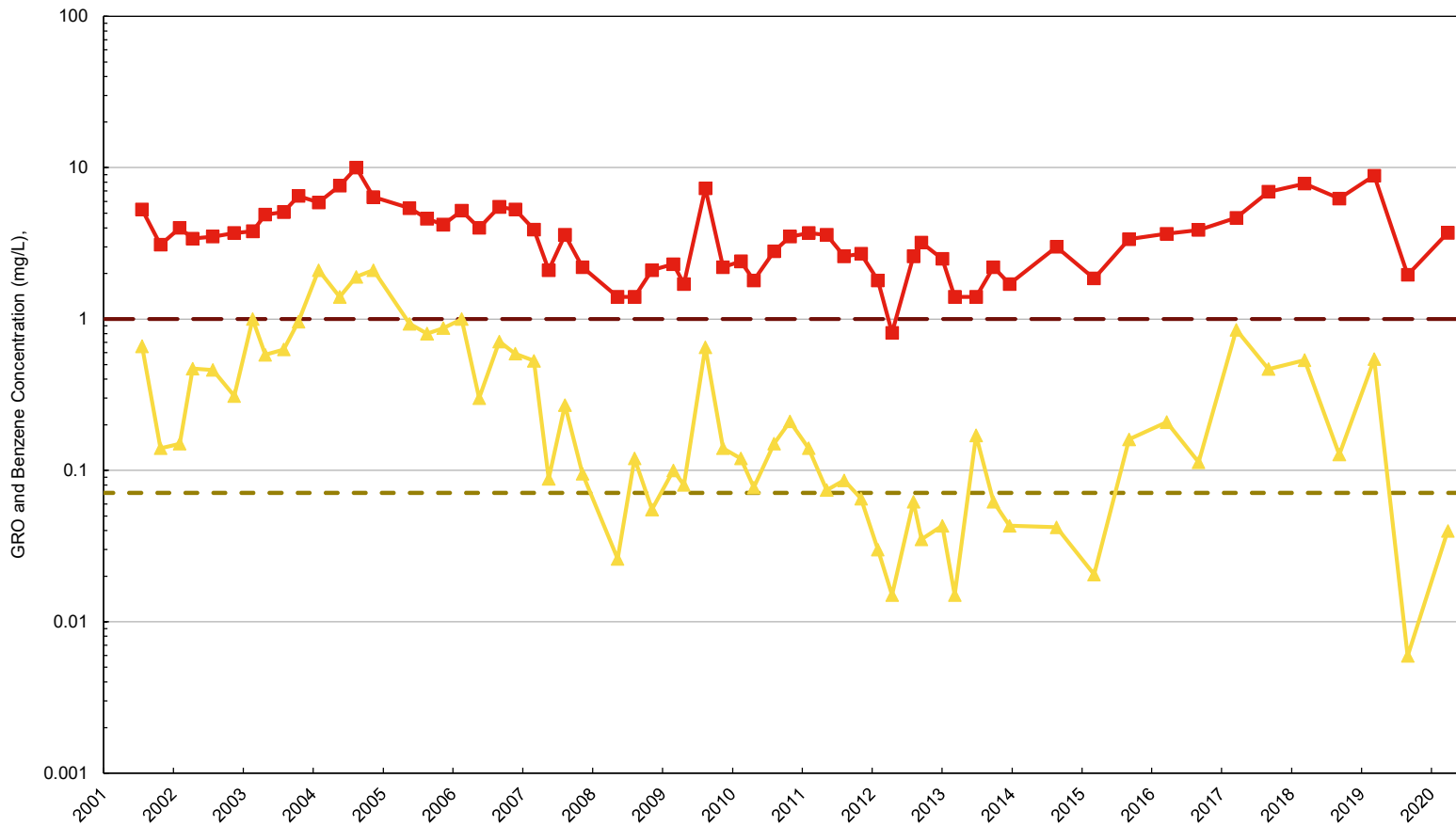
Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter

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**A-27 CONSTITUENT TREND PLOT**

	<b>Design &amp; Consultancy</b> for natural and built assets	GRAPH
		<b>14</b>





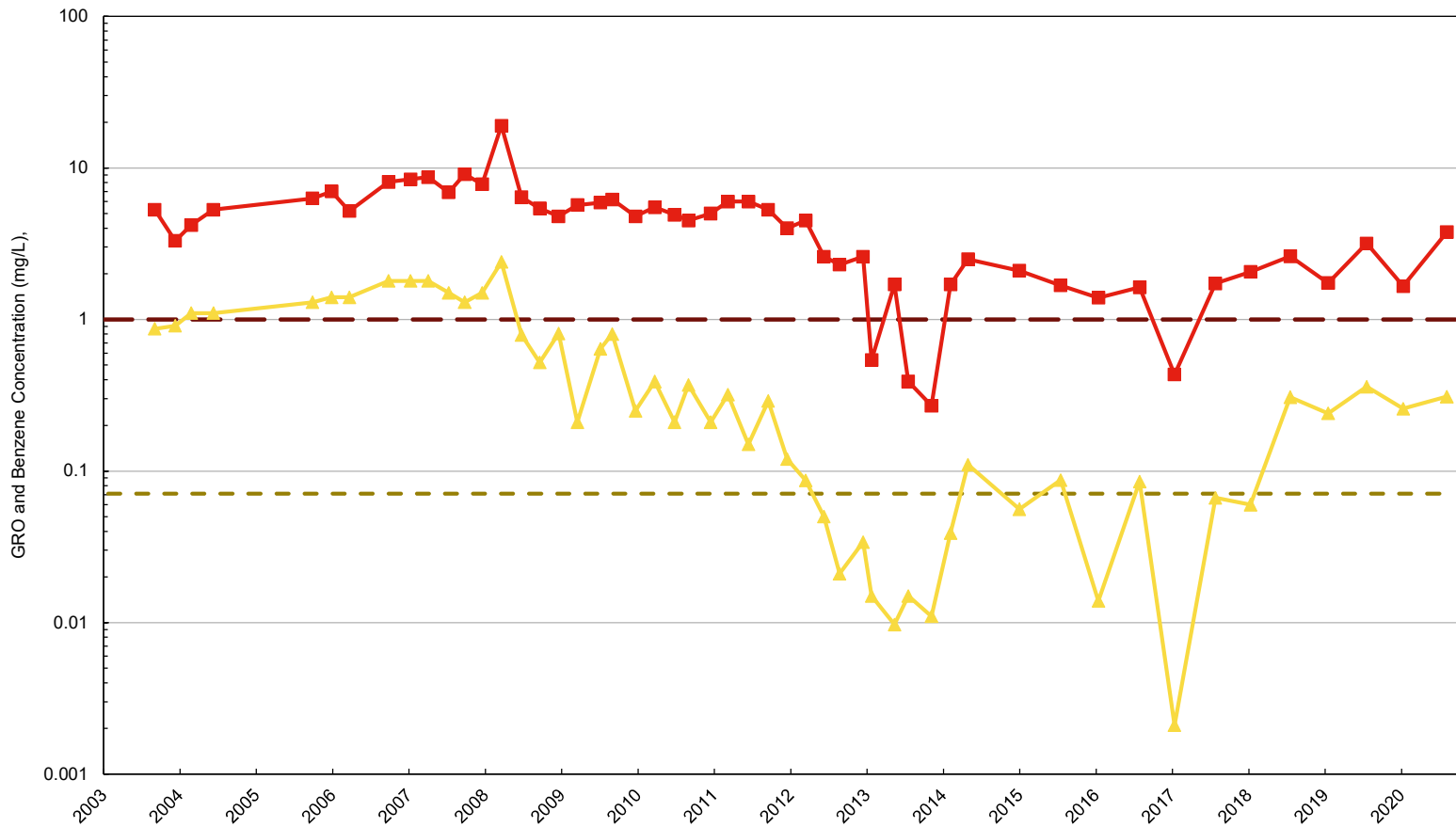
- Site-Specific Cleanup Level; GRO
- GRO
- Site-Specific Cleanup Level; Benzene
- ▲— Benzene

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter

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**A-28R CONSTITUENT TREND PLOT**





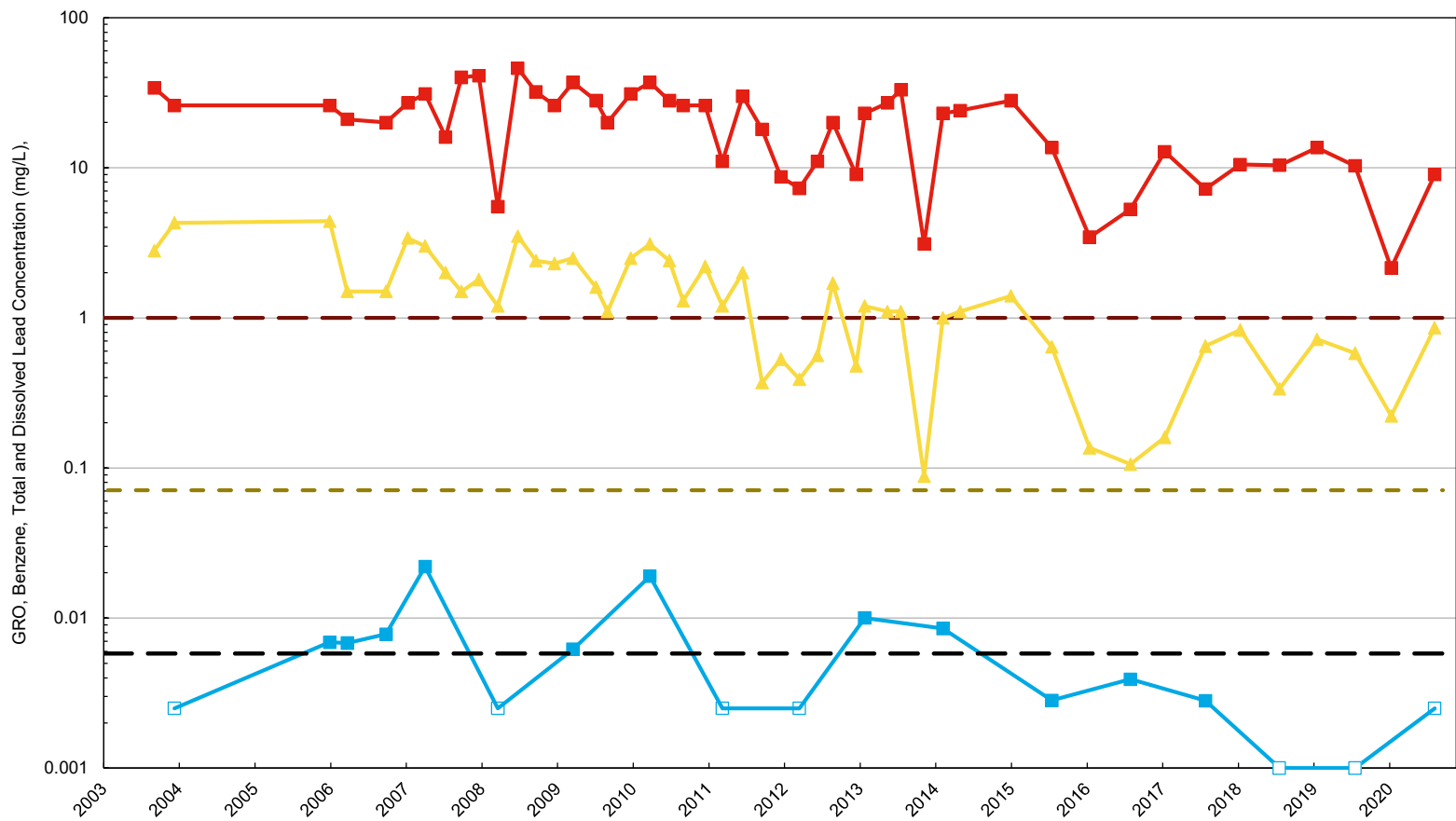
- Site-Specific Cleanup Level; GRO
- GRO
- Site-Specific Cleanup Level; Benzene
- ▲— Benzene

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter

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**MW-23 CONSTITUENT TREND PLOT**





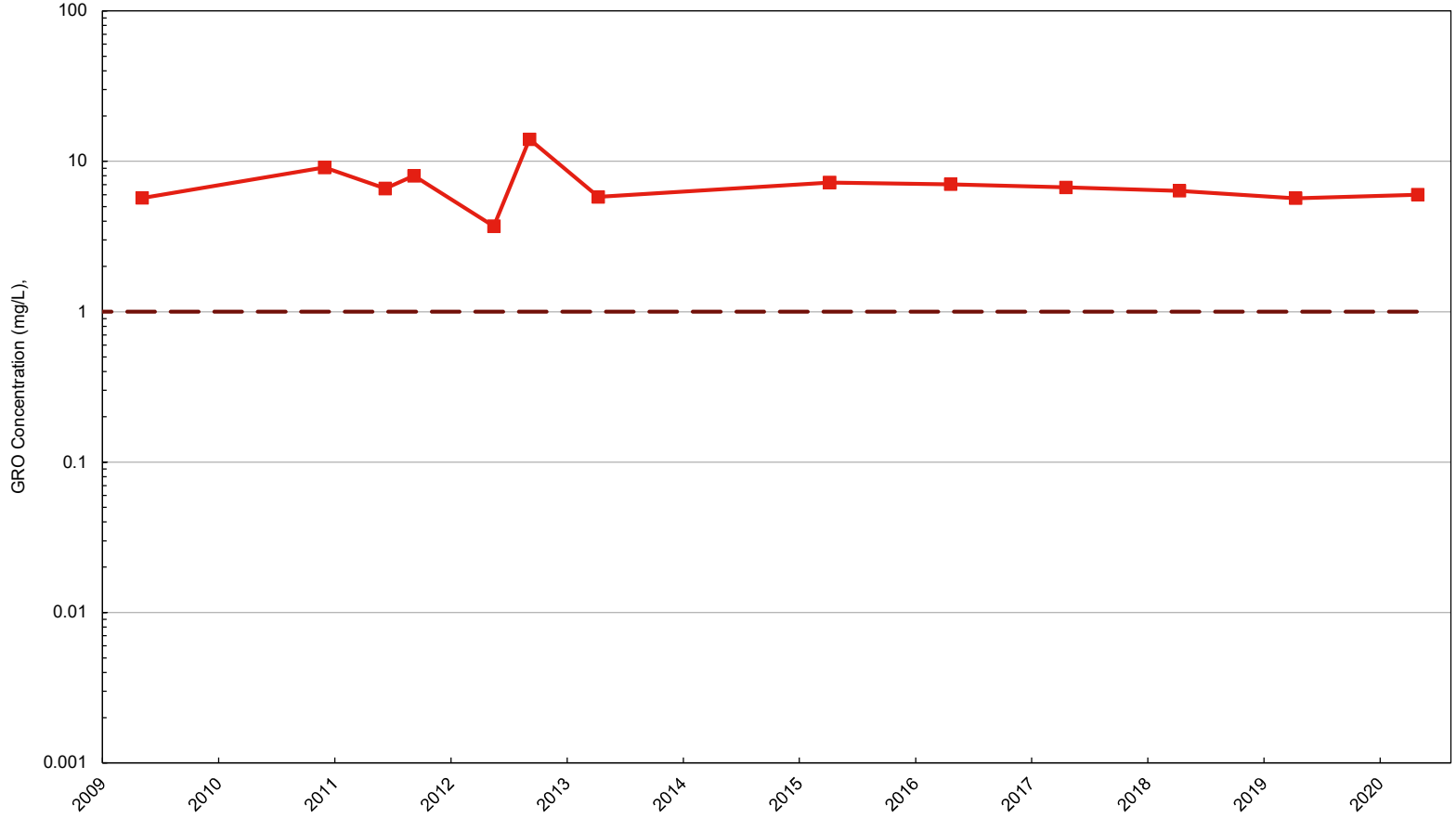
— Site-Specific Cleanup Level; GRO  
 ■ GRO  
 — Site-Specific Cleanup Level; Benzene  
 ▲ Benzene  
 ■ Total Lead  
 — Site Specific Cleanup Level; Total and Dissolved Lead



**Notes:**  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter  
 3. Open data points indicate that concentrations were not measured above the laboratory reporting limit (RL), plotted at half the RL  
 4. Dissolved lead was analyzed in periodically prior to 2015 and in the 2015 and 2016 groundwater monitoring events. Concentrations were below the method detection limit.

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 Site-Specific Cleanup Level; GRO  
 GRO

Notes:  
 1. GRO = gasoline range organics  
 2. mg/L = milligrams per liter

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**TMW-B1 CONSTITUENT TREND PLOT**



# APPENDIX A

## Groundwater Monitoring Compliance Program

Compliance Monitoring Plan

Site-Wide Groundwater Compliance Monitoring Plan -  
Proposed Reduced Monitoring

Ecology Approval Letter

Technical Revision Request – Low-Flow Groundwater  
Sampling

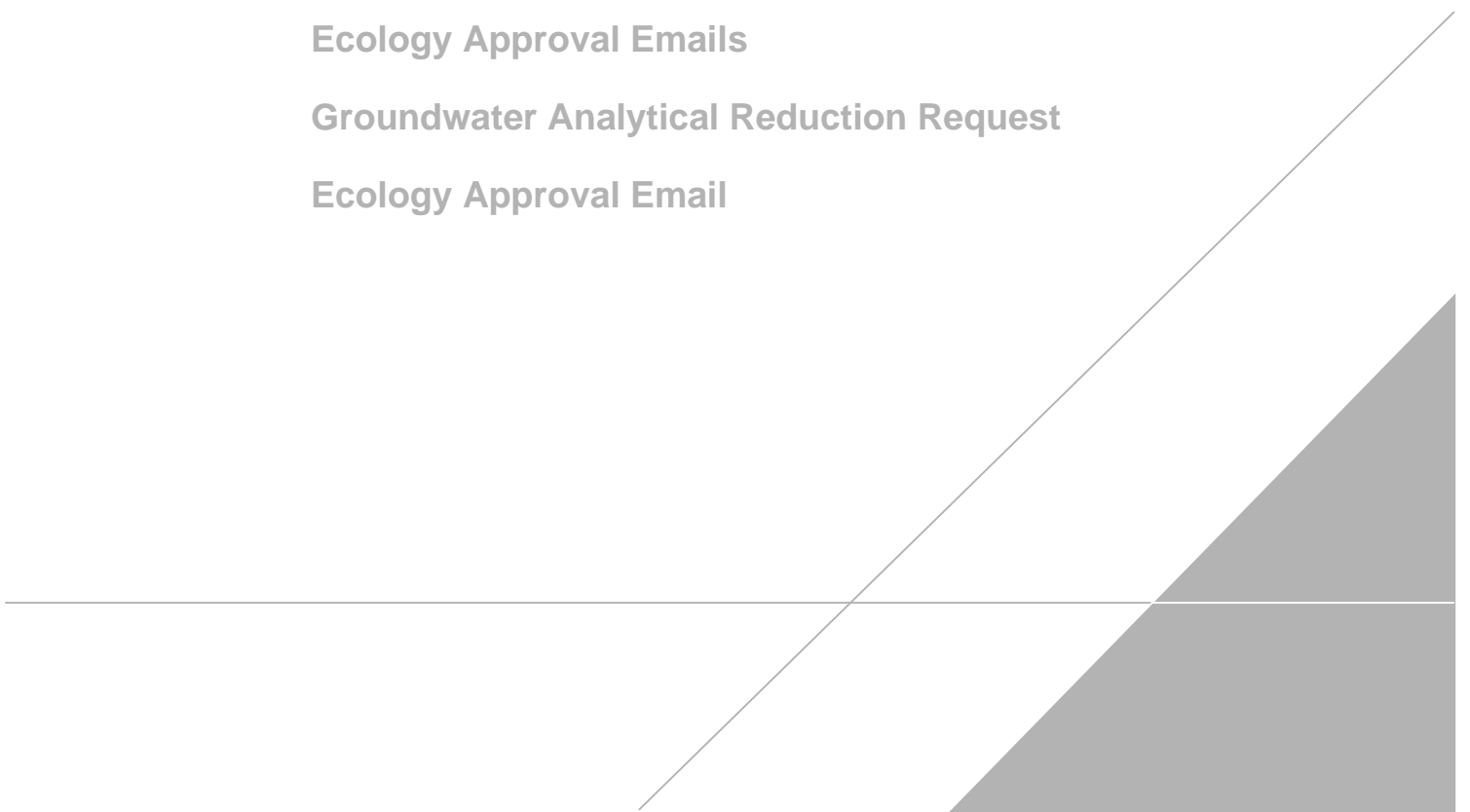
Ecology Approval Letter

Revised Site Groundwater Monitoring Plan

Ecology Approval Emails

Groundwater Analytical Reduction Request

Ecology Approval Email



# EXHIBIT F

COMPLIANCE MONITORING PLAN  
GATX TERMINALS CORPORATION  
HARBOR ISLAND TERMINAL  
SEATTLE, WASHINGTON

ISSUED TO:

WASHINGTON STATE DEPARTMENT OF ECOLOGY

SUBMITTED BY:

GATX TERMINALS CORPORATION

October 27, 1999

**PREPARED BY:**

KHM ENVIRONMENTAL MANAGEMENT, INC.  
16771 NE 80<sup>th</sup> Street, Suite 203  
REDMOND, WASHINGTON 98052

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## figures & Tables

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**Figure 1 – Compliance Well Location Map**

**Table 1 – Compliance Monitoring Wells**

**Table 2 – Groundwater Cleanup Levels**

**Table 3 – Natural Attenuation Parameters**

## Appendices

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**Appendix A – Compliance Sampling and Analysis Plan**



## 10 Introduction

---

This Compliance Monitoring Plan has been prepared to describe the protocol and procedures that will be used to confirm that cleanup requirements have been achieved at the GATX Harbor Island Terminal (Terminal) located in Seattle, Washington. The monitoring plan has been prepared to satisfy the requirements of the Model Toxics Control Act (MTCA) regulations WAC 173-340-410, -720, and -820. This plan was also prepared in accordance with requirements of the Consent Decree, cooperatively entered into between GATX Terminals Corporation (GATX) and the Washington State Department of Ecology (Ecology).

A variety of components included in this compliance monitoring plan address the requirements of WAC 173-340-410. These components include:

- 1) Introduction: Discuss site overview, hydrogeology, cleanup action summary, monitoring objectives and rationale, types of monitoring, monitoring locations, and schedule;
- 2) Protection Monitoring: Describe the criteria for protection monitoring under WAC 173-340-400;
- 3) Performance Monitoring: Describe the criteria and methodology for performance monitoring of free product recovery, natural attenuation, and other selected remedial technologies to document that the cleanup action is performing as anticipated;
- 4) Confirmation Monitoring: Describe the confirmation criteria which monitors the long-term effectiveness of the cleanup action once cleanup and performance standards have been attained;
- 5) Data Evaluation and Reporting: Discuss free product monitoring, groundwater sampling and analytical procedures, data validation, evaluation procedures, reporting, and monitoring schedules;
- 6) Criteria for Meeting Performance and Compliance Standards: Discuss criteria to be used to determine if performance and compliance standards have been met; and
- 7) Contingency Plans: Discuss the steps that will be implemented in the event the proposed cleanup actions are not effective.

## 11 SITE DESCRIPTION

The GATX Harbor Island Terminal is located at 2720 13<sup>th</sup> Avenue Southwest in Seattle, Washington and is part of a U.S. EPA Superfund Site, the Terminal Operable Unit. The facility, approximately 14 acres in size, is located in the highly industrialized north-central section of Harbor Island. The Terminal is situated on relatively level property, with surface elevations ranging between 6 to 11 feet above sea level. There are no surface water bodies within the Terminal property boundaries. The site is situated approximately 1,400 feet from the West Waterway and over 1,000 feet from the East Waterway. The site is zoned industrial and meets the industrial criteria established under WAC 173-340-745. It is likely that the site will remain an industrial facility in the foreseeable future because of the site zoning, and, perhaps more importantly, because of the substantial industrial improvements to Harbor Island (e.g., construction of cargo handling facilities and construction of major petroleum distribution pipelines for the island). Ecology and EPA have determined that there is no current or planned future use of groundwater beneath Harbor Island for drinking water purposes.

The Terminal is presently divided into five distinct areas. These areas include the A, B, C, D, and E Yards. The A Yard contains two fuel tanker truck-loading racks. The administrative office and maintenance building is also situated in the A Yard. The A Yard is entirely paved with asphalt or concrete. The A Yard is bounded by a containment dike for the B Yard on the north, and by chain-link fencing on the south, east, and west.

The B and C Yards are used as bulk fuel storage areas. Fifteen above ground storage tanks are located within the B Yard and six are situated within the C Yard. Both yards are mostly unpaved and are surrounded by concrete containment dikes. The D Yard is situated between the B and C Yards and has been used to route product and utility lines. Several maintenance buildings and material handling areas are also situated within the D Yard.

The Terminal is situated on the southeast portion of a groundwater mound which is centered on the northern half of Harbor Island. Groundwater flow migration is south and southeast across the site. The primary groundwater discharge point is the Duwamish River East and West Waterways. Due to the dampening effect of the bulkhead structures along the East and West Waterways of the Duwamish River, and the inland location of the site, water table fluctuations in response to tidal influence and seasonal fluctuations is less than one foot.

## 12 SELECTED CLEANUP ACTION SUMMARY

The selected cleanup action is designed to accomplish the following requirements: protect human health and the environment, comply with cleanup standards established in WAC 173-340-700, comply with applicable state and federal laws under WAC 173-340-710, provide compliance monitoring as set forth in WAC 173-340-410, use permanent solutions to the maximum extent practicable as mandated in WAC 173-340-360 (2), (3), (4), (5), (7), and (8), provide a reasonable time restoration in accordance with WAC 173-340-360 (6), and consider public concerns as designated in WAC 173-340-600.

Cleanup actions at the site include source removal in the soil and groundwater and recycling/off-site disposal, monitoring, natural attenuation, and institutional controls.

**Soil.** The goal of soil cleanup standards for petroleum hydrocarbons is to protect the beneficial use of groundwater (surface water quality and associated ecosystem). The preferred alternative will result in substantive compliance with the soil cleanup standards by reducing concentrations of contaminants in soils to levels that will support and maintain compliance with ground water quality standards.

The specific soil cleanup actions are:

- In-situ treatment of soil that includes soil vapor extraction (SVE), and natural attenuation/intrinsic biodegradation.
- Excavation of accessible total petroleum hydrocarbons (TPH) subsurface soil hot spots with concentrations above 10,000 milligrams per kilogram (mg/kg) to the extent practicable in the C Yard.
- Excavation of accessible TPH subsurface hot spots with concentrations above 20,000 mg/kg to the extent practicable in the A, B, and D Yards.
- In-situ treatment of inaccessible soil hot spots to the extent practicable in all Yards.
- Natural attenuation of the residual TPH in the subsurface soil.

- Excavation or capping of lead- and arsenic-impacted surface soil with concentrations above 1,000 mg/kg and 32.6 mg/kg, respectively, in the B and C Yards.

**Groundwater.** The achievement of cleanup levels in groundwater shall be measured at points of performance and compliance located within the product plume area and at the downgradient edge of the site. The wells at the downgradient edge of the site are considered conditional points of compliance wells. These points of compliance and performance shall consist of a network of monitoring wells located in the product plume area and on the downgradient property boundary. Other wells (sentry wells) situated off-site will also be used to document plume migration, performance standards, and to warn of any unanticipated change in off-site groundwater conditions. Exact locations of these wells are identified in the Section 2 of this plan.

The specific cleanup actions include:

- Active and passive free product recovery in the A, B, and C Yards,
- Dual-phase extraction of groundwater and product in the A and C Yards,
- Extraction of groundwater and/or free product,
- Active and passive point-source extraction in the A, B, and C Yards,
- Partially-penetrating down-gradient vertical barrier to stop product migration in the A and C Yards,
- Free product monitoring in the A, B, C, and D Yards,
- Groundwater monitoring in point of compliance (confirmation), performance and offsite (sentry) wells for the site, and
- Institutional control in the form of a deed restriction for the site.

### **13 MONITORING OBJECTIVES AND RATIONALE**

The cleanup action incorporates monitoring to determine that cleanup standards are achieved and maintained after remedial actions have been completed. During the remedial actions, performance monitoring will be conducted to confirm that cleanup actions have attained cleanup standards and treatment goals. After remedial actions are performed, performance monitoring will be conducted to confirm and document that cleanup actions have attained cleanup standards and performance standards. Protection monitoring will be used to adequately protect human health and the environment during construction and operation of the cleanup actions.

The achievement of cleanup levels in groundwater shall be measured at points of performance and compliance located within the free product plume area and at the downgradient edge of the site. The overall objective of the compliance monitoring wells downgradient of the free product plumes and on the property boundaries is to provide additional safeguards by providing both Ecology and GATX with early warning of potential contamination migration and basis for Contingency Plan reviews and implementation, if necessary. Sentry wells, situated off property limits and downgradient of dissolved petroleum hydrocarbon plumes, will also be used to monitor migration of dissolved petroleum constituents.

Monitoring methods, monitoring locations, and types of analyses were selected to monitor the effectiveness of the cleanup actions in attaining the soil, free product, and groundwater cleanup standards for the site. The specific details of these monitoring activities are described in subsequent sections of this document.

### 13.1 SOIL

TPH, arsenic, and lead concentrations were above levels requiring action at the site.

The determination of adequate soil treatment will be based on the ability to comply with the groundwater cleanup standards for the site, to meet performance standards designed to minimize human health or environmental exposure to soils above cleanup levels, and to provide practicable treatment of contaminated soils.

Monitoring objectives are based on the following site observations:

1. **TPH in the A Yard.** Soil TPH concentrations were above the cleanup action levels (20,000 mg/kg) north, northwest and west of the Garage Building Area.
2. **TPH, Arsenic, and Lead in the B Yard.** Soil TPH concentrations were above the cleanup action levels (20,000 mg/kg) between Tanks 18 and 21, and southwest of Tank 22. Concentrations of arsenic and lead in surface soil were above the cleanup levels (32.6 and 1,000 mg/kg, respectively) in unpaved soil covering roughly half of the B Yard.
3. **TPH, Arsenic, and Lead in the C Yard.** Soil TPH concentrations were above the cleanup action levels (10,000 mg/kg) at seven locations in the C Yard as follows: i) MW-4, SS-17, SS-18, which is southeast of Tank 44, ii) SS-2, which is northwest of Tank 44, iii) S-6, which is northwest of Tank 37, iv) SS-2 and SS-13, which is between Tanks 42 and 39, v) S-5 and S-8, which is between Tanks 35 and 37, vi) S-10, which is north of Tank 35, and vii) S-12, which is southwest of Tank 35. Concentrations of arsenic and lead in surface soil were above the cleanup levels (32.6 and 1,000 mg/kg, respectively) in unpaved soil covering roughly half of the C Yard.

### 13.2 GROUNDWATER

Groundwater will be monitored for benzene, toluene, ethylbenzene, TPH-G, TPH-D, TPH-O, free product, and lead in specific areas of the site

prior, during and after implementation of the cleanup action discussed in Section 1.2. The selected analysis and monitoring locations correspond to the soil cleanup areas identified in Section 1.3.1, areas of product recovery, and the water quality chemistry data for the site.

### **Wells Not Included in Compliance Monitoring Program.**

Monitoring wells not included in the confirmation, performance, or the sentry wells are excluded from this Compliance Groundwater Monitoring Program. After the one-year review of the site groundwater analytical data as discussed in Section 3.4.1, Ecology and GATX will review potential wells for abandonment as appropriate.

### **Damaged Wells Due To Cleanup Action Implementation.**

Monitoring wells designated for confirmation, performance or sentry wells that become disabled as a result of the cleanup action implementation must be replaced. Ecology must approve the new proposed location before replacement of the damaged groundwater monitoring well.

### **Areas Above Cleanup Levels**

**BTEX and TPH Areas.** Shallow monitoring wells with periodic or consistent detection of BTEX constituents or TPH above the cleanup levels include, Well 24, T-10, T-17, T-11, MW-3, T-15, T-8, T-5, T-19, T-13, T-18, Well 17, MW-14, MW-7, Well 15, MW-9, A-27, A-28, A-26, A-24, A-3, A-21, A-23, A-15, and A-10. These wells are located in or around Yards A, B, C, and D and, due to historic detection of petroleum-hydrocarbon-related IHSs above cleanup levels (Table 2), these monitoring wells will be included in the compliance monitoring program. Monitoring in these wells will be focused on the IHSs for groundwater to provide water quality data for baseline data and trend analysis. Furthermore, a selection of these wells will be monitored for natural attenuation parameters (Table 3).

**Lead Areas.** Total lead was detected periodically above the cleanup level (0.0058 mg/l) in the following wells: MW-1, MW-2, MW-3, MW-5, MW-6, MW-7, MW-07, MW-8, MW-9, MW-11D, MW-12, MW-13, A-14, A-21, A-23, A-24, A-28, SF-01, SH-02, SH-04, and SH-05. Dissolved lead was detected periodically above the cleanup level (0.0058mg/l) in MW-7. These wells will be included in the compliance monitoring wells and analyzed for total and dissolved lead as part of the performance and confirmation monitoring of the surface cleanup action for the site as described in Section 1.2.

## 14 COMPLIANCE MONITORING CATEGORIES AND SCHEDULE

Groundwater compliance monitoring will consist of free product monitoring, groundwater elevation monitoring, and groundwater sampling.

- Free product monitoring will consist of measuring free product thickness in areas of the site as part of the performance standard evaluation after implementation of the preferred remedial alternative.
- Groundwater elevation monitoring will be performed during free product monitoring events and during groundwater sampling events.
- Groundwater samples will be collected from designated GATX compliance monitoring wells, performance monitoring wells, and sentry wells.

The monitoring objectives have been categorized as protection, confirmation, and performance monitoring. These three forms of compliance monitoring will be performed in accordance with WAC 173-340-410.

**Protection Monitoring** to confirm that human health and the environment are adequately protected during construction and the operation and maintenance period of the cleanup action.

**Performance Monitoring** to confirm that the cleanup action has attained cleanup standards and other performance standards.

**Confirmation Monitoring** (Confirmation and Sentry Wells) to confirm the long-term effectiveness of the cleanup action once cleanup actions and other performance standards have been attained.

**Monitoring Schedule.** Groundwater sampling will begin in the quarter that the Consent Decree is approved (December 1999) and will continue for five years (December 2004). Sampling will occur quarterly for the first year. Ecology and GATX will review the data after one year. If trends are declining, the sampling frequency and number of parameters may be reduced.



## **2.0 Compliance Monitoring**

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Compliance monitoring will begin within the quarter the Consent Decree is approved and will continue for five years. Figure 1 shows the locations of all wells in which product will be monitored, groundwater levels will be measured, and groundwater samples will be collected as part of the site compliance monitoring program. Table 1 provides a list of compliance monitoring wells, identifying the well location, monitoring objective, and well use. A summary of the analytical parameters to be used in compliance monitoring is presented in Tables 2 and 3. A detailed description of each compliance-monitoring component, including the media type, location, and schedule, is presented this section. Specific schedule details are discussed within Sections 2.2.3 and 2.3.3. and Table 1.

### **2.1 PROTECTION MONITORING**

The objective of protection monitoring is to confirm that human health and the environment are adequately protected during construction, operation and maintenance of the cleanup action [WAC 173-340-410(1)(a)]. Protection monitoring will be addressed in the health and safety plan prepared in conjunction with the engineering design report, construction plans and specifications, and operation and maintenance plan (WAC 173-340-400).

### **2.2 PERFORMANCE MONITORING**

The objective of performance monitoring is to confirm that the cleanup action has attained cleanup standards and other performance standards as appropriate [WAC 173-340-410(1)(b)]. Performance monitoring will consist of free product monitoring during product recovery activities and groundwater sampling to evaluate the effectiveness of soil and groundwater cleanup actions and natural attenuation.

#### **2.2.1 PERFORMANCE MONITORING LOCATIONS**

Wells A-14, A-21, A-23, A-27, MW-3 through MW-9, MW-14, MW-07, SH-02, SH-05, and three new wells will be used for performance wells. These wells are located in or around Yards A, B, C, and D within groundwater plume. Due to historic detection of petroleum-hydrocarbon-related IHSs above cleanup levels, these monitoring wells will be included in the compliance monitoring program. Monitoring in these wells will be focused on the IHSs for groundwater to provide water quality data for baseline data

and trend analysis. These wells will also be monitored for natural attenuation parameters (Table 3).

**Areas Below Cleanup Levels:** IHSs were not detected above the groundwater cleanup levels (Table 2) more than once in shallow monitoring wells MW-1, MW-2, MW-5, MW-07, MW-8, MW-12, MW-13, MW-16, MW-17, MW-18, A-8, A-24, SH-02, SH-05, T-3, T-4, and T-12. Most of these wells are located at the downgradient sides of the C Yard and some are located in the A, B, and D Yards.

**Free Product:** Shallow wells located in or around a free product plume in the C Yard include Well 20, Well 21, Well 22, MW-4, Well 25 and Well 27. Shallow wells located in or around a free product plume within the A Yard, include, A-6, A-4, A-29, A-22, A-16, A-13, A-14, A-20 and A-19. A shallow well located in or around a free product plume within the B Yard is Well 12.

All monitoring wells where water level measurements are taken will be measured for free product. A measurable thickness of free product is defined as greater than or equal to 0.01 feet. There are presently 76 monitoring wells being used to develop groundwater elevation contours for the site.

**A Yard:** Shallow wells located in or around a free product plume at the A Yard with current free product detection include A-6, A-4, A-29, A-22, A-16, A-13, A-14, A-20 and A-19.

**B Yard:** Shallow well located in or around a free product plume at the B Yard with current free product detection is Well 12.

**C Yard:** Shallow wells located in or around a free product plume at the C Yard with historic and current free product detection include Well 20, Well 21, Well 22, MW-4, Well 25 and Well 27.

Product performance monitoring will be performed in these wells prior, during, and after implementation of the remedial action alternatives discussed in Section 1.2. The product performance standard is a “measurable product thickness”, and the product cleanup standard is “no visible sheen.” Sheen is defined as a visible display of iridescent colors on equipment or water removed from a monitoring well. After the performance standard has been met in these wells, they will be sampled for BTEX, TPH, (Table 2) and natural attenuation parameters (Table 3). Product shall be removed from the water table throughout the site, when ever present, to the extent technically feasible.

**Dissolved TPH Constituents:** Dissolved TPH constituents of TPH-G, -D, -O, and BTEX performance monitoring will be monitored in these wells prior, during and after implementation of the remedial action alternatives discussed in Section 1.2 for baseline data and trend analysis. Shallow monitoring wells with periodic or consistent detection of BTEX constituents or TPH above the cleanup levels include Wells 15, 17, 24, MW-3, MW-7, MW-9, MW-14, A-3, A-10, A-15, A-21, A-23, A-24, A-26, A-27, and A-28. These wells are located in or around Yards A, B, C, and D. Due to historic detection of petroleum-hydrocarbon-related IHSs above cleanup levels (Table 2), some of these monitoring wells will be included in the compliance monitoring program. Monitoring in these selected wells will be focused on the IHSs for groundwater to provide water quality data for baseline data and trend analysis. Additionally, these selected wells will be monitored for natural attenuation parameters (Table 3).

**A Yard:** Shallow well located adjacent to a free product plume at the A Yard with dissolved TPH constituents detected above cleanup standards (Table 2) include A-23 and A-28.

**B Yard:** Shallow well located adjacent to a free product plume at the B Yard with dissolved TPH constituents detected above cleanup standards (Table 2) is MW-7.

**C Yard:** Shallow wells located in or around a free product plume and soil TPH hot spots at the C Yard with dissolved TPH constituents detected above cleanup standards (Table 2) include MW-3, MW-4, Well 24, Well 25, T-5, T-18, and T-19.

**D Yard:** Shallow wells located adjacent to a free product plume and soil TPH hot spots at the D Yard with dissolved TPH constituents detected above cleanup standards (Table 2) include Wells MW-14, Well 17, T-13, T-15, and T-17.

**Total and Dissolved Lead:** Total lead was detected periodically above the cleanup level (Table 2) in Wells MW-6, MW-7, MW-07, MW-8, MW-9, MW-12, MW-13, A-21, A-23, A-24, A-28, SF-01, SH-02, SH-04, and SH-05. Dissolved lead was detected periodically above the cleanup level (Table 2) in MW-7. Performance monitoring will be performed in these wells, prior, during and after implementation of the remedial alternative discussed in Section 1.2 for total lead baseline data and trend analysis.

**Off-site Sentry Monitoring wells:** Wells A-23, A-28, MW-12, MW-13, MW-16, and MW-18 will serve as sentry wells. These wells will be included in the program due to their location adjacent to areas with soil cleanup

actions, free product plume or to provide off property boundary well network. Monitoring in these wells will be focused on the IHSs for groundwater to provide water quality data for baseline data and trend analysis.

**Background wells:** Wells MW-1 and MW-2 are located upgradient along a south/southeast groundwater flow direction for the site and will serve as the site background monitoring wells. These wells will be monitored for the IHSs for groundwater and natural attenuation parameters to establish baseline and background groundwater quality data. After one year, these wells will be monitored for the IHSs for groundwater only.

### 2.2.2 PERFORMANCE CRITERIA

**Separate-Phase Hydrocarbons:** To monitor the effectiveness of the preferred remedial alternative discussed in Section 1.2 for free product, the performance criterion will be a lack of measurable product thickness in compliance monitoring wells.

**Dissolved TPH Constituents and Lead:** Groundwater cleanup levels (Table 2) are based on the protection of aquatic organisms and on human ingestion of such organisms. The Conditional Point of Compliance for the site groundwater is the property boundary.

**Natural Attenuation:** To demonstrate that natural attenuation is occurring to reduce contaminant concentrations, the performance criteria will be periodic monitoring of constituent plume data (i.e., BTEX and TPH) and a variety of other indicators of natural attenuation processes. These processes include physical, chemical, or biological processes in the form of biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization or destruction of contaminants. Following is the rationale for the selection of the natural attenuation monitoring parameters (from USEPA, 1994c).

#### Constituent Plume Characteristics

In the absence of natural attenuation mechanisms, constituent concentrations would remain relatively constant within the plume and then decrease rapidly at the edge of the plume. If natural attenuation is occurring, constituent concentrations will decrease with distance from the source along the flow path of the plume as a result of dispersion. If other natural attenuation mechanisms are occurring, the rate at which concentrations of constituents are reduced will be accelerated.

Monitoring of constituent concentrations in the groundwater over time will give the best indication of whether natural attenuation is occurring. If natural attenuation is occurring, the contaminant plume will migrate more slowly than expected based on the average groundwater velocity. Receding plumes typically occur when the

source has been eliminated. Natural attenuation may also be occurring in plumes that are expanding, but at a slower than expected rate. For example, in sandy soils [similar to Harbor Island] with relatively low organic carbon content (about 0.1 percent), BTEX constituents are expected to migrate at one-third to two-thirds of the average groundwater speed velocity (McAllister, 1994). Higher organic carbon content would further retard constituent migration. If constituents are migrating more slowly than expected based on groundwater flow rates and retardation factors, then other natural attenuation mechanisms (primarily biodegradation) are likely reducing constituent concentrations. For stable plumes, the rate at which contaminants are being added to the system at the source is equal to the rate of attenuation. A plume may be stable for a long period of time before it begins to recede, and in some cases, if the source is not eliminated, the plume may not recede.

Occurrence of biodegradation might also be deduced by comparison of the relative migration of individual constituents. The relative migration rates of BTEX constituents, based on the chemical properties, are expected to be in the following order:

benzene > toluene, o-xylene > ethylbenzene, m-xylene, p-xylene

If the actual migration rates do not follow this pattern, biodegradation may be responsible.

### **Dissolved Oxygen Indicators**

The rate of biodegradation will depend, in part, on the supply of oxygen to the contaminated area. At levels of dissolved oxygen (D.O.) below 1 to 2 mg/L in the groundwater, aerobic biodegradation rates are very slow. If background D.O. levels (upgradient of the contaminant source) equal or exceed 1 to 2 mg/L, the flow of groundwater from the up-gradient source will supply D.O. to the contaminated area, and aerobic degradation is possible.

Where aerobic biodegradation is occurring, an inverse relationship between D.O. concentration and constituent concentrations can be expected (i.e., D.O. levels increase as constituent levels decrease). Thus, if D.O. is significantly below background within the plume, aerobic biodegradation is probably occurring at the perimeter of the plume.

### **Geochemical Indicators**

Certain geochemical characteristics can also serve as indicators that natural attenuation, particularly biodegradation, is occurring. Aerobic biodegradation of petroleum products produces carbon dioxide and organic acids, both of which tend to cause a region of lower pH and increased alkalinity within the constituent plume.

Anaerobic biodegradation may result in different geochemical changes, such as increased pH. Under anaerobic conditions, biodegradation of aromatic hydrocarbons typically causes reduction of  $\text{Fe}^{3+}$  (insoluble) to  $\text{Fe}^{2+}$  (soluble), because iron is commonly used as an electron acceptor under anaerobic conditions. Thus, soluble iron concentrations in the groundwater tend to increase immediately downgradient of a petroleum source as the D.O. is depleted, and conditions change to become anaerobic (i.e., reduced). The concentration of methane increases, another indication that anaerobic biodegradation is occurring.

## Oxidation/Reduction Potential

The oxidation/reduction (redox) potential of groundwater is a measure of electron activity and is an indicator of the relative tendency of a solution to accept or transfer electrons. Because redox reactions in groundwater are biologically mediated, the rates of biodegradation both influence and depend on redox potential. Many biological processes operate only within a prescribed range of redox conditions. Redox potential also can be used as an indicator of certain geochemical activities (e.g., reduction of sulfate, nitrate, or iron). The redox potential of groundwater generally ranges from 800 millivolts to about -400 millivolts. The lower the redox potential, the more reducing and anaerobic the environment.

Measurement of redox potential of groundwater also allows for approximate delineation of the extent of the contaminant plume. Redox potential values taken from within the contaminant plume will be lower than background (upgradient) redox values and values from outside the plume. This is due in part to the anaerobic conditions that typically exist within the core of the dissolved hydrocarbon plume.

**Methane.** Methanogenesis has been determined to be a predominant biodegradation mechanism for fuel spills. During the aerobic biodegradation of petroleum constituents, methane is produced. Methane concentrations above background levels may indicate the occurrence of aerobic biodegradation of petroleum constituents.

**Nitrate.** After dissolved oxygen has been depleted, nitrate may be used as an electron acceptor for anaerobic biodegradation. Nitrate concentrations below background levels may indicate the occurrence of anaerobic biodegradation of petroleum compounds.

**Sulfate.** After dissolved oxygen and nitrate have been depleted, sulfate may be used as an electron acceptor for anaerobic biodegradation. Sulfate concentrations below background levels may indicate the occurrence of anaerobic biodegradation of petroleum compounds.

Based on this discussion (USEPA, 1994c), groundwater samples collected for natural attenuation evaluation will be analyzed for plume characterization parameters (BTEX, TPH-G, TPH-D, and TPH-O), dissolved oxygen, geochemical indicators (alkalinity, carbon dioxide, total iron (from which ferric iron [Fe<sup>3+</sup>] can be calculated), ferrous iron (Fe<sup>2+</sup>), hardness, methane, pH, and sulfate), and oxidation/reduction potential (Table 3).

### 2.2.3 MONITORING SCHEDULE

Free product monitoring will be conducted at periodic intervals to allow product to accumulate in wells but no less frequently than once a month. The frequency of free product monitoring will also depend on the amount

and type of free product removed from the monitoring wells as well as the season and type of free product recovery activity.

Groundwater monitoring conducted to confirm the effectiveness of natural attenuation and to estimate the rate will be conducted quarterly for the first year and annually thereafter (Table 3). Natural attenuation monitoring will be performed in accordance with confirmation groundwater sampling described in Section 2.3.

## **2.3 CONFIRMATION MONITORING**

The objective of confirmation monitoring is to confirm the long-term effectiveness of the cleanup action as discussed in Section 1.2, once performance and cleanup standards have been met [WAC 173-340-410(1)(c)]. Confirmation monitoring will include the sentry wells, and will consist of free product and groundwater monitoring for the IHS indicator parameters (Tables 2 and 3) as appropriate.

### **2.3.1 CONFIRMATION MONITORING LOCATIONS**

All monitoring wells in which water level measurements are taken will be checked for free product. There are presently 76 monitoring wells being used to develop groundwater elevation contours for the site.

A total of 28 monitoring wells designated in Table 1 will be used as confirmation monitoring wells. These wells will be included in the program due to their location adjacent to areas with soil cleanup actions or to provide a property boundary well network. Monitoring in these wells will be focused on the IHSs (BTEX, TPH) to provide water quality data for baseline data and trend analysis. Some of these wells will also be monitored for natural attenuation parameters.

### **2.3.2 SENTRY MONITORING WELLS**

Wells A-23, A-28, MW-12, MW-13, MW-16, and MW-18 will serve as sentry wells. These wells will be included in the program due to their location adjacent to areas with soil cleanup actions, product plume, or to provide off property boundary well network. Monitoring in these wells will be focused on the IHSs (Table 2) for groundwater to provide water quality data for baseline data and trend analysis. Except for A-19, A-23, A-27, and A-28, the rest of these wells will not be monitored for natural attenuation parameters (Table 3) since cleanup levels have been already met in these wells.

**Total and Dissolved Lead:** Total lead was detected periodically above the cleanup level in the following wells MW-6, MW-7, MW-07, MW-8, MW-9, MW-12, MW-13, A-21, A-23, A-28, SH-02, and SH-05. Dissolved lead was detected periodically above the cleanup level (Table 2) in MW-7. Confirmation monitoring will be performed in these wells, prior, during, and after implementation of the remedial alternative discussed in Section 1.2 for total lead baseline data and trend analysis.

### 2.33 COMPLIANCE CRITERIA

**Separate-Phase Hydrocarbons:** To demonstrate that free product removal has been accomplished, the performance criterion will be a lack of sheen in compliance monitoring wells.

**Groundwater:** Cleanup levels are based on the protection of aquatic organisms and humans ingesting such organisms. The conditional point of compliance where these cleanup levels will be met is at the property boundary of the GATX site. The groundwater cleanup levels are presented in Table 2.

Groundwater compliance criteria will document that cleanup levels have been achieved. Groundwater analytical data will be evaluated using time-trend plots, data comparison to cleanup levels, and statistical analysis, if appropriate. Time-trend plots will be used to evaluate long-term analytical trends in relation to the associated cleanup levels. If statistical analysis is performed, the analysis will be conducted in accordance with WAC 173-340-720(8) and Ecology Guidance (1992, 1993, and 1995).

### 2.34 MONITORING SCHEDULE

Confirmation free product monitoring will be conducted monthly for a period of one year after cessation of free product recovery activities as discussed in Section 1.2. The schedule will be reevaluated at that time as discussed in Section 3.4.1.

Monitoring of the confirmation, performance, and sentry groundwater monitoring wells will begin within the quarter the Consent Decree is approved. Confirmation monitoring will continue for five years after completion of the cleanup action. Sampling will occur quarterly for the first year. Ecology and GATX will review the data after one year. If monitoring data indicates that trends are declining, the sampling frequency and number of parameters may be reduced as warranted.



## 30 Data Evaluation

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### 3.1 DATA VALIDATION

Analytical data will be validated according to United States Environmental Protection Agency (USEPA) data validation guidelines. Data validation will include evaluation of holding times, method blank results, surrogate recovery results, field and laboratory duplicate results, completeness, detection limits, laboratory control sample results, and chain-of-custody forms. Data validation procedures are further described in the Sampling and Analysis Plan (Appendix A).

### 3.2 PRACTICAL QUANTITATION LIMITS

Practical Quantitation Limits (PQLs) will be established for each analyte to determine whether any of the limits are above the corresponding cleanup level. The PQL will be determined by multiplying the lowest method detection limit (MDL) obtained by the laboratory for Terminal groundwater samples by a factor of ten (Ecology, 1993). If the PQL for any constituent is above the corresponding cleanup level, the cleanup level will be considered to be attained if the constituent is detected below the PQL [WAC 173-340-707(2)].

### 3.3 PRODUCT MONITORING DATA

Product monitoring data will be reviewed as it is generated to determine the need for free product recovery system alterations or to determine changes in free product monitoring frequency. Quality control protocol will be followed to ensure that free product measurements are reliably obtained and consistently measured. Groundwater and product level data will be entered in spreadsheets for trend plots and analysis.

### 3.4 GROUNDWATER CHEMISTRY DATA REVIEW

**Natural Attenuation Monitoring Data.** Natural attenuation monitoring data will be reviewed to determine if the data is sufficient to evaluate natural attenuation processes at the site. If data gaps are identified, GATX may propose to add parameters as necessary to adequately evaluate natural attenuation.

**Confirmation, Performance, and Sentry Monitoring Data.** After each monitoring event, groundwater chemistry data will be reviewed once

it is validated. The data will be compared to groundwater cleanup levels. If a sample result is above a groundwater cleanup level and is also above the historic high concentration in that well, the well will be re-sampled to verify the result. Re-sampling will occur within one month of receiving the laboratory data. Groundwater chemistry and elevation data will be used in the one and five-year review as subsequently described.

#### 3.4.1 ONE YEAR SITE REVIEW

Groundwater elevation and chemistry data will be evaluated after the first year of sampling. Natural attenuation monitoring well data will be evaluated as previously discussed in Section 2.2.2. Spatial and temporal changes in plume characterization parameters, dissolved oxygen, geochemical indicators, and oxidation/reduction potential (Table 3) will be evaluated to determine the effectiveness and rate of natural attenuation at the site.

Groundwater analytical results will be evaluated using time-trend plots and data comparison to cleanup levels. Time-trend plots will be prepared for each constituent detected above the PQL; trends will be identified by visual observation. The time-trend plots will be used to evaluate long-term trends in compliance wells and to compare groundwater conditions with cleanup levels. A groundwater contour map will be prepared to verify that the predominant groundwater flow directions at the Terminal remain relatively consistent.

The data evaluation will be submitted to Ecology for review. After the first year review, if the confirmation (and or sentry) wells exceed cleanup standards, Ecology and GATX (and the potentially affected adjacent property owner) will evaluate groundwater conditions prior to considering contingency plans. If monitoring data indicates that trends are declining, the sampling frequency and number of parameters may be reduced as warranted.

#### 3.4.2 FIVE YEAR SITE REVIEW

Groundwater elevation and chemistry data will be evaluated after five years of monitoring. Groundwater contour maps will be prepared to verify that the groundwater flow directions at the Terminal have not changed significantly.

**Natural Attenuation Monitoring Data.** Natural attenuation monitoring data will be evaluated as previously described in Section 2.2.2.

The data evaluation will be documented and presented in the five-year review report.

**Sentry Well Data:** Groundwater analytical data will be evaluated using time-trend plots and data comparison to cleanup levels. Time-trend plots will be prepared for each constituent detected above the PQL and trends will be identified by visual observation.

**Confirmation and Performance Well Data:** Groundwater analytical data will be evaluated using time-trend plots, data comparison to cleanup levels, and, if appropriate, statistical analysis. Time-trend plots will be prepared for each constituent detected above the PQL and trends will be identified. Time-trend plots will be used to evaluate long-term analytical trends in relation to the associated cleanup levels. If statistical analysis is performed, the analysis will be conducted in accordance with WAC 173-340-720(8) and Ecology Guidance (1992, 1993, and 1995).

## 4.0 Compliance Evaluation Criteria

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### 4.1 PERFORMANCE MONITORING

Monitoring data will be evaluated to determine the effectiveness of the remedy, whether changes to the free product monitoring schedule and/or monitoring wells are warranted. Changes may be made in the frequency of free product monitoring to optimize free product removal or system efficiency. These changes may depend on the amount and type of free product removed from the monitoring wells, the season, and the type of free product recovery activity. Other changes in performance monitoring will be made as follows:

- Additional free product recovery activities and monitoring will be initiated immediately if free product is observed in wells that previously had not contained free product.
- An additional well or well point will be installed and monitored if free product is observed for the first time in a downgradient or cross-gradient well. The need for additional free product recovery activities will also be reviewed.
- Performance monitoring will continue as long as free product is observed in the area being monitored.
- Performance monitoring will end and confirmation monitoring will begin when free product has not been observed in any well in the area being monitored for a period of six months.

### 4.2 CONFIRMATIONAL MONITORING

#### 4.2.1 FREE PRODUCT

Free product confirmation monitoring will end and the area will be considered to be free of free product when no sheen is observed in any well in the area being monitored for a period of one year.

Free product recovery activities and performance monitoring will resume if measurable product is found in any well in an area being monitored.

#### 4.2.2 GROUNDWATER

The review of groundwater quality data will be focused on evaluating groundwater quality trends and not on a single event or exceedance in a single well. Changes to the groundwater-monitoring program will be based on groundwater quality data review as described in Section 3.4.

Groundwater quality data will be tabulated and trend plots prepared as part of the one-year site review and five-year site review. If the chemistry results are all below cleanup levels for four consecutive quarters, then GATX will petition Ecology for site de-listing review and if Ecology concurs, the site shall be de-listed.

As part of the five-year site review, statistical analysis of the data will be performed if groundwater analytical results remain above cleanup levels. Alternatively, if the cleanup standards are met in 95 percent of the wells for four consecutive quarters, GATX will petition Ecology for site de-listing review and if Ecology concurs, the site shall be de-listed. In addition to reviewing chemistry data for the indicator hazardous substances (Table 2), natural attenuation parameters (Table 3) will also be evaluated to determine the effectiveness of natural attenuation at the site.

Data will be evaluated as described in Section 3.4.2. The contingency plan (summarized in Section 5.0) will be initiated if the five-year review identifies the following:

- There is an increasing trend in the groundwater quality data and the data trend exceeds the cleanup level in the performance, confirmation and sentry wells.
- An analyte is consistently above the cleanup level or statistically above the cleanup level with an increasing trend and with no evidence of natural attenuation.

## **5.0 Contingency Plan**

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A contingency plan sets forth a “backup” remediation technology in the event that a remedial technology within the Cleanup Plan fails or proves ineffective in a timely manner (five years after implementation of the preferred option discussed in Section 1.2). When evaluating the need to implement the contingency plan, all data will be evaluated as described in Section 3.4.2. A contingency plan will be initiated and implemented within 30 days of meeting any of the following criteria:

- If, after implementing the selective remedial action, the results of the groundwater monitoring program indicate elevated contaminant concentration over the specified restoration time frame of 5 years;
- If contaminants are newly identified in point of compliance wells located beyond the original plume boundary, indicating renewed contaminant migration; or
- If contaminant migration is not decreasing at a sufficient rate to ensure that the primary and secondary concerns identified for the site are being met.

The following actions will be initiated if the above criteria are triggered:

- Identification of the source(s) causing the criteria to be triggered. The highest priority in the compliance plan would be to identify and control the source. Accessible sources will be removed to the extent technically practicable without undermining the integrity of the adjacent above storage tanks, if present near the source area(s).
- Review Preferred Options Summary discussed in Section 1.2 and propose a supplemental remedy or combination of remedies, if needed, to prevent adverse impacts to offsite properties. (e.g., evaluation and potential expansion of the free product recovery system to ensure removal of free product from the water table if residual free product is identified beyond the capture zone of the system).

In the event that site conditions trigger a contingency plan implementation due to adverse impacts to offsite properties, Ecology, GATX, and the potential to be affected adjacent property owner will evaluate groundwater conditions prior to implementation of the contingency plan. In the event that site conditions trigger a contingency plan implementation other than considerations due to adverse impacts to offsite properties, Ecology and GATX will evaluate groundwater conditions prior to implementation of the contingency plan.

In the event that the contingency plan should be implemented, GATX will prepare a contingency work plan that contains engineering design criteria to address the remediation technology necessary to address the criteria triggering the contingency plan implementation. The contingency work plan will be approved by Ecology prior to its implementation.

## 6.0 Reporting

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During the compliance-monitoring program, monitoring data will be submitted to Ecology on a periodic basis. Ecology will also be notified if new data indicates that a significant change in site conditions has occurred. Monitoring data and other information will be submitted in the following reports:

- **Quarterly Data Reports.** Laboratory analytical data reports will be submitted to Ecology after each round of monitoring has been completed.
- **Annual Monitoring Reports.** Monitoring reports will be prepared annually. The report will include a data validation memo, updated groundwater chemistry tables (including any well re-sampling results), and free product recovery data. Analytical time-trend plots will also be included in the reports. Analytical time-trends will be discussed when they are observed and other relevant data observations will be described. Any changes in the free product recovery system will also be discussed.
- **Five-year Review Report.** A report will be submitted to Ecology summarizing the five-year review of the compliance monitoring data. The report will include an updated groundwater elevation table, a representative groundwater contour map, time-trend plots for analytes detected above the PQL, and a comparison of the data to cleanup levels. Groundwater elevation and chemistry data will be evaluated. In addition to reviewing chemistry data relative to the indicator hazardous substances, natural attenuation parameters will also be evaluated to determine the effectiveness of natural attenuation and other cleanup action implementation at the site. As part of the five-year site review, statistical analysis of the data will be performed if analytical results remain above cleanup levels.



## 7.0 References

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Ebasco. 1990. Final Phase I Remedial Investigation, Harbor Island Site, Seattle, Washington. Submitted to EPA, Region 10.

Ecology. 1991. The Model Toxics Control Act Cleanup Regulation, WAC Chapter 170-340. Washington State Dept. of Ecology, February.

Ecology. 1992. Statistical Guidance for Ecology Site Managers. Publication No. 92-54. August.

Ecology. 1993a. Statistical Guidance for Ecology Site Managers, Supplement S-6, Analyzing Site or Background Data with Below-detection Limit or Below PQL Values (Censored Data Sets). August.

Ecology. 1993b. Implementation Memo No. 3 (re: PQLs as Cleanup Standards) from S. Robb to interested Ecology staff. Ecology Publication 93-100. November 24.

Ecology. 1993. Groundwater Cleanup Standards for Harbor Island. Letter correspondence to Shell. April 20<sup>th</sup>.

Ecology. 1993. Soil and Groundwater Cleanup Levels for Harbor Island RI/FS. Letter correspondence to Shell. July 26<sup>th</sup>.

Ecology. 1995. Guidance on Sampling and Data Analysis Methods. Publication No. 94-49. January.

Hart Crowser. 1992. Final Background Summary Report, Shell Oil Company, Harbor Island Terminal, Seattle, Washington. Submitted to Ecology. August 6<sup>th</sup>.

Hart Crowser. 1992. Remedial Investigation Work Plan, Shell Oil Company, Harbor Island Terminal, Seattle, Washington. Submitted to Ecology. November 4<sup>th</sup>.

Galaster, R.W., and W.T. Laprade, 1991. Geology of Seattle, Washington, United States of America. Bull. Assoc. of Engineering Geologist, V. 28, No. 3.

Madakor, Nnamdi. 1997. Washington State Department of Ecology, Toxics Cleanup Program. Analytical Fate and Transport Modeling, Harbor Island Tank Farms (ARCO, TEXACO, & GATX), "A decision making tool in the Cleanup Action Plan"

Pacific Environmental Group Inc. 1994. Remedial Investigation Report, Shell Oil Company, Harbor Island Terminal, Seattle Washington. Submitted to Ecology December 28th.

Pacific Environmental Group Inc. 1997. Focused Feasibility Study, GATX Terminals Corporation, Harbor Island Terminal, Seattle, Washington. Submitted to Ecology April 9th.

Pacific Environmental Group Inc. 1996. Supplemental Remedial Investigation, GATX Harbor Island Terminal, Seattle, Washington. Submitted to Ecology April 11th.

Pacific Environmental Group Inc. 1997. Supplemental Remedial Investigation, C Yard Fuel Spill, GATX Harbor Island Terminal, Seattle, Washington. Submitted to Ecology March 20th.

USEPA. 1993. Record of Decision; Declaration, Decision Summary, and Responsiveness Summary for Harbor Island Soil and Groundwater, Seattle, Washington. USEPA, Region 10. September 1994.

USEPA. 1994c. "Chapter IX, Natural Attenuation" in How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites, A Guide for Corrective Action Plan Reviewers. USEPA Office of Solid Waste and Emergency Response. EPA 510-B-94-003. October.

USEPA. 1995. A Guide for Corrective Action Plan Review, How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Site, 510-B-95-007. May.

USEPA. 1997. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites, Draft Interim Final OSWER Directive 9200.4-17. USEPA Office of Solid Waste and Emergency Response. November.

Weston. 1993. Remedial Investigation Report; Remedial Investigation and Feasibility Study, Harbor Island. Prepared for USEPA, Region 10. February.

**Table 1**  
**Compliance Monitoring Wells**  
**GATX Harbor Island Terminal**  
**Seattle, Washington**

<b>Monitoring Well</b>	<b>Well Location</b>	<b>Compliance Monitoring Objective</b>
A-5	A Yard	Confirmational
A-8	A Yard	Confirmational
A-10	A Yard	Confirmational
A-14	A Yard	Performance / Confirmational
A-21	A Yard	Performance / Confirmational
A-23	A Yard*	Performance / Confirmational / Sentry
MW-7	B Yard	Performance / Confirmational
MW-8	B Yard	Performance / Confirmational
MW-9	B Yard	Performance / Confirmational
MW-07	B Yard	Performance / Confirmational
A-27	B Yard	Performance / Confirmational
SH-05	B Yard	Performance / Confirmational
A-28	B Yard*	Confirmational / Sentry
New Well #2	B Yard	Confirmational
MW-2	C Yard	Background / Confirmational
MW-3	C Yard	Performance/ Confirmational
MW-4	C Yard	Performance / Confirmational
SH-02	C Yard	Performance / Confirmational
New Well #1	C Yard	Performance / Confirmational
New Well #4	C Yard	Performance / Confirmational
MW-12	D Yard*	Confirmational / Sentry
MW-13	C Yard*	Confirmational / Sentry
MW-16	C Yard*	Confirmational / Sentry
MW-18	C Yard*	Confirmational / Sentry
MW-5	D Yard	Performance / Confirmational
MW-6	D Yard	Performance / Confirmational
MW-14	D Yard	Performance
New Well #3	D Yard	Performance / Confirmational
MW-1	E Yard	Background / Confirmational

NOTES: All wells where water levels are measured serve as Performance or Confirmation wells for free product

\* Located Off-site

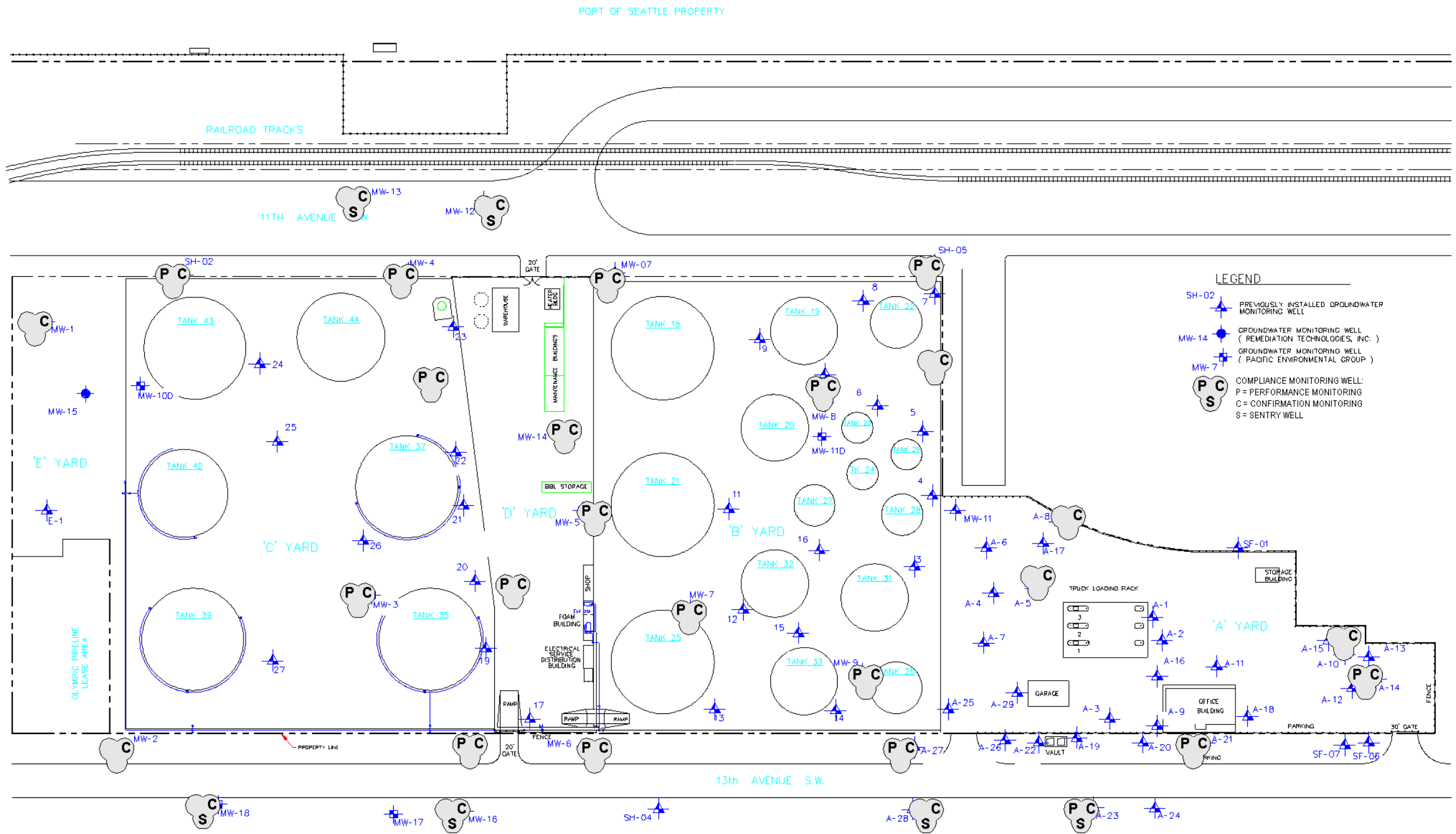
**Table 2**  
**Groundwater Cleanup Levels**  
GATX Harbor Island Terminal  
Seattle, Washington

<b>Constituent</b>	<b>Cleanup Level (mg/L)</b>
Benzene	0.071
Toluene	200.0
Ethylbenzene	29.0
TPH-G	1
TPH-D	10
TPH-O	10
Lead	0.0058

**Table 3**  
**Natural Attenuation Indicator Parameters**  
 GATX Harbor Island Terminal  
 Seattle, Washington

<b>PARAMETER</b>	<b>METHOD / UNIT</b>
Temperature, pH, alkalinity	Field / variable
Dissolved Oxygen (DO)	Field / mg/l
Carbon dioxide	Field / mg/l
Nitrate (NO <sub>3</sub> )	Laboratory / mg/l
Nitrite (NO <sub>2</sub> )	Laboratory / mg/l
Dissolved ferrous iron (Fe <sup>2+</sup> )	Laboratory / mg/l
Dissolved Methane (CH <sub>4</sub> )	Laboratory / mg/l
Sulfate (SO <sub>4</sub> )	Laboratory / mg/l
Sulfide (H <sub>2</sub> S)	Laboratory / mg/l
Reduction/Oxidation potential (Redox, Eh)	Field / millivolts





<b>KHM</b> Environmental Management Inc.	TITLE Compliance Well Location Map		
	GATX Terminals Corporation Harbor Island Terminal 2720 13th Avenue Southwest Seattle, Washington		
	DATE 10/26/99	PROJECT A30-01A	FIGURE 1

June 21, 2007

Mr. Roger Nye  
Washington State Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue N.E.  
Bellevue, Washington 98008-5452

Sent via FedEx Saver

SUBJ: Site-Wide Groundwater Compliance Monitoring Plan – Proposed  
Reduced Monitoring  
Kinder Morgan Harbor Island Terminal  
Seattle, Washington  
Delta Project No. STKM-001-M.0005



Dear Mr. Nye:

This plan has been prepared on behalf of Kinder Morgan Liquid Terminals, LLC (KMLT) by Delta Environmental Consultants (Delta) and presents a proposed revision to the site-wide groundwater compliance monitoring program for the KMLT Harbor Island Terminal located at 2720 13<sup>th</sup> Avenue Southwest in Seattle, Washington ("the site"). The revisions included in this document supersede those revisions previously proposed in an August 2, 2006 letter to you, and in a second draft dated March 22, 2007. These plan revisions are proposed in accordance with Section 2.3.4 of the Compliance Monitoring Plan (Plan) developed for the site. Further modifications to the Draft Plan were discussed with you by telephone on June 13, 2007, and this Final Proposed Reduced Monitoring Plan incorporates those modifications.

#### **PROPOSED SITE-WIDE COMPLIANCE MONITORING PLAN**

The Plan was developed to describe the protocol and procedures used to confirm that cleanup requirements are achieved at the site. This monitoring plan was prepared to satisfy the requirements of the Model Toxics Control Act (MTCA) regulations WAC 173-340-410, -720, and -820 and in accordance with requirements from Exhibit F of the Consent Decree.

The achievement of cleanup levels in groundwater is measured at points of performance and compliance located within the hydrocarbon plume area and at the downgradient edge of the site. The wells at the downgradient edge of the site are considered conditional points of compliance wells. These points of compliance and performance consist of a network of monitoring wells located in the hydrocarbon plume area and on the downgradient property boundary. Sentry wells are also used to document plume migration, performance standards, and to warn of any unanticipated change in off-site groundwater conditions.



The Compliance Monitoring Plan incorporated in the Consent Decree includes quarterly monitoring for free product, dissolved TPH constituents, total and dissolved lead, and natural attenuation parameters. In accordance with *Section 2.3.4 Monitoring Schedule* of the Plan, the sampling frequency and number of parameters may be reduced if monitoring data indicates that trends are declining. Following are the proposed revisions for each of these compliance monitoring criteria, and the rationale for each revision.

### **Free Product**

As established in the Plan, KMLT currently performs quarterly gauging of 71 wells for monitoring of free product. KMLT proposes to continue monitoring of wells in which free product has been observed during the past 8 quarters, and the 29 wells which were identified as Compliance Monitoring Wells in Table 1 of the Plan. Accordingly, KMLT proposes to continue quarterly gauging of the following 43 wells: A-4, A-5, A-6, A-8, A-10, A-11, A-12, A-14R, A-16, A-18, A-19, A-20, A-21, A-22R, A-23R, A-25, A-26R, A-27, A-28R, 12, MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-12R, MW-13R, MW-14, MW-16, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-24, SH-02R, SH-05R, and MW-07R.

### **Dissolved TPH Constituents**

The current compliance monitoring program for dissolved TPH constituents includes quarterly sampling of 32 monitoring wells (29 Compliance Monitoring Wells and 3 additional wells which were installed in September 2003 as part of a supplemental study to further characterize free product in the A Yard). A summary of monitoring wells and annual analyses included in the current dissolved TPH constituents compliance monitoring program is presented on Table 1. A site map showing locations of groundwater monitoring wells is included as Figure 2.

An evaluation of groundwater analytical data collected since the execution of the Consent Decree indicates that data collected from numerous monitoring wells have demonstrated that cleanup criteria have either been met from the outset of the program or have demonstrated at least 4 consecutive quarters meeting cleanup criteria. A summary of groundwater analytical results for 2000 through December 2006 are presented in Table 2.

An evaluation of historical groundwater analytical results with respect to established cleanup criteria is summarized in Table 3. Where applicable, wells and corresponding analytes which demonstrate a consistent trend of meeting cleanup criteria are noted. Wells and corresponding analytes are highlighted where historic monitoring indicates a reduction in monitoring frequency or analytes is warranted.

KMLT proposes a revision from quarterly monitoring for TPH parameters as follows. For wells which have demonstrated that cleanup criteria for TPH-G, BTEX, TPH-D, and TPH-O have been met from the outset of the program, KMLT proposes to reduce the frequency of quarterly monitoring to annual monitoring. For wells which have not met the criteria for TPH-G and BTEX, but have met the criteria for TPH-D and TPH-O, KMLT proposes to continue quarterly monitoring for TPH-G and BTEX and discontinue monitoring for TPH-D and TPH-O. Proposed compliance monitoring plan revisions are summarized in Table 4.

After the revised program is initiated, if results demonstrate that any TPH cleanup criteria has been exceeded in a well, KMLT will revert to quarterly monitoring for respective analytes that were exceeded for the well, and will resume quarterly monitoring for natural attenuation parameters.

### **Total and Dissolved Lead**

As established in the Plan, KMLT currently monitors for total lead on a quarterly basis in 20 wells. The purpose of this monitoring is to demonstrate performance and confirmation monitoring of the surface cleanup action for the site. The surface cleanup action, which included removal of surface soils containing concentrations of total lead exceeding the hot-spot cleanup criteria, was executed and completed in April and May 2002. In accordance with *Section 2.2* of the Plan, performance monitoring for total lead has been performed on a quarterly basis since the completion of the surface cleanup action. Following the performance of the surface cleanup action, total lead has infrequently exceeded the cleanup criterion. KMLT proposes to continue monitoring for this parameter on an annual basis.

As required in the Plan, KMLT also currently monitors for dissolved lead on a quarterly basis in the same 20 wells which are monitored for total lead. Cleanup criteria for this parameter was not established in the Cleanup Action Plan. Dissolved lead has been detected in 4 of the 20 wells. Dissolved lead was detected in one or two instances in two wells, and was detected in two wells on a more frequent basis in two wells. Delta proposes to monitor for

dissolved lead in two wells (A-23R and MW-7) which have contained measurable concentrations on a periodic basis in the past.

A summary of monitoring wells and annual analyses included in the current total and dissolved lead compliance monitoring program is presented on Table 1. A summary of groundwater analytical results for 2000 through December 2006 are presented in Table 2. An evaluation of historical groundwater analytical results with respect to established cleanup criteria is summarized in Table 3. Proposed compliance monitoring plan revisions are summarized in Table 4.

### **Natural Attenuation Parameters**


The current compliance monitoring program for natural attenuation parameters includes quarterly sampling of 26 monitoring wells (23 Compliance Monitoring Wells and 3 additional wells which were installed in September 2003 as part of a supplemental study to further characterize free product in the A Yard). In accordance with *Section 2.2.3 Monitoring Schedule* of the Plan which states that natural attenuation monitoring will be conducted quarterly for the first year and annually thereafter, KMLT proposes to discontinue monitoring of wells which have met the criteria for TPH-G, BTEX, TPH-D and TPH-O constituents, and continue monitoring on an annual basis those wells which have not met the criteria. Proposed compliance monitoring plan revisions are summarized in Table 4.

A summary of proposed compliance monitoring plan revisions are presented in Table 4. Wells which are designated for annual monitoring will be monitored during the second quarter event. A summary of monitoring wells and a tally of annual analyses for all parameters proposed in this compliance monitoring program revision is presented on Table 5.

KMLT proposes to incorporate the compliance monitoring plan revisions included herein during the third quarter 2007 monitoring event. Please call if you have any questions regarding the contents of this letter, or if you would like to discuss any aspect of the proposed compliance monitoring plan. Delta looks forward to your approval of this program.

Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

  
for Ward Crell  
Principal Geologist

Enc: Table 1 – Summary of Current Annual Analyses, Groundwater Compliance Program  
Table 2 – Groundwater Analytical Results  
Table 3 – Analytical Summary 2000 – December 2006, Current Groundwater Compliance Program  
Table 4 – Proposed Groundwater Compliance Program, Recommended Monitoring Frequency  
Table 5 – Summary of Proposed Annual Analyses, Groundwater Compliance Program  
Figure 1 – Site Plan – Groundwater Monitoring Well Locations

cc: Mr. Robert Truedinger, Kinder Morgan Energy Partners, L.P., Richmond, California  
Ms. Kelsy Hardy, Kinder Morgan Energy Partners, L.P., Orange, California (File Copy - CD Only)

**TABLE 1**  
**CURRENT ANNUAL ANALYSES**  
**GROUNDWATER COMPLIANCE PROGRAM**  
 Kinder Morgan Harbor Island Terminal

Well ID	Indicator Hazardous Substances				Natural Attenuation Parameters				
	TPH-G/ BTEX	TPH-D+ extended	Total Lead	Dissolved Lead	Nitrate (NO3)	Ferrous Iron	Methane	Sulfate (SO4)	Sulfide (H2S)
A-5	4	4							
A-8	4	4							
A-10	4	4			4	4	4	4	4
A-14R	4	4	4	4	4	4	4	4	4
A-21	4	4	4	4	4	4	4	4	4
A-23R	4	4	4	4	4	4	4	4	4
A-27	4	4			4	4	4	4	4
A-28R	4	4	4	4	4	4	4	4	4
MW-1	4	4	4	4	4	4	4	4	4
MW-2	4	4	4	4	4	4	4	4	4
MW-3	4	4	4	4	4	4	4	4	4
MW-4	4	4			4	4	4	4	4
MW-5	4	4	4	4	4	4	4	4	4
MW-6	4	4	4	4	4	4	4	4	4
MW-7	4	4	4	4	4	4	4	4	4
MW-8	4	4	4	4	4	4	4	4	4
MW-9	4	4	4	4	4	4	4	4	4
MW-12R	4	4	4	4					
MW-13R	4	4	4	4					
MW-14	4	4			4	4	4	4	4
MW-16	4	4							
MW-18	4	4							
MW-19	4	4			4	4	4	4	4
MW-20	4	4			4	4	4	4	4
MW-21	4	4			4	4	4	4	4
MW-22	4	4			4	4	4	4	4
SH-02R	4	4	4	4	4	4	4	4	4
SH-05R	4	4	4	4	4	4	4	4	4
MW-07R	4	4	4	4	4	4	4	4	4
MW-23	4	4	4	4	4	4	4	4	4
MW-24	4	4	4	4	4	4	4	4	4
MW-25	4	4	4	4	4	4	4	4	4
<b>ANNUAL TOTAL:</b>	128	128	80	80	104	104	104	104	104

**Notes:** Number denotes number of quarters sampled annually

 Parameter not analyzed



**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS**

Kinder Morgan Liquid Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest  
Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>MW-4</b>	02/14/02	0.78	280	<50	0.3	0.0072	0.0023	0.0082	NA
	05/21/02	1.5	8.6	<0.5	0.43	0.023	0.034	0.13	NA
	08/28/02	3.3	30	2.6	1.1	0.016	0.016	0.024	NA
	11/04/02	NS	NS	NS	NS	NS	NS	NS	NA
	02/19/03	3.1	31	<0.5	0.056	0.0017	0.014	0.02	NA
	06/10/03	0.39	12	<0.25	0.031	0.0012	0.0091	0.0096	NA
	09/16/03	NS	NS	NS	NS	NS	NS	NS	NS
	11/19/03	0.25	19	<0.50	0.033	<0.001	0.0042	0.0069	NA
	02/25/04	0.36	15	<0.50	0.035	0.0014	0.0056	0.0094	NA
	05/12/04	0.33	7.4	<0.50	0.012	<0.001	0.0048	0.0058	NA
	08/26/04	<0.50	5.1	<0.50	0.014	<0.0025	0.0039	0.0069	NA
	12/15/04	NS	NS	NS	NS	NS	NS	NS	NA
	03/09/05	<2.0	11	<0.50	<0.01	<0.01	<0.01	0.013	NA
	06/08/05	<1.0	16	1.1	<0.005	<0.005	<0.005	<0.005	<0.0050
	09/21/05	<2.0	19	2.1	<0.010	<0.010	<0.010	<0.010	NA
	12/14/05	<0.50	6.2	0.81	0.012	<0.0025	0.0032	0.0084	NA
	03/14/06	<0.40	3.9	0.69	0.0063	<0.0020	0.0020	0.0062	NA
	06/07/06	<0.50	4.5	<0.50	0.0037	<0.0025	<0.0025	<0.0025	NA
	09/13/06	<0.50	2.7	<0.50	0.0034	<0.0025	<0.0025	0.0029	NA
	<b>12/13/06</b>	<b>&lt;0.25</b>	<b>3.7</b>	<b>0.62</b>	<b>0.0012</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>0.0023</b>	<b>NA</b>
<b>MW-5</b>	02/13/02	<0.25	<0.25	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	05/21/02	<0.25	<0.5	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	0.01*
	08/29/02	<0.25	1.2	<0.5	<0.0005	0.0018	<0.0005	0.00063	<0.005*
	11/05/02	<0.25	1.6	<0.5	0.0055	0.0016	<0.0005	0.00056	<0.005*
	02/20/03	<0.25	<0.25	<0.5	<0.0005	0.00066	<0.0005	<0.0005	<0.005*
	06/11/03	<0.25	0.36	<0.25	<0.0005	0.00079	<0.0005	<0.0005	<0.005*
	09/16/03	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.011*
	11/20/03	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0086*
	02/24/04	<0.25	<0.50	<0.50	<0.0005	0.0014	<0.0005	<0.0005	<0.0050*
	05/11/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/26/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/15/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/09/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.11*
	06/08/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/21/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/14/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.012*
	06/07/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0099*
	09/13/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.013*
	<b>12/13/06</b>	<b>&lt;0.25</b>	<b>&lt;0.25</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>0.0088*</b>
<b>MW-6</b>	02/13/02	0.97	1.1	<0.5	0.014	0.0007	<0.0005	0.00065	<0.005*
	05/22/02	1.1	2.5	<0.5	0.035	0.0012	0.0024	0.00072	<0.005*
	08/29/02	0.58	6.4	<0.5	0.0014	<0.001	<0.001	<0.001	<0.005*
	11/05/02	0.59	7.3	<0.5	0.064	<0.001	<0.001	0.0016	0.02*
	02/19/03	0.54	1.7	<0.5	0.0062	<0.0005	<0.0005	<0.0005	<0.005*
	06/10/03	0.70	1.9	<0.25	0.025	0.0011	0.00052	0.00051	<0.005*
	09/16/03	0.68	<0.50	<0.50	<0.0005	<0.0005	0.00053	<0.0005	0.019*
	11/19/03	0.44	1.6	<0.50	0.0095	0.00067	<0.0005	0.00051	<0.0050*
	02/25/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	05/11/04	1.0	0.67	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/25/04	<0.25	0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/04	0.82	0.81	<0.50	0.008	<0.0005	<0.0005	<0.0005	0.011*
	03/10/05	1.0	0.42	<0.50	0.0011	<0.0005	<0.0005	<0.0005	<0.0050*
	06/07/05	0.9	<0.25	<0.50	0.0014	<0.0005	<0.0005	<0.0005	<0.0050*
	09/20/05	0.9	<0.25	<0.50	<0.0005	<0.0005	0.00062	<0.0005	<0.0050*
	12/13/05	1.2	0.38	<0.50	0.0032	<0.0005	0.0005	<0.0005	<0.0050*
	03/15/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/12/06	0.71	<0.25	<0.50	<0.0005	0.00055	<0.0005	<0.0005	<0.0050*
	<b>12/12/06</b>	<b>&lt;0.25</b>	<b>&lt;0.25</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>0.00055</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0050*</b>

**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS**

Kinder Morgan Liquid Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest  
Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>MW-7</b>	02/14/02	13	7.5	<0.5	0.20	0.24	0.57	1.8	0.035*
	05/21/02	6.6	11	<0.5	0.16	0.089	0.43	0.66	0.04*
	08/29/02	2.9	5.7	<0.5	0.12	0.042	0.24	0.11	0.047*
	11/05/02	0.9	5.9	<0.5	0.021	0.0022	0.004	0.0066	0.041*
	02/20/03	9.7	11	<0.5	0.12	0.13	0.33	1.4	0.11 <sup>sa</sup>
	06/11/03	5.7	8.7	<0.25	0.13	0.092	0.26	0.52	0.081 <sup>sa</sup>
	09/17/03	1.4	12	<0.50	0.078	0.031	0.15	0.089	0.11 <sup>sa</sup>
	11/20/03	0.26	0.8	<0.50	<0.0005	<0.0005	<0.0005	0.035	0.019 <sup>sa</sup>
	02/26/04	15	21	<0.50	0.11	0.34	0.63	3.8	0.034 <sup>sa</sup>
	05/11/04	6.3	11	<0.50	0.059	0.15	0.31	1.3	0.0083 <sup>sa</sup>
	08/26/04	7.1	20	<0.50	0.054	0.22	0.34	1.7	0.067 <sup>sa</sup>
	12/15/04	18	4.4	<0.50	0.14	0.37	0.53	3	0.19 <sup>sa</sup>
	03/09/05	3.5	2.1	<0.50	0.045	0.034	0.09	0.27	0.079 <sup>sa</sup>
	06/08/05	2.9	2.3	<0.50	0.054	0.05	0.11	0.44	0.069 <sup>sa</sup>
	09/20/05	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/05	8.8	0.59	<0.50	0.16	0.19	0.31	1.5	0.042 <sup>sa</sup>
03/14/06	15	0.50	<0.50	0.12	0.26	0.50	3.6	0.026*	
06/07/06	17	0.85	<0.50	0.12	0.35	0.69	4.5	0.023*	
09/13/06	2.4	0.32	<0.50	0.05	0.06	0.19	0.39	0.021 <sup>a</sup>	
<b>12/13/06</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	
<b>MW-8</b>	02/14/02	<0.25	8.1	<5.0	<0.0005	0.00086	<0.0005	<0.0005	0.03*
	08/29/02	<0.25	7.5	<0.5	<0.0005	0.00082	<0.0005	<0.0005	0.017*
	11/05/02	<0.25	1.7	1.2	<0.0005	<0.0005	<0.0005	<0.0005	0.012*
	02/20/03	<0.25	6.6	<0.5	<0.0005	0.00055	<0.0005	0.0024	0.029*
	06/11/03	<0.25	3.8	<0.25	0.0013	<0.001	<0.001	<0.001	0.012*
	09/17/03	<0.25	3.3	0.77	<0.0005	<0.0005	<0.0005	<0.0005	0.030*
	11/20/03	<0.25	2.5	<0.50	<0.001	<0.001	<0.001	<0.001	<0.0050*
	02/26/04	<0.25	2.7	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.016*
	05/11/04	<0.25	1.5	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/26/04	<0.25	1.0	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/15/04	<0.25	1.5	<0.50	<0.001	<0.001	<0.001	<0.001	0.0071*
	03/09/05	<0.25	1.6	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0094*
	06/08/05	<0.25	1.8	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.014*
	09/21/05	<0.25	1.0	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.011*
	12/14/05	<0.25	1.1	0.58	<0.001	<0.001	<0.001	0.0013	0.0060*
	03/14/06	<0.25	0.54	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.011*
06/07/06	<0.25	0.88	0.61	<0.0005	<0.0005	<0.0005	<0.0005	0.0093*	
09/13/06	<0.25	0.35	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.012*	
<b>12/13/06</b>	<b>&lt;0.25</b>	<b>0.82</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>0.0060*</b>	
<b>MW-9</b>	06/11/03	6.0	13	<0.50	0.0031	0.036	0.076	0.6	0.022*
	09/17/03	5.3	39	0.72	0.026	0.027	0.09	0.45	0.0095*
	11/20/03	8.5	19	<0.50	<0.005	0.018	0.14	1.1	0.0096*
	02/26/04	4.1	28	<0.50	0.022	0.0072	0.025	0.47	0.0083*
	05/11/04	4.1	5.8	<0.50	0.0023	0.0093	0.081	0.44	<0.0050*
	08/26/04	4.2	6.2	<0.50	0.0066	0.025	0.13	0.43	0.0099*
	12/15/04	5.4	7.6	<0.50	<0.0025	0.011	0.12	0.39	0.0094*
	03/09/05	4.5	3.5	<0.50	0.0037	0.0047	0.042	0.18	0.021*
	06/08/05	3.2	3.9	<0.50	0.0035	0.0087	0.069	0.17	0.0076*
	09/21/05	2.3	2.6	<0.50	0.007	0.0077	0.033	0.12	0.0076*
	12/14/05	4.7	1.2	<0.50	0.0078	0.010	0.12	0.38	0.0095*
	03/14/06	2.4	1.4	<0.50	0.0024	0.003	0.018	0.12	0.013*
	06/07/06	<0.25	1.0	<0.50	0.0011	0.023	0.049	0.21	0.021*
09/13/06	1.8	0.46	<0.50	0.0044	0.016	0.063	0.06	0.010*	
<b>12/13/06</b>	<b>2.6</b>	<b>3.8</b>	<b>&lt;0.50</b>	<b>&lt;0.0025</b>	<b>&lt;0.0025</b>	<b>0.024</b>	<b>0.190</b>	<b>0.025*</b>	

**TABLE 2**  
**GROUNDWATER ANALYTICAL RESULTS**  
 Kinder Morgan Liquid Terminals, LLC  
 Harbor Island Terminal  
 2720 13th Avenue Southwest  
 Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>MW-12</b>	06/20/01	<0.06	1.7	<0.5	<0.001	<0.001	<0.001	<0.003	<0.004
<b>MW-12R</b>	02/14/02	<0.25	1.4	<0.5	0.014	<0.0005	<0.0005	<0.0005	<0.005*
	05/21/02	<0.25	2.5	<0.5	0.08	0.0013	<0.0005	0.00066	<0.005*
	08/28/02	<0.25	2.1	<0.5	0.028	0.0059	<0.0005	0.0015	<0.005*
	11/05/02	<0.25	1.3	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	02/19/03	0.26	2.5	<0.5	0.19	0.0012	<0.001	<0.001	<0.005*
	06/10/03	0.41	1.3	<0.25	0.11	0.00055	<0.0005	<0.0005	<0.005*
	09/16/03	<0.25	0.67	<0.50	0.0021	<0.0005	<0.0005	<0.0005	0.013*
	11/19/03	0.42	<0.25	<0.50	0.26	<0.001	<0.001	<0.001	0.0078
	02/25/04	0.26	1.8	<0.50	0.099	0.0005	<0.0005	0.00076	0.010*
	05/12/04	0.56	0.74	<0.50	0.20	<0.001	<0.001	<0.001	<0.0050*
	08/26/04	0.35	0.50	<0.50	0.089	<0.001	<0.001	<0.001	<0.0050*
	12/15/04	<0.25	0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/09/05	<0.25	0.39	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/05	<0.25	0.39	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA*
	09/21/05	0.26	0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/14/06	<0.25	<0.25	<0.50	<0.001	<0.001	<0.001	<0.001	<0.0050*
	06/07/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/13/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	<b>12/13/06</b>	<b>&lt;0.25</b>	<b>0.27</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0050*</b>
<b>MW-13</b>	06/19/01	<0.05	1.3	<0.5	<0.001	<0.001	<0.001	<0.003	<0.004
<b>MW-13R</b>	02/14/02	<0.25	3.2	<0.5	0.056	<0.0005	<0.0005	0.00075	<0.005*
	05/21/02	<0.25	3.5	<0.5	0.0025	<0.0005	<0.0005	<0.0005	<0.005*
	08/28/02	<0.25	2.4	<0.5	<0.0005	0.0019	<0.0005	0.0007	<0.005*
	11/05/02	<0.25	2.0	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	02/19/03	<0.25	1.7	<0.5	0.00078	0.0032	<0.0005	0.00083	<0.005*
	06/10/03	<0.25	0.76	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	09/16/03	<0.25	1.4	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0078*
	11/19/03	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0066
	02/25/04	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.012*
	05/12/04	<0.25	0.61	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/26/04	<0.25	0.49	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/15/04	<0.25	0.91	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/09/05	<0.25	0.35	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/05	<0.25	0.49	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA*
	09/21/05	<0.25	0.39	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/14/06	<0.25	<0.25	<0.50	<0.001	<0.001	<0.001	<0.001	<0.0050*
	06/07/06	<0.25	<0.25	<0.50	<0.005	<0.005	<0.005	<0.005	<0.0050*
	09/13/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	<b>12/13/06</b>	<b>&lt;0.25</b>	<b>0.33</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0077*</b>

**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS**

Kinder Morgan Liquid Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest  
Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>MW-14</b>	02/13/02	2.5	37	<5.0	0.01	0.0085	0.18	0.22	NA
	05/21/02	2.9	23	1.0	0.0093	0.0057	0.18	0.15	NA
	08/29/02	2.9	28	<0.5	0.017	0.0073	0.21	0.14	NA
	11/05/02	2.0	28	0.91	0.06	0.0059	0.12	0.076	NA
	02/20/03	3.4	18	<0.5	0.056	0.0062	0.14	0.11	NA
	06/11/03	3.1	28	<0.5	0.059	0.0098	0.23	0.13	NA
	09/16/03	<1.0	15	<0.50	0.13	<0.005	0.019	0.022	NA
	11/20/03	<2.0	29	0.70	0.12	<0.01	0.02	0.031	NA
	02/24/04	2.4	21	<0.50	0.061	0.014	0.25	0.2	NA
	05/11/04	2.7	27	<0.50	0.053	0.0092	0.21	0.16	NA
	08/26/04	2.3	11	0.53	0.024	<0.0025	0.16	0.19	NA
	12/15/04	1.2	9.6	<0.50	0.0084	<0.005	0.01	0.0055	NA
	03/09/05	4.2	7.7	<0.50	0.0053	0.0094	0.18	0.099	NA
	06/08/05	3.1	8.8	<0.50	0.0043	0.0069	0.17	0.11	NA
	09/21/05	1.6	10.0	1.1	0.012	0.0048	0.077	0.068	NA
	12/14/05	3.1	2.0	<0.50	0.0059	0.0075	0.120	0.068	NA
03/14/06	0.79	2.1	<0.50	<0.0025	<0.0025	0.023	0.03	NA	
06/07/06	0.84	3.0	<0.50	<0.0025	<0.0025	0.061	0.033	NA	
09/13/06	2.4	1.8	<0.50	<0.0025	0.0060	0.100	0.056	NA	
	<b>12/13/06</b>	<b>1.1</b>	<b>1.4</b>	<b>&lt;0.50</b>	<b>&lt;0.0025</b>	<b>&lt;0.0025</b>	<b>0.044</b>	<b>0.029</b>	<b>NA</b>
<b>MW-16</b>	02/13/02	<0.25	<0.25	<0.5	0.0013	0.0037	<0.0005	0.0011	NA
	05/21/02	<0.25	<0.5	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	08/29/02	<0.25	<0.5	<0.5	<0.0005	0.0022	<0.0005	0.00069	NA
	11/05/02	<0.25	0.29	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	02/19/03	<0.25	<0.25	<0.5	<0.0005	0.0018	<0.0005	<0.0005	NA
	06/10/03	<0.25	<0.25	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	NA
	09/16/03	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	11/19/03	<0.25	<0.25	<0.50	<0.0005	0.0013	<0.0005	0.00062	NA
	02/25/04	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	05/11/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	08/26/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	12/15/04	<0.25	<0.25	<0.50	0.029	<0.0005	<0.0005	<0.0005	NA
	03/10/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	06/07/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	09/20/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	12/13/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
03/15/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA	
06/08/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA	
09/12/06	<0.25	<0.25	<0.50	<0.0005	0.00062	0.0012	<0.0005	NA	
	<b>12/12/06</b>	<b>&lt;0.25</b>	<b>&lt;0.25</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>NA</b>
<b>MW-18</b>	02/13/02	7.6	0.77	<0.5	1.8	0.067	0.29	0.34	NA
	05/21/02	1.2	0.30	<0.5	0.25	0.016	0.068	0.068	NA
	08/29/02	1.6	<0.5	<0.5	0.45	0.014	0.032	0.044	NA
	11/05/02	1.1	<0.25	<0.5	<0.3	0.010	0.011	0.031	NA
	02/19/03	<0.25	<0.25	<0.5	0.0035	0.0047	<0.0005	0.0016	NA
	06/10/03	<0.25	<0.25	<0.25	0.022	0.0016	<0.0005	0.004	NA
	09/16/03	<0.25	<0.50	<0.50	0.036	0.0019	<0.0005	0.0075	NA
	11/19/03	<0.25	<0.25	<0.50	0.0042	<0.0005	<0.0005	0.0015	NA
	02/25/04	0.58	<0.25	<0.50	0.11	0.0048	0.00087	0.026	NA
	05/11/04	1.1	<0.25	<0.50	0.25	0.0073	0.0016	0.037	NA
	08/26/04	<0.25	<0.25	<0.50	0.003	<0.0005	<0.0005	<0.0005	NA
	12/15/04	0.84	<0.25	<0.50	0.14	0.006	0.0019	0.029	NA
	03/10/05	0.84	<0.25	<0.50	0.25	0.0049	0.002	0.021	NA
	06/07/05	0.68	<0.25	<0.50	0.17	0.0039	0.0019	0.0098	NA
	09/20/05	4.0	<0.25	<0.50	0.74	0.021	0.0091	0.09	NA
	12/13/05	2.3	<0.25	<0.50	0.45	0.015	0.0067	0.033	NA
03/15/06	4.9	<0.25	<0.50	1.2	0.035	0.025	0.12	NA	
06/08/06	1.2	<0.25	<0.50	0.15	0.011	0.011	0.034	NA	
09/12/06	0.35	<0.25	<0.50	0.023	0.0021	0.0022	0.0047	NA	
	<b>12/12/06</b>	<b>0.28</b>	<b>&lt;0.25</b>	<b>&lt;0.50</b>	<b>0.023</b>	<b>0.0018</b>	<b>0.0019</b>	<b>0.0060</b>	<b>NA</b>



**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS**

Kinder Morgan Liquid Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest  
Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>MW-19</b>	02/13/02	29	6.8	<2.5	0.057	0.73	0.58	6.5	NA
	05/21/02	30	7.7	<0.5	0.049	0.65	0.53	6.5	NA
	08/29/02	13	11	<0.5	0.14	0.29	0.20	2.1	NA
	11/05/02	8.2	3.0	<0.5	0.21	0.37	0.16	1.7	NA
	02/20/03	38	19	<0.5	0.091	1.2	0.80	8.0	NA
	06/11/03	32	15	<1.0	0.042	0.38	0.80	6.7	NA
	09/16/03	4.2	12	<0.50	0.19	0.043	0.19	1.1	NA
	11/20/03	22	10	<0.50	0.11	0.67	0.75	6.1	NA
	02/24/04	19	14	<0.50	<0.015	0.49	0.63	4.7	NA
	05/11/04	27	13	<0.50	<0.025	0.22	0.87	7.2	NA
	08/26/04	22	0.72	<0.50	0.042	0.26	0.64	4.6	NA
	12/15/04	15	7.6	<0.50	0.039	0.12	0.37	2.7	NA
	03/09/05	27	9.1	<0.50	0.073	0.18	0.56	3.4	NA
	06/08/05	17	6.3	<0.50	0.071	0.17	0.61	2.8	NA
	09/20/05	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/05	NS	NS	NS	NS	NS	NS	NS	NS
	03/14/06	NS	NS	NS	NS	NS	NS	NS	NS
06/07/06	14	1.4	<0.50	<0.010	0.043	0.29	1.4	NA	
09/13/06	11	0.5	<0.50	0.032	0.047	0.41	1.1	NA	
	<b>12/13/06</b>	<b>8.0</b>	<b>1.4</b>	<b>&lt;0.50</b>	<b>0.016</b>	<b>0.052</b>	<b>0.30</b>	<b>1.4</b>	<b>NA</b>
<b>MW-20</b>	02/13/02	<0.25	0.64	<0.5	<0.001	<0.001	<0.001	<0.001	NA
	05/20/02	<0.25	1.3	<0.5	0.018	0.0012	0.0048	0.014	NA
	08/29/02	0.6	1.1	<0.5	0.057	0.0065	0.021	0.084	NA
	11/06/02	<0.25	0.81	<0.5	0.0023	0.00053	<0.0005	<0.0005	NA
	02/19/03	<0.25	<0.25	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	06/11/03	<0.25	0.68	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	NA
	09/17/03	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	11/20/03	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	0.00072	NA
	02/25/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	05/11/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	08/26/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	12/15/04	<0.25	0.30	<0.50	0.0013	<0.0005	<0.0005	<0.0005	NA
	03/09/05	<0.25	<0.25	<0.50	0.00074	<0.0005	<0.0005	<0.0005	NA
	06/08/05	<0.25	0.55	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	09/21/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	12/14/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	03/14/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
06/07/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA	
09/13/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA	
	<b>12/13/06</b>	<b>&lt;0.25</b>	<b>&lt;0.25</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>NA</b>
<b>MW-21</b>	06/11/03	NS	NS	NS	NS	NS	NS	NS	NS
	09/17/03	NS	NS	NS	NS	NS	NS	NS	NS
	11/20/03	0.97	19	<0.50	<0.0025	<0.0025	<0.0025	<0.0025	NA
	02/26/04	2.3	35	<0.50	<0.0025	<0.0025	<0.0025	<0.0025	NA
	05/11/04	1.2	29	<0.50	<0.0025	<0.0025	<0.0025	<0.0025	NA
	08/26/04	4.3	33	<0.50	<0.001	<0.001	0.0013	0.0014	NA
	12/15/04	NS	NS	NS	NS	NS	NS	NS	NA
	03/09/05	2.4	140	<5.0	<0.0015	<0.0015	0.0016	<0.0015	NA
	06/08/05	1.8	31	0.5	<0.002	<0.002	0.0026	<0.002	NA
	09/21/05	1.7	46	3.3	<0.0010	<0.0010	0.0013	<0.0010	NA
	12/14/05	1.0	6.1	0.54	<0.002	<0.002	0.0027	<0.002	NA
	03/14/06	<0.25	33	3.1	<0.0005	<0.0005	<0.0005	<0.0005	NA
06/07/06	0.8	18	1.2	<0.0025	<0.0025	<0.0025	<0.0025	NA	
09/13/06	NS	NS	NS	NS	NS	NS	NS	NS	
	<b>12/13/06</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>

**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS**

Kinder Morgan Liquid Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest  
Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>MW-22</b>	02/13/02	0.96	9.2	<0.5	0.012	0.0053	0.017	0.0097	NA
	05/21/02	1.1	7.7	<0.5	0.16	0.049	0.023	0.03	NA
	08/29/02	1.4	2.4	<0.5	0.5	0.0093	0.044	0.0066	NA
	11/05/02	0.49	1.7	<0.5	0.14	0.0031	0.025	<0.001	NA
	02/19/03	<0.25	9.1	<0.5	<0.001	<0.001	<0.001	<0.001	NA
	06/10/03	<0.25	7.4	0.87 <sup>a</sup>	<0.001	<0.001	<0.001	<0.001	NA
	09/16/03	<0.25	2.7	<0.50	0.0018	<0.0005	<0.0005	<0.0005	NA
	11/19/03	<0.50	8.4	<0.50	<0.0025	<0.0025	<0.0025	<0.0025	NA
	02/25/04	<0.25	6.4	<0.50	<0.001	<0.001	<0.001	<0.001	NA
	05/11/04	<0.25	2.0	<0.50	<0.001	<0.001	<0.001	<0.001	NA
	08/25/04	<0.25	0.61	<0.50	<0.001	<0.001	<0.001	<0.001	NA*
	12/14/04	<0.25	1.1	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	03/10/05	<0.25	2.2	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	06/07/05	<0.25	3.0	<0.50	0.0049	<0.001	<0.001	<0.001	NA
	09/20/05	0.40	2.9	<0.50	<0.001	<0.001	<0.001	<0.001	NA
	12/13/05	<0.25	0.71	<0.50	<0.001	<0.001	<0.001	<0.001	NA
03/15/06	<0.25	2.4	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA	
06/08/06	<0.25	0.89	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA	
09/12/06	<0.25	0.45	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA	
<b>12/12/06</b>	<b>&lt;0.25</b>	<b>1.4</b>	<b>&lt;0.50</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>NA</b>	
<b>MW-23</b>	11/19/03	5.3	1.4	<0.50	0.87	0.016	0.098	0.23	NA
	02/25/04	3.3	0.85	<0.50	0.91	0.011	0.046	0.03	0.0052*
	05/12/04	4.2	1.3	<0.50	1.1	0.013	0.046	0.048	<0.0050*
	08/26/04	5.3	0.72	<0.50	1.1	0.023	0.2	0.17	0.014*
	12/14/04	NS	NS	NS	NS	NS	NS	NS	NS
	03/08/05	NS	NS	NS	NS	NS	NS	NS	NS
	06/07/05	NS	NS	NS	NS	NS	NS	NS	NS
	09/20/05	NS	NS	NS	NS	NS	NS	NS	NS
	12/13/05	6.3	<0.25	<0.50	1.3	0.014	0.048	0.044	<0.0050*
	03/15/06	7.0	0.28	<0.50	1.4	0.015	0.19	0.21	<0.0050*
	06/08/06	5.2	1.30	<0.50	1.4	0.014	0.11	0.11	<0.0050*
	09/12/06	NS	NS	NS	NS	NS	NS	NS	NS
	<b>12/12/06</b>	<b>8.1</b>	<b>&lt;0.25</b>	<b>&lt;0.50</b>	<b>1.8</b>	<b>0.020</b>	<b>0.11</b>	<b>0.16</b>	<b>&lt;0.0050*</b>
<b>MW-24</b>	11/19/03	34	6.4	0.54	2.8	0.54	1.4	6	NA
	02/25/04	26	3.0	<0.50	4.3	0.085	1.0	3.3	<0.0050*
	05/12/04	NS	NS	NS	NS	NS	NS	NS	NS
	08/26/04	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/04	NS	NS	NS	NS	NS	NS	NS	NS
	03/08/05	NS	NS	NS	NS	NS	NS	NS	NS
	06/07/05	NS	NS	NS	NS	NS	NS	NS	NS
	09/20/05	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/05	NS	NS	NS	NS	NS	NS	NS	NS
	03/15/06	26	0.34	<0.50	4.4	0.064	0.88	4.2	0.0069
	06/08/06	21	<0.25	<0.50	1.5	0.039	0.86	4.9	0.0068
	09/12/06	NS	NS	NS	NS	NS	NS	NS	NS
	<b>12/12/06</b>	<b>20</b>	<b>1.1</b>	<b>&lt;0.50</b>	<b>1.5</b>	<b>0.037</b>	<b>0.69</b>	<b>3.2</b>	<b>0.0078*</b>
<b>MW-25</b>	11/20/03	<0.25	1.3	<0.50	0.0061	<0.0005	<0.0005	<0.0005	NA
	02/26/04	0.38	8.9	<0.50	0.0011	<0.0005	0.0027	<0.0005	0.012*
	5/12/04	<0.25	1.6	<0.50	<0.0005	<0.0005	0.0034	<0.0005	<0.0050*
	08/26/04	<0.25	0.27	<0.50	0.013	<0.0005	<0.0005	<0.0005	0.034 <sup>*a</sup>
	12/14/04	<0.25	1.4	<0.50	0.0035	<0.001	<0.001	<0.001	<0.0050*
	03/10/05	0.31	3.7	<0.50	0.0014	<0.0005	0.00064	<0.0005	<0.0050*
	06/07/05	0.40	3.2	<0.50	<0.001	<0.001	0.0014	<0.001	<0.0050*
	09/20/05	0.30	1.4	<0.50	0.0016	<0.0005	<0.0005	<0.0005	0.059 <sup>*a</sup>
	12/13/05	<0.25	1.2	<0.50	<0.001	<0.001	<0.001	<0.001	<0.0050*
	03/15/06	<0.25	1.0	<0.50	0.0019	<0.001	<0.001	<0.001	<0.0050*
	06/08/06	<0.25	1.4	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
09/12/06	<0.25	0.31	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	
<b>12/12/06</b>	<b>&lt;0.25</b>	<b>0.86</b>	<b>&lt;0.50</b>	<b>0.0052</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0050*</b>	

**TABLE 2**  
**GROUNDWATER ANALYTICAL RESULTS**  
 Kinder Morgan Liquid Terminals, LLC  
 Harbor Island Terminal  
 2720 13th Avenue Southwest  
 Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>A-5</b>	02/14/02	<0.25	2.3	<0.5	0.00055	0.0017	<0.0005	<0.0005	NA
	05/22/02	<0.25	2.0	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	08/29/02	<0.25	1.2	<0.5	0.0017	0.00062	<0.0005	0.00099	NA
	11/06/02	<0.25	1.2	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	02/20/03	<0.25	<0.25	<0.5	0.00086	0.0019	<0.0005	0.001	NA
	06/10/03	0.26	0.4	<0.25	<0.0005	0.00067	<0.0005	0.0007	NA
	09/17/03	<0.25	0.60	<0.50	0.0042	<0.0005	<0.0005	<0.0005	NA
	11/20/03	<0.25	0.53	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	02/26/04	<0.25	3.3	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	05/12/04	0.27	0.43	<0.50	<0.0005	<0.0005	<0.0005	0.00057	NA
	08/25/04	<0.25	1.1	<0.50	0.0029	<0.0005	<0.0005	<0.0005	NA
	12/14/04	<0.25	0.43	<0.50	0.021	<0.001	<0.001	<0.001	NA
	03/10/05	0.43	5.2	<0.50	0.12	0.0025	<0.001	0.0012	NA
	06/07/05	0.54	2.4	1.70	0.12	0.0028	<0.001	0.0013	NA
	09/20/05	0.37	1.2	<0.50	0.037	0.0017	<0.001	0.0011	NA
	12/13/05	0.44	0.31	<0.50	0.049	0.0021	<0.0005	0.0013	NA
	03/15/06	0.36	0.45	<0.50	0.052	0.0017	<0.001	0.0017	NA
06/08/06	0.91	0.55	<0.50	0.099	0.0036	0.00076	0.0034	NA	
09/12/06	0.46	0.43	<0.50	0.031	0.0016	<0.001	0.0014	NA	
	<b>12/12/06</b>	<b>0.70</b>	<b>0.53</b>	<b>&lt;0.50</b>	<b>0.079</b>	<b>0.0028</b>	<b>&lt;0.001</b>	<b>0.0025</b>	<b>NA</b>
<b>A-8</b>	02/14/02	<0.25	1.6	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	05/22/02	<0.25	0.51	<0.5	<0.0005	0.00058	<0.0005	<0.0005	NA
	08/28/02	<0.25	<0.5	<0.5	<0.0005	0.0014	<0.0005	0.00066	NA
	11/06/02	<0.25	0.43	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	02/20/03	<0.25	<0.25	<0.5	<0.0005	0.00083	<0.0005	<0.0005	NA
	06/10/03	<0.25	<0.25	<0.25	<0.0005	0.00056	<0.0005	<0.0005	NA
	09/17/03	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	11/20/03	<0.25	1.4	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	02/26/04	0.35	1.0	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	05/12/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	08/25/04	<0.25	4.9	<0.50	<0.001	<0.001	<0.001	<0.001	NA
	12/14/04	<0.25	1.7	<0.50	0.00056	0.00052	<0.0005	0.00094	NA
	03/10/05	<0.25	2.1	<0.50	<0.0005	<0.0005	<0.0005	0.00055	NA
	06/07/05	<0.25	1.2	1.5	<0.0005	<0.0005	<0.0005	<0.0005	NA
	09/20/05	<0.25	3.5	0.8	0.0012	<0.001	<0.001	0.0012	NA
	12/13/05	<0.25	0.54	<0.50	<0.0005	<0.0005	<0.0005	0.0011	NA
	03/15/06	<0.25	0.55	<0.50	<0.001	<0.001	<0.001	<0.001	NA
06/08/06	<0.25	0.47	<0.50	<0.001	<0.001	<0.001	<0.001	NA	
09/12/06	<0.25	0.76	<0.50	<0.001	<0.001	<0.001	0.0011	NA	
	<b>12/12/06</b>	<b>0.27</b>	<b>0.87</b>	<b>&lt;0.50</b>	<b>&lt;0.001</b>	<b>0.0011</b>	<b>&lt;0.001</b>	<b>0.0015</b>	<b>NA</b>
<b>A-10</b>	02/14/02	<0.25	9.2	<0.5	<0.0005	0.00062	<0.0005	<0.0005	NA
	05/22/02	0.31	8.8	<0.5	<0.0005	0.00086	<0.0005	<0.0005	NA
	08/28/02	0.30	15	<0.5	<0.001	<0.001	<0.001	<0.001	NA
	11/06/02	0.37	13	<0.50	<0.0005	0.00057	<0.0005	<0.0005	NA
	02/20/03	<0.25	6.0	<0.5	0.0013	<0.0005	<0.0005	0.00055	NA
	06/10/03	0.45	19	<0.25	<0.001	<0.001	<0.001	<0.001	NA
	09/17/03	0.68	30	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	11/20/03	1.1	89	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	02/26/04	<0.25	35	0.74	<0.0005	<0.0005	<0.0005	<0.0005	NA
	05/12/04	<0.25	3.5	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	08/25/04	<0.25	5.1	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA*
	12/14/04	<0.25	1.1	<0.50	0.003	<0.001	<0.001	<0.001	NA
	03/10/05	<0.25	4.6	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	06/07/05	0.3	68.0	2.10	0.00069	<0.0005	<0.0005	<0.0005	NA
	09/20/05	0.6	1.5	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	12/13/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA
	03/15/06	<0.25	1.7	<0.50	<0.0005	<0.0005	<0.0005	0.0005	NA
06/08/06	<0.25	0.7	<0.50	<0.0005	<0.0005	<0.0005	0.0005	NA	
09/12/06	<0.25	0.65	<0.50	<0.0005	<0.0005	<0.0005	0.0005	NA	
	<b>12/12/06</b>	<b>&lt;0.25</b>	<b>0.98</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>NA</b>



**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS**  
Kinder Morgan Liquid Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest  
Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>A-27</b>	02/14/02	2.9	11	<0.5	0.13	0.014	0.096	0.25	NA
	05/22/02	3.3	8.2	<0.5	0.2	0.016	0.14	0.38	NA
	08/29/02	3.8	8.1	<0.5	0.24	0.016	0.14	0.29	NA
	11/06/02	3.2	8.0	<0.5	0.16	0.016	0.065	0.14	NA
	02/19/03	3.1	6.8	<0.5	0.17	0.017	0.052	0.13	NA
	06/10/03	3.7	4.5	<0.25	0.14	0.013	0.11	0.23	NA
	09/16/03	4.5	5.6	<0.50	0.27	0.02	0.18	0.38	NA
	11/19/03	5.9	5.3	<0.50	0.25	0.023	0.13	0.33	NA
	02/25/04	4.4	16.0	<0.50	0.15	0.016	0.18	0.30	NA
	05/11/04	4.6	5.2	<0.50	0.16	0.017	0.23	0.38	NA
	08/25/04	4.7	2.5	<0.50	0.25	0.018	0.17	0.24	NA*
	12/14/04	4.5	4.4	<0.50	0.11	0.012	0.099	0.14	NA
	03/10/05	5.8	4.7	<0.50	0.14	0.015	0.16	0.22	NA
	06/07/05	4.5	7.8	<0.50	0.17	0.014	0.24	0.34	NA
	09/20/05	6.3	2.3	<0.50	0.25	0.019	0.18	0.22	NA
	12/13/05	3.7	0.83	<0.50	0.13	0.012	0.083	0.095	NA
03/15/06	4.4	1.3	<0.50	0.13	0.017	0.19	0.24	NA	
06/08/06	4.5	1.1	<0.50	0.19	0.016	0.23	0.28	NA	
09/12/06	3.4	0.82	<0.50	0.17	0.011	0.12	0.12	NA	
	<b>12/12/06</b>	<b>3.7</b>	<b>0.90</b>	<b>&lt;0.50</b>	<b>0.110</b>	<b>0.0096</b>	<b>0.10</b>	<b>0.12</b>	<b>NA</b>
<b>A-28R</b>	02/14/02	5.3	2.7	<0.5	0.66	0.027	0.42	0.2	0.035*
	05/22/02	3.1	6.7	<0.5	0.14	0.01	0.2	0.092	0.05*
	08/29/02	4	6	<0.5	0.15	0.019	0.23	0.078	0.032*
	11/06/02	3.4	1.8	<0.5	0.47	0.015	0.053	0.05	0.028*
	02/19/03	3.5	4.6	<0.5	0.46	0.015	0.051	0.05	0.013*
	06/10/03	3.7	2.9	<0.25	0.31	0.0081	0.085	0.051	0.064*
	09/16/03	3.8	2.0	<0.50	1.0	0.013	0.075	0.048	0.17*
	11/19/03	4.9	<0.25	<0.50	0.58	0.012	0.059	0.064	0.11*
	02/25/04	5.1	1.7	<0.50	0.63	0.0093	0.19	0.076	0.0080*
	05/12/04	6.5	2.6	<0.50	0.96	0.012	0.20	0.058	<0.0050*
	08/25/04	5.9	0.88	<0.50	2.1	0.018	0.05	0.053	0.043*
	12/14/04	7.6	3.0	<0.50	1.4	0.015	0.073	0.062	0.025*
	03/10/05	10	0.76	<0.50	1.9	0.019	0.077	0.064	0.0078*
	06/07/05	6	1.20	<0.50	2.1	0.015	0.069	0.048	0.0068*
	09/20/05	NS	NS	NS	NS	NS	NS	NS	NS
	12/13/05	5.4	<0.25	<0.50	0.93	0.011	0.033	0.036	0.012*
03/15/06	4.6	<0.25	<0.50	0.80	0.012	0.11	0.035	<0.0050*	
06/08/06	4.2	0.49	0.73	0.87	0.013	0.07	0.035	0.019*	
09/12/06	5.2	<0.25	<0.50	1.0	0.015	0.048	0.036	0.016*	
	<b>12/12/06</b>	<b>4.0</b>	<b>0.57</b>	<b>&lt;0.50</b>	<b>0.30</b>	<b>0.0095</b>	<b>0.027</b>	<b>0.028</b>	<b>&lt;0.0050*</b>
<b>SH-02</b>	12/20/00	0.078	<0.25	<0.5	0.001	<0.001	<0.001	<0.003	0.015**
<b>SH-02R</b>	02/13/02	<0.25	0.56	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	05/21/02	<0.25	2.4	<0.5	0.037	<0.0005	<0.0005	<0.0005	0.005*
	08/28/02	<0.25	4.3	<0.5	0.087	0.0038	0.00061	0.0023	0.006*
	11/05/02	<0.25	1.1	<0.5	0.016	<0.0005	<0.0005	<0.0005	0.005*
	02/19/03	<0.25	<0.5	<0.5	<0.0005	0.00086	<0.0005	<0.0005	<0.005*
	06/10/03	<0.25	0.97	<0.25	<0.0005	0.00051	<0.0005	<0.0005	0.0059*
	09/16/03	<0.25	3.0	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.010*
	11/19/03	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	02/25/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	05/12/04	<0.25	0.74	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/26/04	<0.25	0.58	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/15/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/09/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/05	<0.25	0.31	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/21/05	<0.25	0.58	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/05	<0.25	0.30	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0078*
03/14/06	<0.25	0.30	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0072*	
06/07/06	<0.25	0.59	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050*	
09/13/06	<0.25	<0.25	<0.50	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050*	
	<b>12/13/06</b>	<b>&lt;0.25</b>	<b>0.49</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0050*</b>

**TABLE 2  
GROUNDWATER ANALYTICAL RESULTS**

Kinder Morgan Liquid Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest  
Seattle, Washington

Sample I.D.	Date	TPH-Gasoline (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
<b>SH-05</b>	12/20/00	<0.05	1.0	<0.5	<0.001	<0.001	<0.003	<0.001	0.017**
<b>SH-05R</b>	05/21/02	0.71	11	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	08/28/02	0.77	10	<0.5	<0.0005	0.0015	<0.0005	<0.0005	0.006*
	11/05/02	1.4	7.1	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	0.008*
	02/19/03	0.8	6.8	<0.5	<0.001	0.0016	<0.001	<0.001	<0.005*
	06/10/03	1.1	45	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	0.04*
	09/16/03	<0.25	23	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.074*
	11/19/03	0.62	19	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.075*
	02/25/04	<0.25	5.3	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	05/12/04	0.43	4.3	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/26/04	0.63	3.0	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050
	12/15/04	0.30	10	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0056*
	03/09/05	0.78	4.3	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/05	0.32	4.0	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/21/05	0.61	2.8	1.0	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/05	0.78	1.3	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/14/06	<0.25	1.4	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0074*
	06/07/06	<0.25	1.4	<0.50	<0.001	<0.001	<0.001	<0.001	<0.0050*
	09/13/06	0.34	0.56	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	<b>12/13/06</b>	<b>&lt;0.50</b>	<b>1.9</b>	<b>&lt;0.50</b>	<b>&lt;0.0025</b>	<b>&lt;0.0025</b>	<b>&lt;0.0025</b>	<b>&lt;0.0025</b>	<b>&lt;0.0050*</b>
<b>MW-07R</b>	02/13/02	<0.25	1.2	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	0.035*
	05/21/02	<0.25	2.1	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	0.005*
	08/28/02	<0.25	2.4	<0.5	<0.0005	0.0028	<0.0005	0.0012	0.006*
	11/05/02	<0.25	3.7	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	02/19/03	NS	NS	NS	NS	NS	NS	NS	NS
	06/10/03	NS	NS	NS	NS	NS	NS	NS	NS
	09/16/03	<0.25	1.9	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.045*
	11/19/03	<0.25	2.1	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.020*
	02/25/04	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	05/12/04	<0.25	0.48	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/26/04	<0.25	0.42	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	NA*
	12/15/04	<0.25	0.85	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0076*
	03/09/05	<0.25	0.54	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/05	<0.25	0.46	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/21/05	<0.25	0.70	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/14/06	<0.25	0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/07/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/13/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0065
	<b>12/13/06</b>	<b>&lt;0.25</b>	<b>&lt;0.25</b>	<b>&lt;0.50</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0005</b>	<b>&lt;0.0050*</b>

**Notes:**  
 < = Denotes compound was not detected at designated detection limit.  
 NA = Not analyzed for this parameter  
 NS = Not sampled  
 ^ = Dup-1 is a duplicate sample for A-23R; Dup-2 is a duplicate sample for MW-3.  
 \* = Also tested for Dissolved Lead (EPA-200.8), results are below detection limit of 0.0050 ppm.  
 \*\* = Also tested for Dissolved Lead (EPA-200.8), results are at or above detection limit of 0.0050 ppm.  
 \*\*\* = Also tested for Dissolved Lead (EPA-7421), results are below detection limit of 0.004 ppm.  
<sup>a</sup> = Insulating oil range hydrocarbons were reported for MW-22 at concentration of 0.87 ppm.  
 TPH as gasoline - Analysis by Washington Method WTPH-G prior to 5/20/98; analysis by Northwest Method NWTPH-Gx from 5/20/98 through present.  
 TPH as diesel and oil - Analysis by Washington Method WTPH-D+ extended prior to 5/20/98; analysis by Northwest Method NWTPH-Dx from 5/20/98 through present.  
 BTEX Compounds - Analysis by EPA Method 8020 prior to 5/20/98; analysis by EPA Method 8021B from 5/20/98 through present.

**TABLE 3**  
**ANALYTICAL SUMMARY 2000 - DECEMBER 2006**  
**CURRENT GROUNDWATER COMPLIANCE PROGRAM**  
 Kinder Morgan Harbor Island Terminal

Well ID	Indicator Hazardous Substances, concentration in mg/L							
	TPH-G	Benzene	Ethylbenzene	Toluene	TPH-D	TPH-O	Total Lead	Dissolved Lead
<b>Cleanup Criteria</b>	<b>1.0</b>	<b>0.071</b>	<b>29.0</b>	<b>200.0</b>	<b>10</b>	<b>10</b>	<b>0.0058</b>	<b>--</b>
A-5	ND - 0.54	ND - 0.12, >0.071 on 12-06	ND	ND - 0.0036	ND - 5.2	ND - 1.7		
A-8	ND - 0.35	ND - 0.0012	ND	ND - 0.0014	ND - 4.9	ND - 1.5		
A-10	ND - 1.1, <1 since 02-04	ND - 0.0030	ND	ND - 0.00086	ND - 89, <10 since 09-05	ND - 2.1		
A-14R	ND	ND - 0.002	ND	ND - 0.0021	ND	ND	ND-0.032 <0.0058 since 06-05	ND
A-21	ND - 1.6, <1 since 03-06	ND - 0.061, <0.071 since 06-01	ND - 0.045	ND - 0.0025	ND - 0.76	ND	ND-0.062 <0.0058 since 06-05	ND
A-23R	ND - 2.3, >1 on 12-06	0.00060 - 0.46, >0.071 on 12-06	ND - 0.088	ND - 0.012	ND - 6.9	ND	ND - 0.72 <0.0058 since 09-06	detected
A-27	2.0 - 6.3, >1 on 12-06	0.11 - 0.27	0.04 - 0.24	0.009 - 0.023	0.83 - 16, <10 since 05-04	ND		
A-28R	3.1 - 10	0.14 - 2.1	0.033 - 0.42	0.0081 - 0.027	ND - 6.7	ND	ND - 0.17 <0.0058 since 12-06	ND
MW-1	ND - 0.83	ND - 0.0013	ND - 0.0020	ND - 0.0067	ND - 2.0	ND	ND - 0.021 <0.0058 since 02-03	ND
MW-2	ND	ND	ND	ND - 0.00071	ND - 0.91	ND	ND - 0.062 since 09-06	detected
MW-3	ND - 45, <1 since 02-02	ND - 0.36, <0.071 since 02-03	ND - 0.23	ND - 0.18	ND - 17, <10 since 12-00	ND - 0.68	ND - 0.042 <0.0058 since 03-05	ND
MW-4	ND - 3.3, <1 since 06-03*	ND - 1.1, <0.071 since 02-03	ND - 0.034	ND - 0.023	1.1 - 280, <10 since 12-05	ND - 2.6		
MW-5	ND - 0.13	ND - 0.019	ND	ND - 0.0018	ND - 1.6	ND	ND - 0.11 >0.0058 on 12-06	ND
MW-6	ND - 1.1, <1 since 03-06	ND - 0.19, <0.071 since 09-01	ND - 0.0050	ND - 0.0070	ND - 7.3	ND	ND - 0.052 since 03-05	ND
MW-7	0.26 - 18, >1 on 09-06	ND - 0.34, >0.071 on 09-06	ND - 0.69	ND - 0.37	ND - 21, <10 since 12-04	ND - 0.81	0.0083 - 0.23 >0.058 on 09-06	detected
MW-8	ND	ND - 0.0013	ND	ND - 0.00086	0.54 - 42, <10 since 03-01	ND - 2.9	ND - 0.069 <0.0058 since 12-06	ND
MW-9	ND - 10, >1 on 12-06	ND - 0.038	0.020 - 0.23	0.0034 - 0.049	1.2 - 39 <10 since 05-04	ND - 0.72	ND - 0.053 >0.0058 on 12-06	ND
MW-12R	ND - 0.56	ND - 0.26, <0.071 since 12-04	ND	ND - 0.0059	ND - 2.5	ND	ND - 0.013 <0.0058 since 05-04	ND
MW-13R	ND	ND - 0.056	ND	ND - 0.0032	ND - 3.5	ND	ND - 0.012 <0.0058 since 05-04	ND
MW-14	ND - 6.8, >1 on 12-06	ND - 0.48, <0.071 since 02-04	0.019 - 0.26	ND - 0.014	2.0 - 37, <10 since 12-05	ND - 1.1		
MW-16	ND - 0.88	ND - 0.029	ND - 0.0010	ND - 0.0037	ND - 1.7	ND		
MW-18	ND - 7.6, <1 since 09-06	ND - 1.8, <0.071 since 09-06	ND - 0.29	ND - 0.067	ND - 0.77	ND		
MW-19	4.2 - 68	ND - 1.4, <0.071 since 06-06	0.16 - 1.1	0.12 - 4.0	0.72 - 19 <10 since 08-04	ND		
MW-20	ND - 1.8, <1 since 03-01	ND - 0.68, <0.071 since 02-02	ND - 0.067	ND - 0.020	ND - 5.0	ND - 0.7		
MW-21	ND - 4.3, SPH on 12-06	ND	ND - 0.019	ND - 0.006	6.1 - 140, SPH on 12-06	ND - 3.3 SPH on 12-06		
MW-22	ND - 5.1, <1 since 11-02	ND - 1.9, <0.071 since 02-03	ND - 0.35	ND - 0.097	0.61 - 9.2	ND - 0.87		
SH-02R	ND - 0.078	ND - 0.087, <0.071 since 11-02	ND - 0.00061	ND - 0.0038	ND - 4.3	ND	ND - 0.010 <0.0058 since 06-06	ND
SH-05R	ND - 1.4, <1 since 09-03	ND	ND	ND - 0.0016	1.3 - 45, <10 since 03-05	ND - 1.0	ND - 0.075 <0.0058 since 03-05	ND
MW-07R	ND	ND	ND	ND - 0.0028	ND - 3.7	ND	ND - 0.045 <0.0058 since 12-06	ND
MW-23	SPH, 4.2 - 7.0 >1 on 12-06	0.87 - 1.4 >0.071 on 12-06	0.046 - 0.19	0.011 - 0.023	SPH, ND - 1.4	ND	ND - 0.014 <0.0058 since 12-05	ND
MW-24	SPH, 26 - 34	2.8 - 4.4	0.88 - 1.4	0.064 - 0.54	SPH, 0.34 - 6.4	ND - 0.54	ND - 0.0069 >0.0058 on 12-07	ND
MW-25	ND - 0.40	ND - 0.013	ND - 0.0034	ND	0.27 - 8.9	ND	ND - 0.034	detected

**Notes:** \* ND but detection limit > 1 during 2 events in 2005

Recommend reduction in monitoring frequency and/or parameters

Parameter not analyzed

**TABLE 4**  
**PROPOSED GROUNDWATER COMPLIANCE PROGRAM**  
**RECOMMENDED MONITORING FREQUENCY**  
Kinder Morgan Harbor Island Terminal

Well ID	Indicator Hazardous Substances				Natural Attenuation Parameters				
	TPH-G/ BTEX	TPH-D/TPH-O	Total Lead	Dissolved Lead	Nitrate (NO3)	Ferrous Iron	Methane	Sulfate (SO4)	Sulfide (H2S)
A-5	Quarterly	Discontinue							
A-8	Annual	Annual							
A-10	Annual	Annual			Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
A-14R	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
A-21	Quarterly	Discontinue	Annual	Discontinue	Annual	Annual	Annual	Annual	Annual
A-23R	Quarterly	Discontinue	Annual	Annual	Annual	Annual	Annual	Annual	Annual
A-27	Quarterly	Discontinue			Annual	Annual	Annual	Annual	Annual
A-28R	Quarterly	Discontinue	Annual	Discontinue	Annual	Annual	Annual	Annual	Annual
MW-1	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-2	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-3	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-4	Annual	Annual			Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-5	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-6	Quarterly	Discontinue	Annual	Discontinue	Annual	Annual	Annual	Annual	Annual
MW-7	Quarterly	Discontinue	Annual	Annual	Annual	Annual	Annual	Annual	Annual
MW-8	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-9	Quarterly	Discontinue	Annual	Discontinue	Annual	Annual	Annual	Annual	Annual
MW-12R	Annual	Annual	Annual	Discontinue					
MW-13R	Annual	Annual	Annual	Discontinue					
MW-14	Quarterly	Discontinue			Annual	Annual	Annual	Annual	Annual
MW-16	Annual	Annual							
MW-18	Quarterly	Discontinue							
MW-19	Quarterly	Discontinue			Annual	Annual	Annual	Annual	Annual
MW-20	Annual	Annual			Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-21	Quarterly	Quarterly			Annual	Annual	Annual	Annual	Annual
MW-22	Annual	Annual			Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
SH-02R	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
SH-05R	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-07R	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue
MW-23	Quarterly	Discontinue	Annual	Discontinue	Annual	Annual	Annual	Annual	Annual
MW-24	Quarterly	Discontinue	Annual	Discontinue	Annual	Annual	Annual	Annual	Annual
MW-25	Annual	Annual	Annual	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue	Discontinue

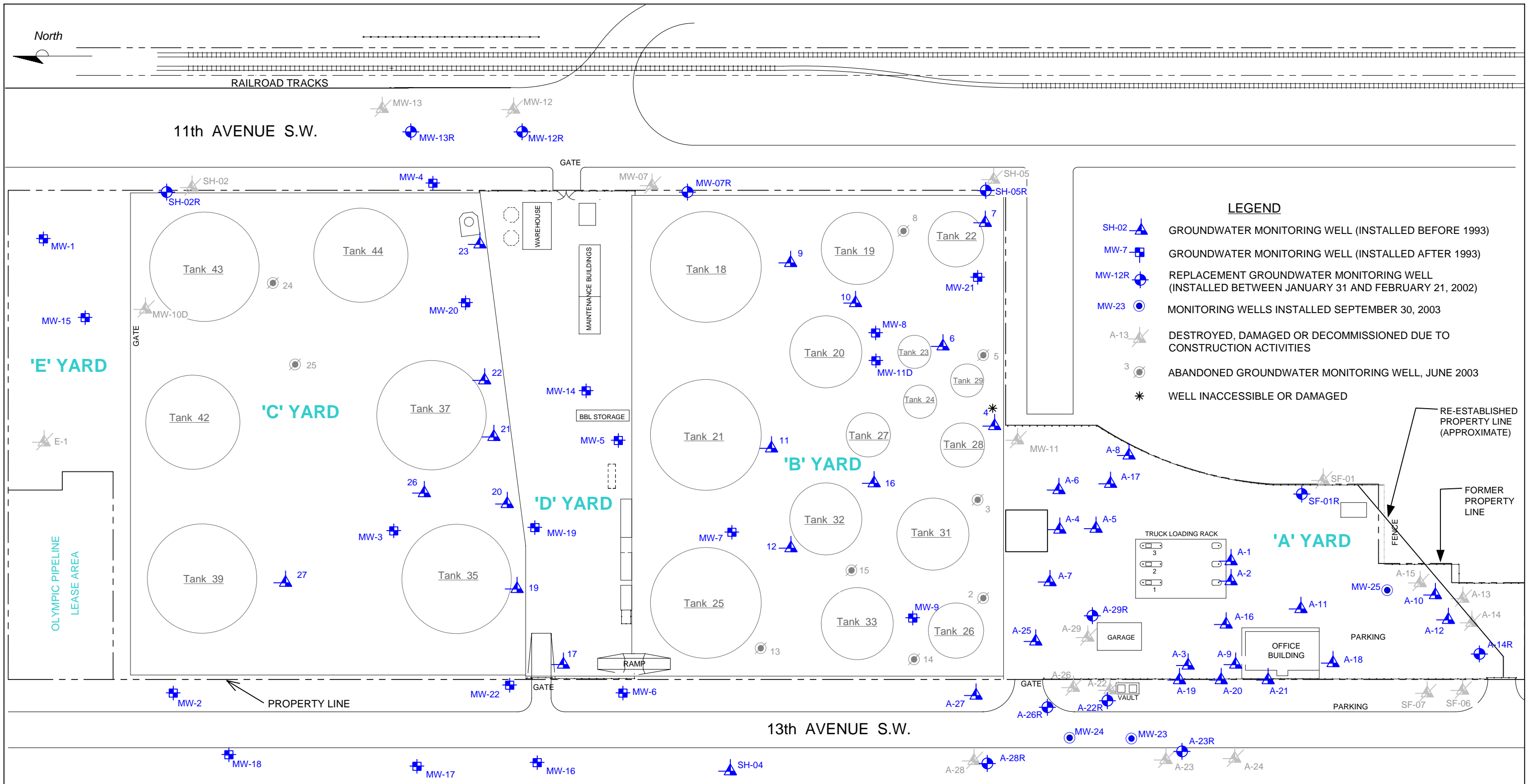
**Notes:**   Recommended reduced monitoring frequency

  Parameter not analyzed



**TABLE 5**  
**PROPOSED ANNUAL ANALYSES**  
**GROUNDWATER COMPLIANCE PROGRAM**  
 Kinder Morgan Harbor Island Terminal

Well ID	Indicator Hazardous Substances				Natural Attenuation Parameters				
	TPH-G/ BTEX	TPH-D+ extended	Total Lead	Dissolved Lead	Nitrate (NO3)	Ferrous Iron	Methane	Sulfate (SO4)	Sulfide (H2S)
A-5	4	0							
A-8	1	1							
A-10	1	1			0	0	0	0	0
A-14R	1	1	1	0	0	0	0	0	0
A-21	4	0	1	0	1	1	1	1	1
A-23R	4	0	1	1	1	1	1	1	1
A-27	4	0			1	1	1	1	1
A-28R	4	0	1	0	1	1	1	1	1
MW-1	1	1	1	0	0	0	0	0	0
MW-2	1	1	1	0	0	0	0	0	0
MW-3	1	1	1	0	0	0	0	0	0
MW-4	1	1			0	0	0	0	0
MW-5	1	1	1	0	0	0	0	0	0
MW-6	4	0	1	0	1	1	1	1	1
MW-7	4	0	1	1	1	1	1	1	1
MW-8	1	1	1	0	0	0	0	0	0
MW-9	4	0	1	0	1	1	1	1	1
MW-12R	1	1	1	0					
MW-13R	1	1	1	0					
MW-14	4	0			1	1	1	1	1
MW-16	1	1							
MW-18	4	0							
MW-19	4	0			1	1	1	1	1
MW-20	1	1			0	0	0	0	0
MW-21	4	4			1	1	1	1	1
MW-22	1	1			0	0	0	0	0
SH-02R	1	1	1	0	0	0	0	0	0
SH-05R	1	1	1	0	0	0	0	0	0
MW-07R	1	1	1	0	0	0	0	0	0
MW-23	4	0	1	0	1	1	1	1	1
MW-24	4	0	1	0	1	1	1	1	1
MW-25	1	1	1	0	0	0	0	0	0
<b>Annual Total</b>	74	22	20	2	12	12	12	12	12



**LEGEND**

- SH-02 ▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
- MW-7 ■ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
- MW-12R ● REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
- MW-23 ● MONITORING WELLS INSTALLED SEPTEMBER 30, 2003
- A-13 ▲ DESTROYED, DAMAGED OR DECOMMISSIONED DUE TO CONSTRUCTION ACTIVITIES
- 3 ● ABANDONED GROUNDWATER MONITORING WELL, JUNE 2003
- \* WELL INACCESSIBLE OR DAMAGED

RE-ESTABLISHED PROPERTY LINE (APPROXIMATE)

FORMER PROPERTY LINE

TRUCK LOADING RACK

3	A-1
2	A-2
1	A-3

OFFICE BUILDING

PARKING

VAULT

GARAGE

BBL STORAGE

WAREHOUSE

MAINTENANCE BUILDINGS

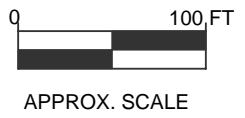
RAMP

GATE

PROPERTY LINE

**FIGURE 1**  
**SITE MAP**  
 KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13<sup>th</sup> AVENUE SOUTHWEST  
 SEATTLE, WASHINGTON

PROJECT NO. STKM-001-M.0005	DRAWN BY DL March 2007
FILE NO. STKM-001-M.0005	PREPARED BY DL March 2007
REVISION NO. 0	REVIEWED BY WC





STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

August 7, 2007

Robert Truedinger  
Remediation Project Manager  
Kinder Morgan Energy Partners  
1140 Canal Boulevard  
Richmond, CA 94804

Re: Reduced Groundwater Monitoring Plan

Dear Mr. Truedinger:

This letter is to indicate the Department of Ecology's approval of the Site-Wide Groundwater Compliance Monitoring Plan – Proposed Reduced Monitoring, as presented in Delta Environmental Consultants' submittal dated June 21, 2007.

Sorry that this approval has taken awhile. Further adjustments / reductions in the monitoring may be appropriate in the future.

Sincerely,

A handwritten signature in cursive script that reads "Roger K. Nye".

Roger K. Nye  
Project Coordinator

cc: Ward Crell, Dawna Leong: Delta Environmental Consultants



September 4, 2008

Mr. Roger Nye  
Washington State Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue N.E.  
Bellevue, Washington 98008-5452

Sent via FedEx Saver

SUBJ: Technical Revision Request – Low-Flow Groundwater Sampling  
Kinder Morgan Harbor Island Terminal  
Seattle, Washington  
Delta Project No. STKM-001-P.0005



Dear Mr. Nye:

Delta Consultants (Delta) has prepared this request on behalf of Kinder Morgan Liquid Terminals, LLC (KMLT) to propose a technical revision to Appendix A (Compliance Sampling and Analysis Plan) of the Compliance Monitoring Plan, dated October 27, 1999. This letter request supersedes a previous request, dated July 16, 2008. The Compliance Monitoring Plan was included as Appendix F of the Model Toxics Control Act (MTCA) Consent Decree 00-2-07760-25EA, which was executed to implement remedial actions for the site. As discussed in a March 31, 2008 telephone conversation with you, KMLT is proposing a revision to Section 2.3.2, Sampling Procedures, of the Compliance Sampling and Analysis Plan (Plan) to replace the purge-sampling methodology with low-flow sampling techniques.

#### **CURRENT PURGE-SAMPLING PROCEDURES**

Sampling ground water traditionally involves purging a monitoring well to remove stagnant water in the well casing prior to sampling. The current sampling procedure incorporated into the Plan includes purging three to five volumes of the well prior to collecting a groundwater sample. This well evacuation approach can pose several problems, including: 1) as the well recovers, groundwater cascading in the well screen can affect contaminant and dissolved gas concentrations; 2) draining water from the sand pack surrounding the screen can result in air being trapped in the pore spaces, also affecting dissolved gas concentrations; and 3) increased turbidity can affect total and dissolved metal concentrations.

In the Revised Site-Wide Groundwater Compliance Monitoring Plan, dated June 21, 2007, Delta presented an evaluation of historical groundwater analytical results with respect to established cleanup criteria. During the preparation of the Revised Plan, Delta and Ecology discussed the periodic occurrence of dissolved lead in the wells sampled. These occurrences appeared to be random, with no apparent trend to the occurrence.

a member of:



At the time, it was mentioned that turbulence created during sampling may have caused the occurrence of dissolved lead. Eliminating turbulence during sampling may end or reduce this occurrence.

## PROPOSED LOW-FLOW SAMPLING PROCEDURES

Low-flow/low-volume sampling is a method that can be used to overcome many of the problems created by traditional purge-sampling. Low-flow sampling can minimize turbidity and minimize groundwater chemistry alteration. By pumping at very low flowrates from the well screen zone, disturbance to the water column in the well is significantly reduced and stress on the surrounding formation is minimized. Samples obtained in this manner will better reflect contaminant concentrations and ground-water chemistry at ambient flow conditions.

### Sampling Procedures

KMLT proposes to replace Section 2.3.2 of the Compliance Sampling and Analysis Plan with the following low-flow procedures for sampling the site's compliance wells.

#### Water Level Measurements

Water level measurements will be taken prior to purging and will be recorded to the nearest 0.01 foot. Measurements will be taken from least contaminated wells first followed by wells in increasing order of contamination. If product is observed, the thickness will be measured with an electronic oil/water interface meter. Wells with measurable product will not be purged or sampled.

#### Monitoring Well Purging

Purging will be conducted in a manner such that water levels do not drop more than two feet below static. Wells will be purged using dedicated downhole tubing connected to a surface portable peristaltic pump. The pump rate will be monitored and set at a rate of less than 1,000 ml/min. During purging, the following parameters will be monitored: dissolved oxygen, pH, specific conductance, temperature, turbidity, and depth to water. Field parameters will be measured in a flow-through container. Water level data will be collected with an electronic indicator probe. Measurements will be taken beginning with the first water purged from the well. During purging, additional measurements will be taken and recorded as frequently as possible. Measurements will be recorded to the following standards: dissolved oxygen to 0.05 mg/L; pH to  $\pm 0.01$  units; specific conductance to  $\pm$  uS/cm (measured specific conductance  $\leq 99$  uS/cm), to  $\pm 10$  uS/cm ( $99$  uS/cm < specific conductance < 1,000 uS/cm), or to  $\pm 100$  uS/cm (measured specific conductance > 1,000 uS/cm); temperature to  $\pm 0.5^\circ\text{C}$ ; and turbidity to 0.1 NTU. The meters will be calibrated near the beginning and end of each sampling day.

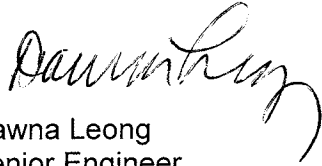
Groundwater samples will be collected after specific conductance and dissolved oxygen measurements are within 10 percent for 3 consecutive readings.

#### Sample Collection

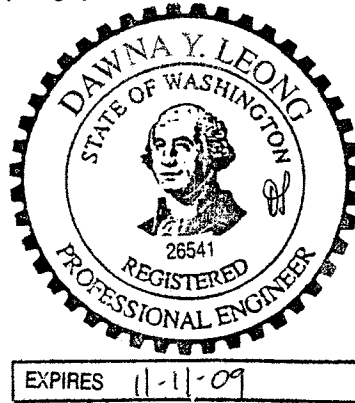
Following purging, samples will be collected for laboratory analyses. Samples will be pumped directly into laboratory-supplied sample containers, and each sample bottle will be labeled with the sample identification number, the sample date, the facility name, and the name of the technician who performed the sampling. Samples will be collected in the following order: TPH-G/BTEX, methane (if analyzed, TPH-Dx, metals (if analyzed), and field analytes (if analyzed). Duplicate samples will be collected by alternately filling the sample and the duplicate sample bottles.

KMLT proposes to implement the low-flow sampling procedures described herein upon approval from Ecology. Please call if you have any questions regarding the contents of this letter, or if you would like to discuss any aspect of the proposed sampling procedures. Delta looks forward to your approval of this proposal.

Sincerely,  
DELTA CONSULTANTS, INC.



Dawna Leong  
Senior Engineer



cc: Mr. Robert Truedinger, Kinder Morgan Energy Partners, L.P., Richmond, California (Electronic Copy)  
Ms. Kelsy Hardy, Kinder Morgan Energy Partners, L.P., Orange, California (File Copy - CD Only)



RECEIVED BY:

FEB 11 2009

Delta Consultants - SEATTLE

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

February 9, 2009

Dawna Leong  
Delta Consultants, Inc.  
4006 148<sup>th</sup> Avenue NE  
Redmond, Washington 98052

Re: Technical Revision Request – Low-Flow Groundwater Sampling  
Kinder Morgan Harbor Island Terminal  
Seattle, Washington  
Consent Decree No. 00-2-07760-2SEA

Dear Ms. Leong:

This letter indicates the Department of Ecology's approval of your proposal to replace the purge-sampling methodology with low-flow sampling techniques at the Kinder Morgan Harbor Island facility as described in your letter dated September 4, 2008.

The proposal constitutes a technical revision as allowed under Section XV of the Consent Decree, to Section 2.3.2 of the Compliance Sampling and Analysis Plan (Appendix A of the Compliance Monitoring Plan - Exhibit F). The Compliance Monitoring Plan is an attachment to the Cleanup Action Plan - Exhibit B under the Consent Decree.

This letter establishes a mutual written agreement between the Department of Ecology and Kinder Morgan Liquid Terminals LLC to implement the technical revision described above.

Sincerely,

Roger K. Nye  
Site Manager

cc: Robert Truedinger, Remediation Project Manager,  
Kinder Morgan Energy Partners, L.P.





Ms. Maura O'Brien  
Washington State Department of Ecology  
Northwest Regional Office  
3190 – 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

Subject:

**Revised Site Groundwater Monitoring Plan**

Kinder Morgan Harbor Island Terminal  
KMLT File No. 29.79.02 (81171)  
2720 13<sup>th</sup> Avenue Southwest  
Seattle, Washington 98134

Dear Ms. O'Brien:

On behalf of Kinder Morgan Liquids Terminal, LLC (KMLT), ARCADIS US, Inc (ARCADIS) is pleased to submit this Revised Site Groundwater Monitoring Plan (Plan) for the KMLT Harbor Island Terminal located at 2720 13<sup>th</sup> Avenue Southwest in Seattle, Washington (site). The purpose of this Plan is to request and provide justification to support the reduction of groundwater sampling frequency at the site for the compliance and performance monitoring programs.

Reduced frequency of groundwater monitoring at the site is warranted due to:

- Quarterly groundwater quality data has been collected at the site since 2002
- Current groundwater conditions onsite are stable and not migrating offsite
- There have been no product releases reported at the site since 2010
- SPH has only been observed in one monitoring well (A-6) in the last 9 quarterly monitoring events.

Cleanup activities at the site are being conducted under a Consent Decree (CD) number 00-2-07760-2SEA between Washington State Department of Ecology (Ecology) and GATX Terminals Corporation (GATX) executed on April 4, 2000. KMLT assumed the obligations of the CD with the purchase of GATX Harbor Island Terminal in 2001. Compliance groundwater monitoring and sampling is currently

ARCADIS U.S., Inc.  
1100 Olive Way  
Suite 800  
Seattle  
Washington 98101  
Tel 206.325.5254  
Fax 206.325.8218  
[www.arcadis-us.com](http://www.arcadis-us.com)

ENVIRONMENT

Date:  
May 20, 2014

Contact:  
Matt Annis

Phone:  
206.726.4716

Email:  
[matt.annis@arcadis-us.com](mailto:matt.annis@arcadis-us.com)

Our ref:  
WA000804.2014



performed in accordance with the *Proposed Reduced Monitoring-Site-Wide Groundwater Compliance Monitoring Plan* (Reduced Monitoring Plan [Delta Consultants Inc. (Delta) 2007]). Additionally, low-flow groundwater sampling techniques are used in accordance with the Technical Revision Request (Delta 2008).

In addition, performance monitoring groundwater samples are collected in accordance with the letter Response to Comments - *B and D Yards Groundwater Remediation Engineering Design Report* dated December 12, 2012 (ARCADIS 2012) to evaluate the overall effectiveness of the sulfate land application.

### **Contaminants of Concern and Cleanup Levels**

The approved Reduced Monitoring Plan (Delta 2007) outlines site-specific contaminants of concern (COCs) and applicable cleanup levels for groundwater. These site-specific COCs and their cleanup levels are as follows:

- Total Petroleum Hydrocarbons as Gasoline Range Organics at 1.0 milligrams per liter (mg/L)
- Total Petroleum Hydrocarbons as Diesel Range Organics at 10 mg/L
- Total Petroleum Hydrocarbons as Heavy Oil at 10 mg/L
- Benzene at 0.071 mg/L
- Toluene at 200 mg/L
- Ethylbenzene at 29 mg/L
- Total Lead at 0.0058 mg/L
- No Product Sheen

## **Current Groundwater Monitoring Plan**

### **Compliance Monitoring**

In accordance with the Reduced Monitoring Plan (Delta 2007) and Technical Revision Request (Delta 2008), the current groundwater compliance plan schedule is presented in Table 1 and Figure 2.

### **Performance Monitoring**

In accordance with the Response to Comments - *B and D Yards Groundwater Remediation Engineering Design Report* dated December 12, 2012 (ARCADIS 2012), the current groundwater performance plan schedule is presented in Table 1.

## **Proposed Groundwater Monitoring Plan**

The section below summarizes the proposed changes to the current groundwater monitoring plan. Groundwater gauging and sample collection protocols and procedures will continue to be implemented in accordance with the Ecology-approved plans mentioned above.

### **Compliance Monitoring**

This proposed groundwater monitoring plan was prepared with consideration for the requirements of the Model Toxics Control Act (MTCA) regulations and requirements from Exhibit F of the CD. The achievement of cleanup levels in groundwater is measured at points of performance and compliance located within the hydrocarbon plume area and at the edges of the site in accordance with section 1.2 in Exhibit F of the CD. Points of compliance will not be altered for this plan and consist of the 44 wells presented in Table 2. Hydrograph and COC trend graphs for monitoring wells MW-7, MW-9, MW-14, and MW-19 are presented in Attachment A. The graphs are representative of the compliance points and indicate stable or decreasing groundwater conditions.

Future compliance groundwater monitoring events are proposed to be conducted on a semi-annual basis until the site has achieved compliance with the applicable cleanup levels. The proposed compliance groundwater monitoring plan is summarized in Table 2 and presented in Figure 3.

**Proposed Performance Groundwater Monitoring Plan**

In accordance with the Response to Comments letter dated December 20, 2012 and the KMLT *Remedial Action Report – B and D Yards* (RAP) [ARCADIS 2013]), the current groundwater performance monitoring plan will be conducted quarterly through third quarter 2014.

After the completion of the third quarter 2014 monitoring event KMLT proposes to alter the performance monitoring schedule to semi-annual monitoring which will be conducted concurrently with compliance monitoring activities. The proposed performance groundwater monitoring plan is summarized in Table 2 and presented in Figure 4.

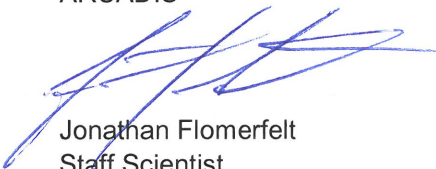
**Schedule**

The proposed Plan would be initiated during the third quarter 2014 sampling event upon Ecology approval; annual sampling will be conducted in the third quarter of each year.

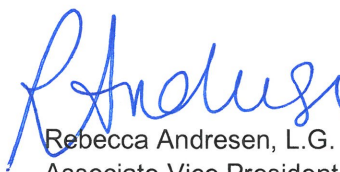
If you have any questions or comments, please contact Matt Annis at 206.726.4716 or by email at [matt.annis@arcadis-us.com](mailto:matt.annis@arcadis-us.com).

Sincerely,

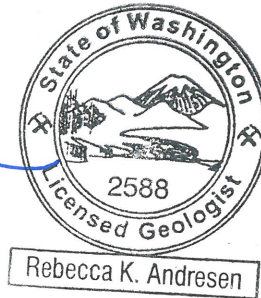
ARCADIS



Jonathan Flomerfelt  
Staff Scientist



Rebecca Andresen, L.G.  
Associate Vice President



Copies:

- Mr. Dave Rowland, KMLT, Seattle (CD Copy)
- Mr. Robert Truedinger, c/o Stephanie Randall, KMLT, Orange, CA (CD copy)
- Stephanie Randall, KMLT, Orange, CA (File Copy)

**Tables**

Table 1	Current Groundwater Monitoring
Table 2	Proposed Groundwater Monitoring Plan

**Figures**

Figure 1	Site Location
Figure 2	Current Groundwater Monitoring Plan
Figure 3	Proposed Groundwater Monitoring Plan
Figure 4	Proposed Performance Monitoring Plan

**Attachments**

Attachment A	Hydrographs and Trend Graphs
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**Tables**

**Table 1**  
**Current Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-4	1Q, 3Q, 4Q							X
	2Q							X
A-5	1Q, 3Q, 4Q	X			X			X
	2Q	X			X			X
A-6	1Q, 3Q, 4Q							X
	2Q							X
A-8	1Q, 3Q, 4Q							X
	2Q	X	X	X	X			X
A-10	1Q, 3Q, 4Q							X
	2Q	X	X	X	X			X
A-11	1Q, 3Q, 4Q							X
	2Q							X
A-12	1Q, 3Q, 4Q							X
	2Q							X
A-14R	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X		X
A-16	1Q, 3Q, 4Q							X
	2Q							X
A-18	1Q, 3Q, 4Q							X
	2Q							X
A-19	1Q, 3Q, 4Q							X
	2Q							X
A-20	1Q, 3Q, 4Q							X
	2Q							X

**Table 1**  
**Current Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-21	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X	X	X	X
A-22R	1Q, 3Q, 4Q							X
	2Q							X
A-23R	1Q, 3Q, 4Q	X			X			X
	2Q	X			X		X	X
A-25	1Q, 3Q, 4Q							X
	2Q							X
A-26R	1Q, 3Q, 4Q							X
	2Q							X
A-27	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X		X	X
A-28R	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X	X	X	X
12	1Q, 3Q, 4Q							X
	2Q							X
MW-1	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X		X
MW-2	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X	X	X
MW-3	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X		X
MW-4	1Q, 3Q, 4Q							X
	2Q	X	X	X	X			X

**Table 1  
Current Monitoring Schedule  
2014 Revised Groundwater Monitoring Plan  
Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal  
Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-5	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X		X
MW-6	1Q, 3Q, 4Q	X			X			X
	2Q	X			X	X	X	X
MW-7	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X	X	X	X
MW-8	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X		X
MW-9	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X	X	X	X
MW-12R	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X	X	X
MW-14	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X		X	X
MW-16	1Q, 3Q, 4Q							X
	2Q	X	X	X	X			X
MW-18	1Q, 3Q, 4Q	X			X			X
	2Q	X			X			X
MW-19	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X		X	X
MW-20	1Q, 3Q, 4Q							X
	2Q	X	X	X	X			X
MW-21	1Q, 3Q, 4Q	X	X	X	X		X	X
	2Q	X	X	X	X		X	X



**Table 1**  
**Current Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-22	1Q, 3Q, 4Q							X
	2Q	X	X	X	X			X
MW-23	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X	X	X	X
MW-24	1Q, 3Q, 4Q	X			X		X	X
	2Q	X			X	X	X	X
MW-25	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X		X
MW-07R	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X	X	X
SH-02R	1Q, 3Q, 4Q							X
	2Q	X	X	X	X	X	X	X
SH-05R	1Q, 3Q, 4Q							X
	2Q							X
TMW-B1	1Q, 3Q, 4Q							X
	2Q	X			X			

**Notes**

1 Monitored Natural Attenuation (MNA) Geochemical Parameters include dissolved oxygen, methane, ferrous iron, nitrate, sulfate, and sulfide  
GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics by Northwest Method NWTPH-Gx  
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes by Environmental Protection Agency (EPA) Method 8260B.  
1Q, 2Q, 3Q, 4Q = Denotes the quarter for each sampling event  
-- Not Applicable

**Table 2**  
**Proposed Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-4	1Q							X
	3Q							X
A-5	1Q	X			X			X
	3Q	X			X			X
A-6	1Q							X
	3Q							X
A-8	1Q							X
	3Q	X	X	X	X			X
A-10	1Q							X
	3Q	X	X	X	X			X
A-11	1Q							X
	3Q							X
A-12	1Q							X
	3Q							X
A-14R	1Q							X
	3Q	X	X	X	X	X		X
A-16	1Q							X
	3Q							X
A-18	1Q							X
	3Q							X
A-19	1Q							X
	3Q							X
A-20	1Q							X
	3Q							X

**Table 2**  
**Proposed Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-21	1Q	X			X		X	X
	3Q	X			X	X	X	X
A-22R	1Q							X
	3Q							X
A-23R	1Q							X
	3Q	X			X		X	X
A-25	1Q							X
	3Q							X
A-26R	1Q							X
	3Q							X
A-27	1Q	X			X		X	X
	3Q	X			X		X	X
A-28R	1Q	X			X		X	X
	3Q	X			X	X	X	X
11 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
12 <sup>2</sup>	1Q	X			X		X	X
	3Q	X	X	X	X	X	X	X
MW-1	1Q							X
	3Q	X	X	X	X	X		X
MW-2	1Q							X
	3Q	X	X	X	X	X	X	X
MW-3	1Q							X
	3Q	X	X	X	X	X		X

**Table 2**  
**Proposed Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-4	1Q							X
	3Q	X	X	X	X			X
MW-5	1Q							X
	3Q	X	X	X	X	X		X
MW-6	1Q							X
	3Q	X			X	X	X	X
MW-7 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-8	1Q							X
	3Q	X	X	X	X	X		X
MW-9 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-12R	1Q							X
	3Q	X	X	X	X	X	X	X
MW-14	1Q							X
	3Q	X			X		X	X
MW-16	1Q							X
	3Q	X	X	X	X			X
MW-18	1Q	X			X			X
	3Q	X			X			X
MW-19 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
MW-20	1Q							X
	3Q	X	X	X	X			X

**Table 2**  
**Proposed Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-21	1Q	X	X	X	X		X	X
	3Q	X	X	X	X		X	X
MW-22	1Q							X
	3Q	X	X	X	X			X
MW-23	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-24	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-25	1Q							X
	3Q	X	X	X	X	X		X
MW-07R	1Q							X
	3Q	X	X	X	X	X	X	X
SH-02R	1Q							X
	3Q	X	X	X	X	X	X	X
SH-05R	1Q							X
	3Q	X	X	X	X	X		X
TMW-B1	1Q							X
	3Q	X			X			

**Table 2**  
**Proposed Monitoring Schedule**  
**2014 Revised Groundwater Monitoring Plan**  
**Kinder Morgan Liquids Terminals, LLC, Harbor Island Terminal**  
**Seattle, Washington**

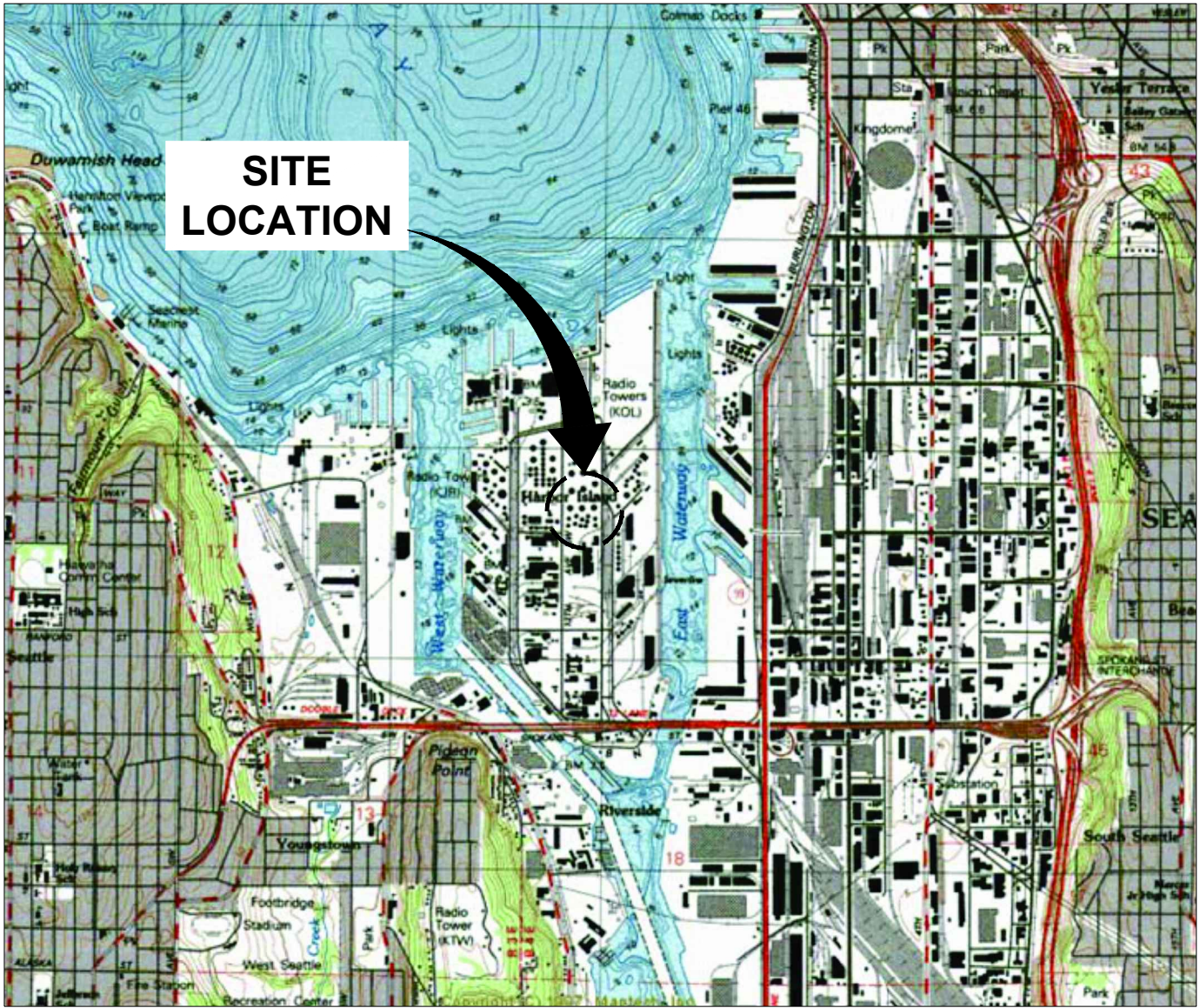
Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
TMW-1 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-2 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-3 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-4 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-5 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-6 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X

**Notes**

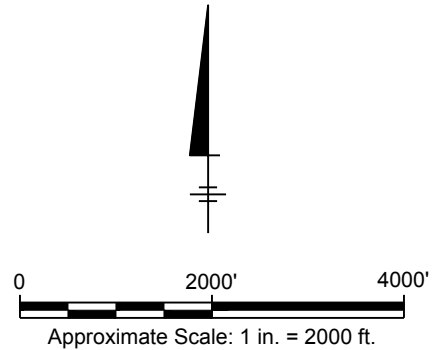
1 Monitored Natural Attenuation (MNA) Geochemical Parameters include dissolved oxygen, methane, ferrous iron, nitrate, sulfate, and sulfide  
2 Performance monitoring locations  
GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics by Northwest Method NWTPH-Gx  
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes by Environmental Protection Agency (EPA) Method 8260B.  
1Q, 2Q, 3Q, 4Q = Denotes the quarter for each sampling event  
-- Not Applicable


**Figures**

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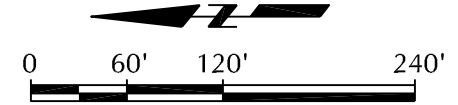
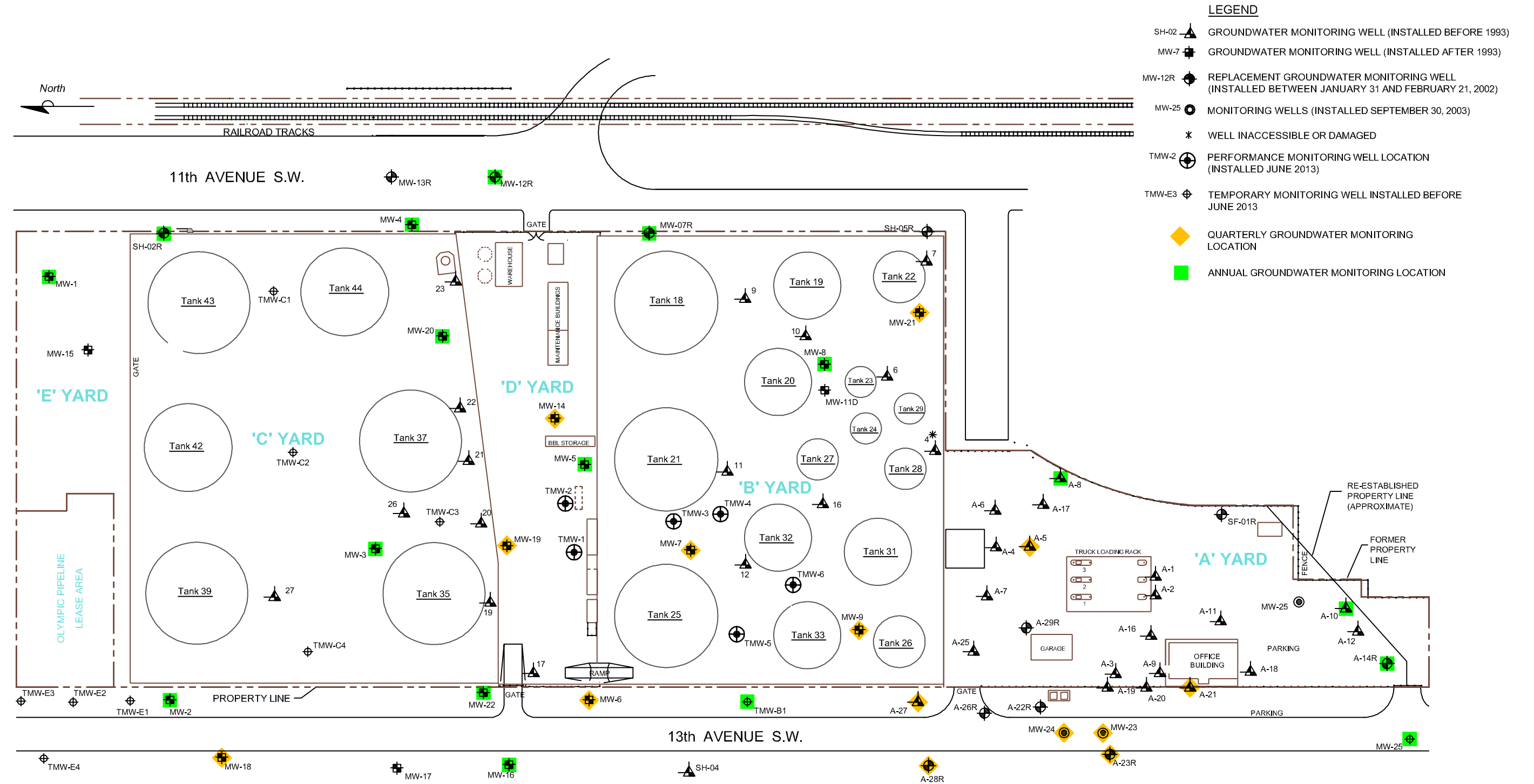
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KINDER MORGAN LIQUID TERMINALS, LLC HARBOR ISLAND TERMINAL 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON 2014 REVISED GROUNDWATER MONITORING PLAN	
<b>SITE LOCATION MAP</b>	
	FIGURE <b>1</b>



CITY:\Read\ D:\GROUP\Read\ DB\Read\ LD\Op\ PIC\Op\ PM\Read\ TM\Op\ LYR\Option\OFF\REF\*  
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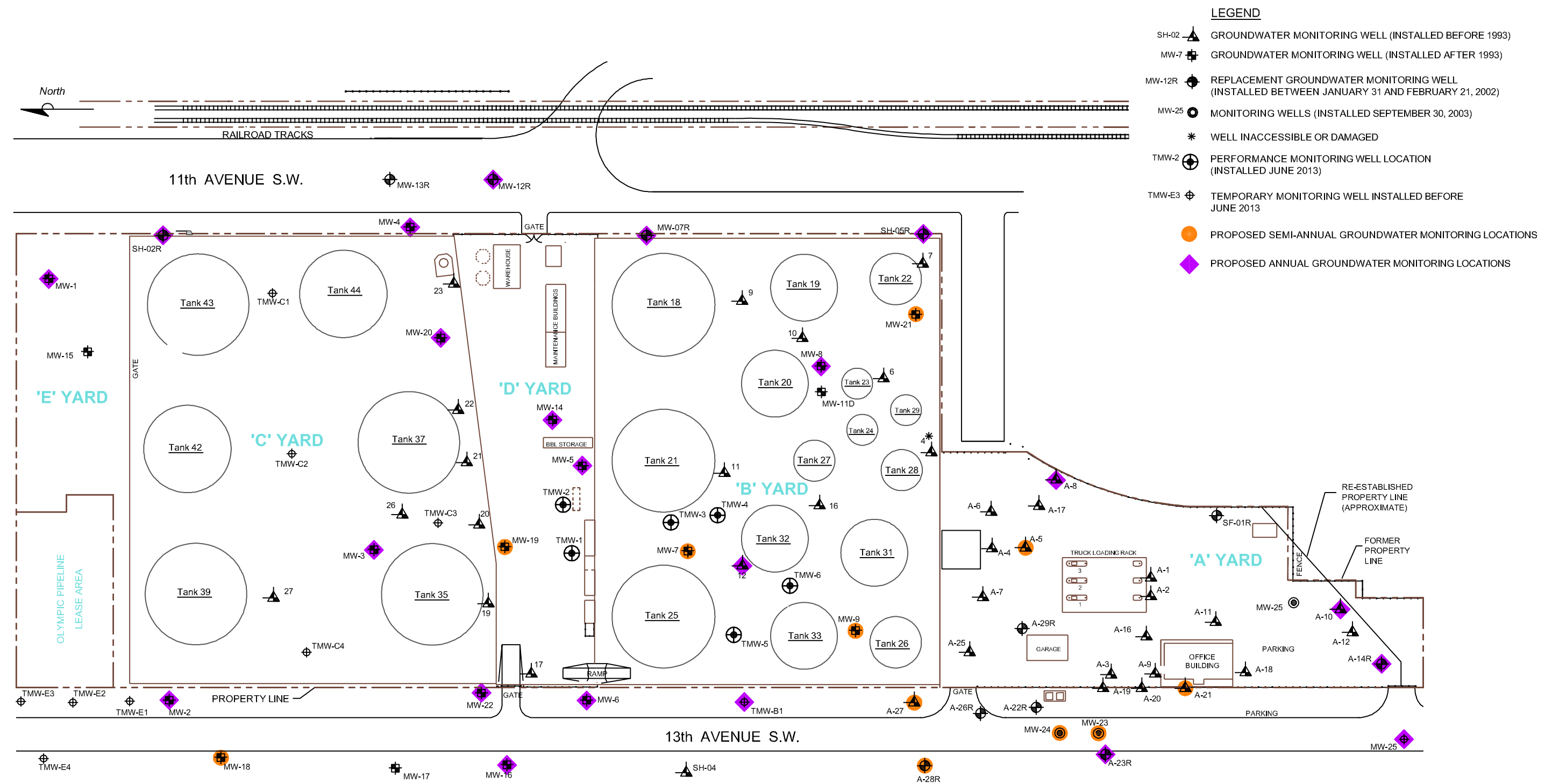


KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2014 REVISED GROUNDWATER MONITORING PLAN**

**CURRENT QUARTERLY AND ANNUAL  
 GROUNDWATER MONITORING  
 LOCATIONS**

FIGURE  
**2**

CITY:\Read\ DIV\GROUP\F\Read\ DB\Read\ LD\Op\ PIC\Op\ PM\Read\ TM\Op\ LYR\Option\OFF\REF\*  
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 XREFS: IMAGES: PROJECTNAME:



- LEGEND**
- SH-02 ▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
  - MW-7 ⊕ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
  - MW-12R ⊕ REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
  - MW-25 ● MONITORING WELLS (INSTALLED SEPTEMBER 30, 2003)
  - \* WELL INACCESSIBLE OR DAMAGED
  - TMW-2 ⊕ PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
  - TMW-E3 ⊕ TEMPORARY MONITORING WELL INSTALLED BEFORE JUNE 2013
  - PROPOSED SEMI-ANNUAL GROUNDWATER MONITORING LOCATIONS
  - ◆ PROPOSED ANNUAL GROUNDWATER MONITORING LOCATIONS

KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2014 REVISED GROUNDWATER MONITORING PLAN**

**PROPOSED SEMI-ANNUAL AND ANNUAL  
 GROUNDWATER MONITORING  
 LOCATIONS**


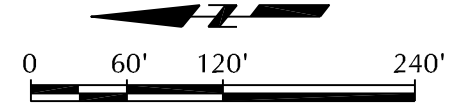
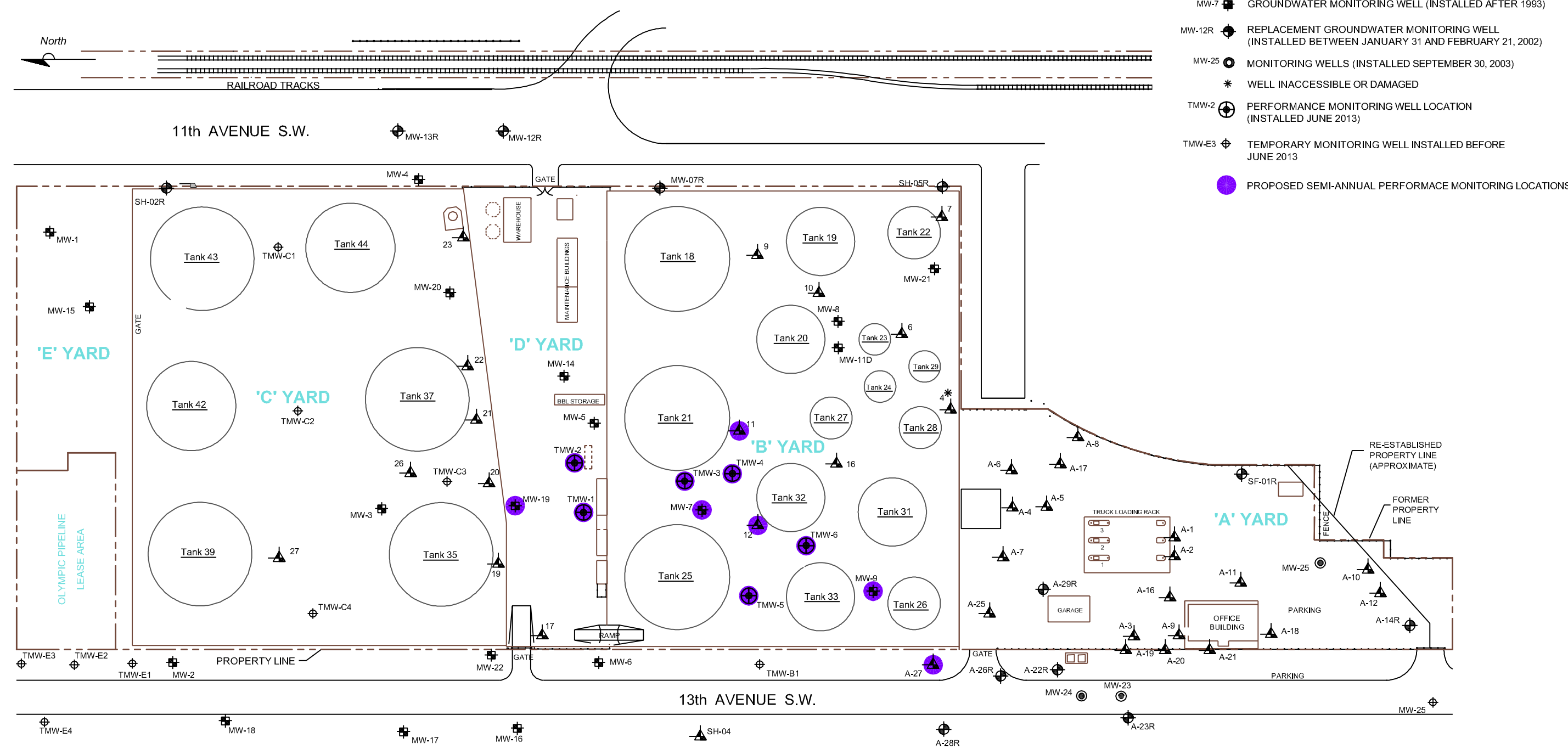


FIGURE  
**3**

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**LEGEND**

- SH-02 GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
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- MW-25 MONITORING WELLS (INSTALLED SEPTEMBER 30, 2003)
- \* WELL INACCESSIBLE OR DAMAGED
- TMW-2 PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-E3 TEMPORARY MONITORING WELL INSTALLED BEFORE JUNE 2013
- PROPOSED SEMI-ANNUAL PERFORMANCE MONITORING LOCATIONS



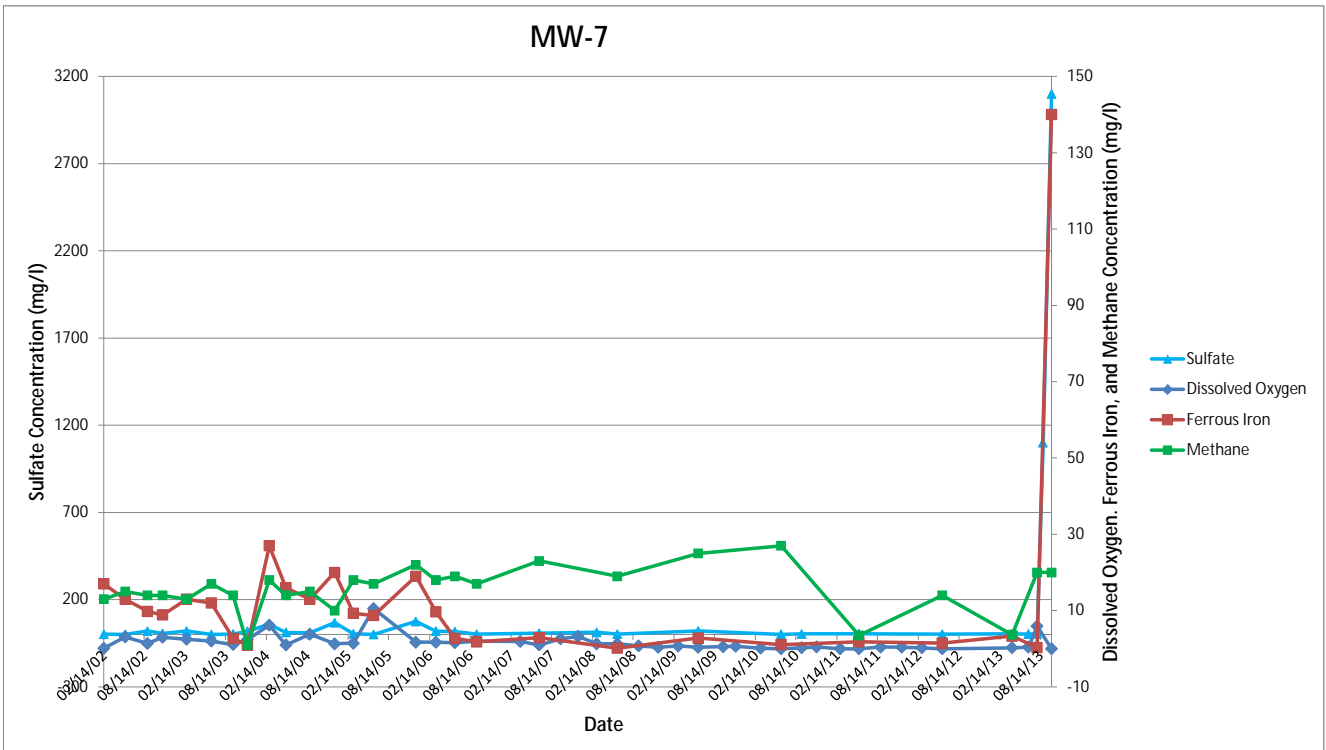
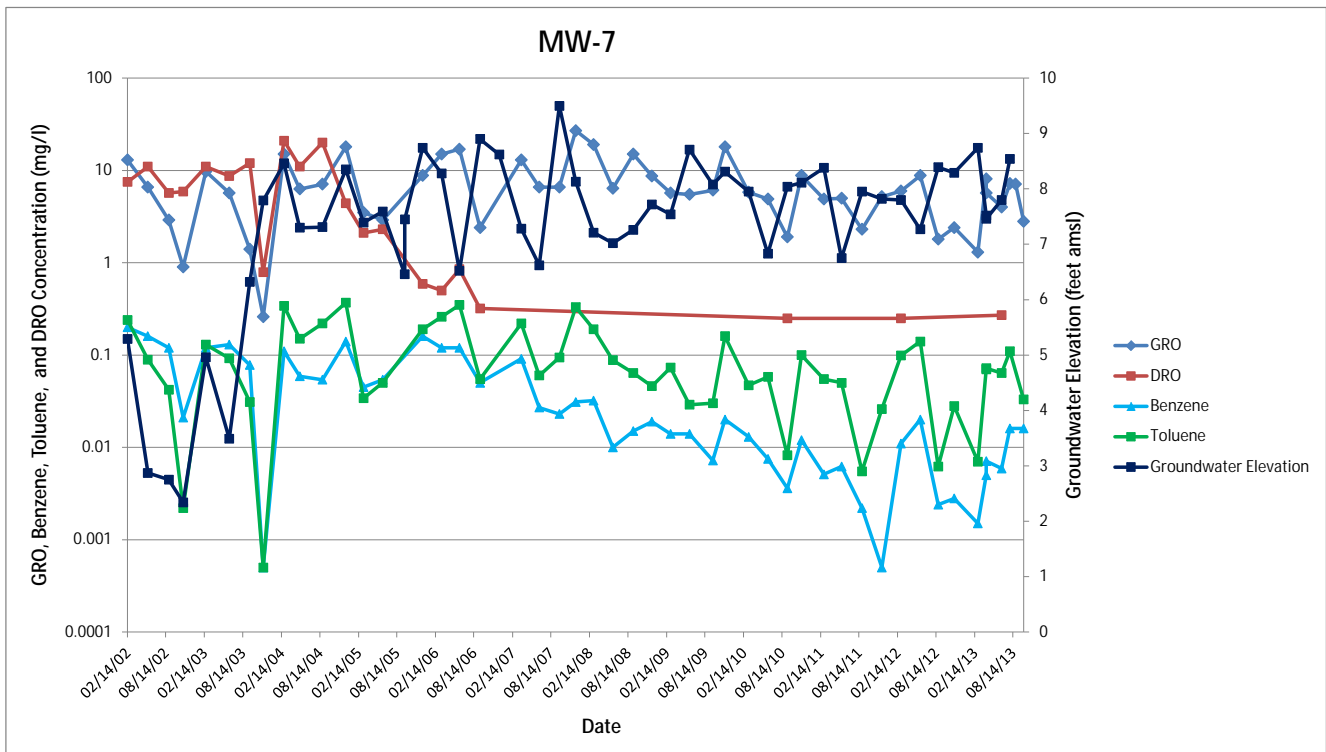
KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2014 REVISED GROUNDWATER MONITORING PLAN**

**PROPOSED PERFORMANCE MONITORING LOCATIONS**

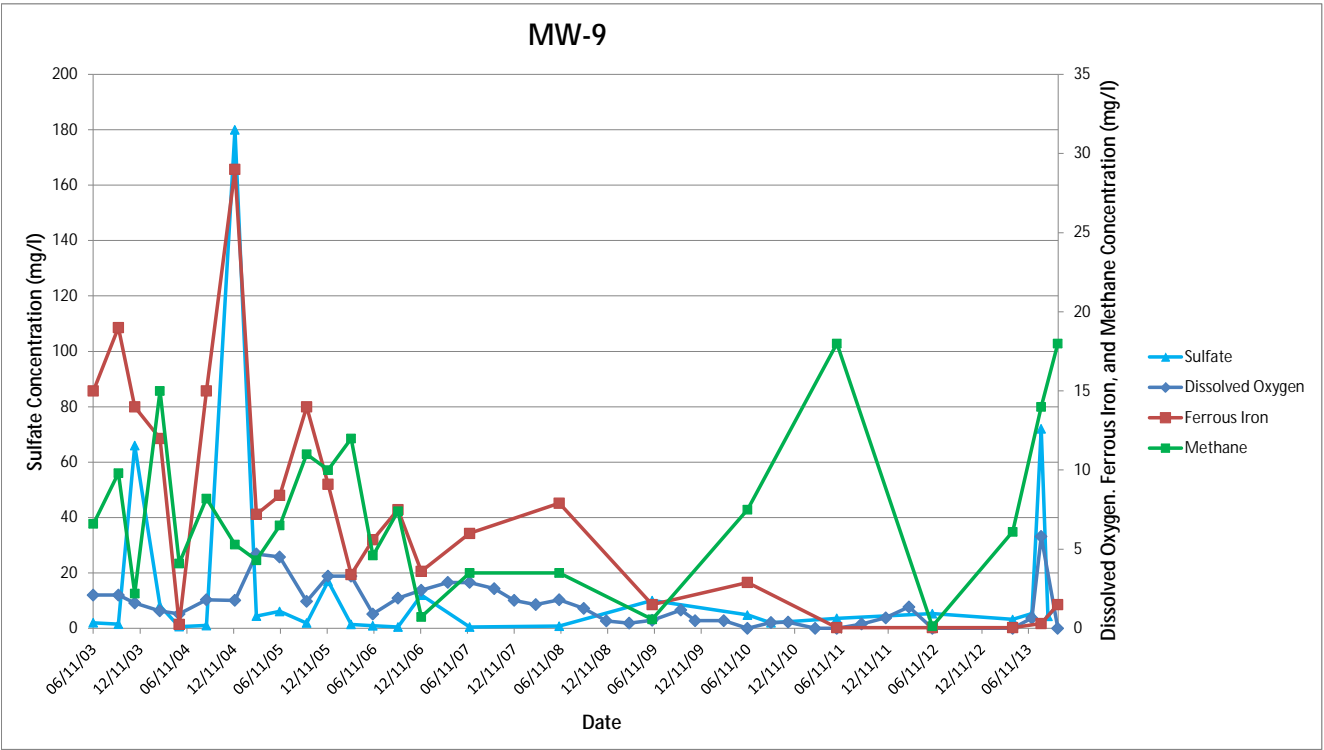
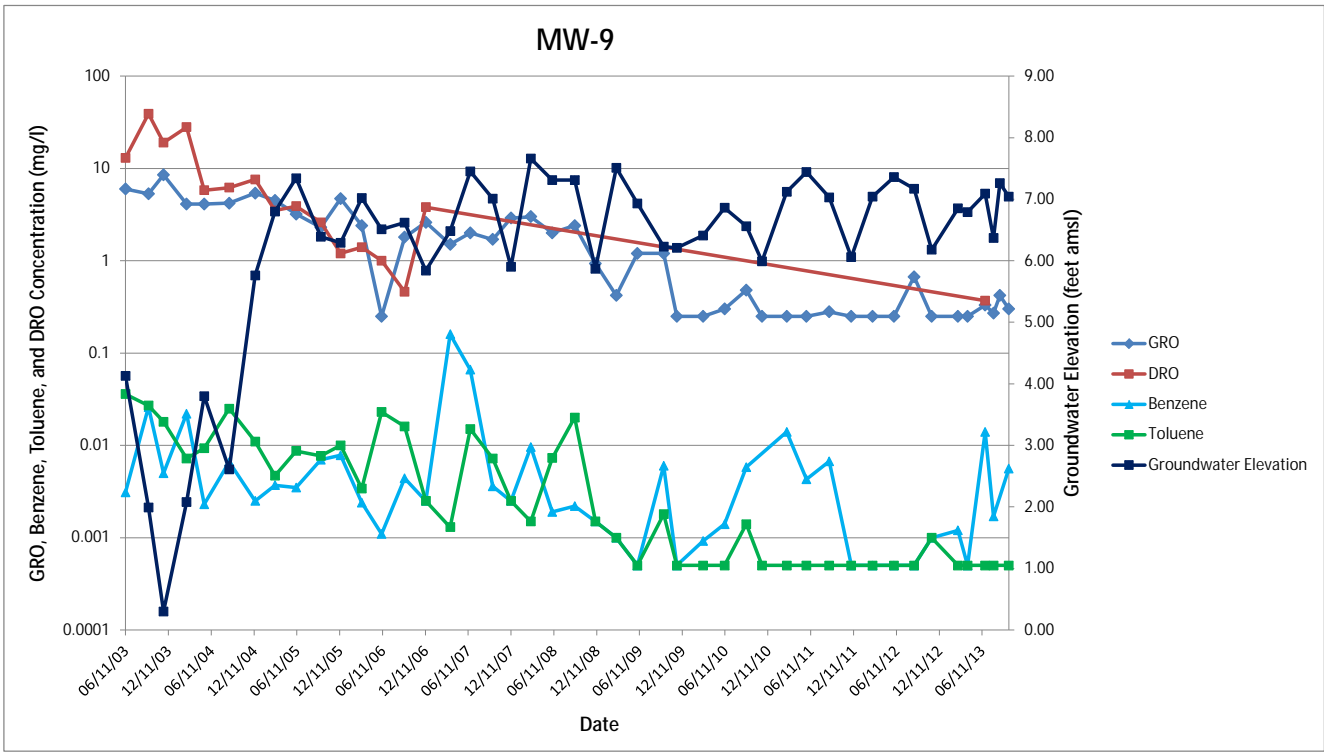




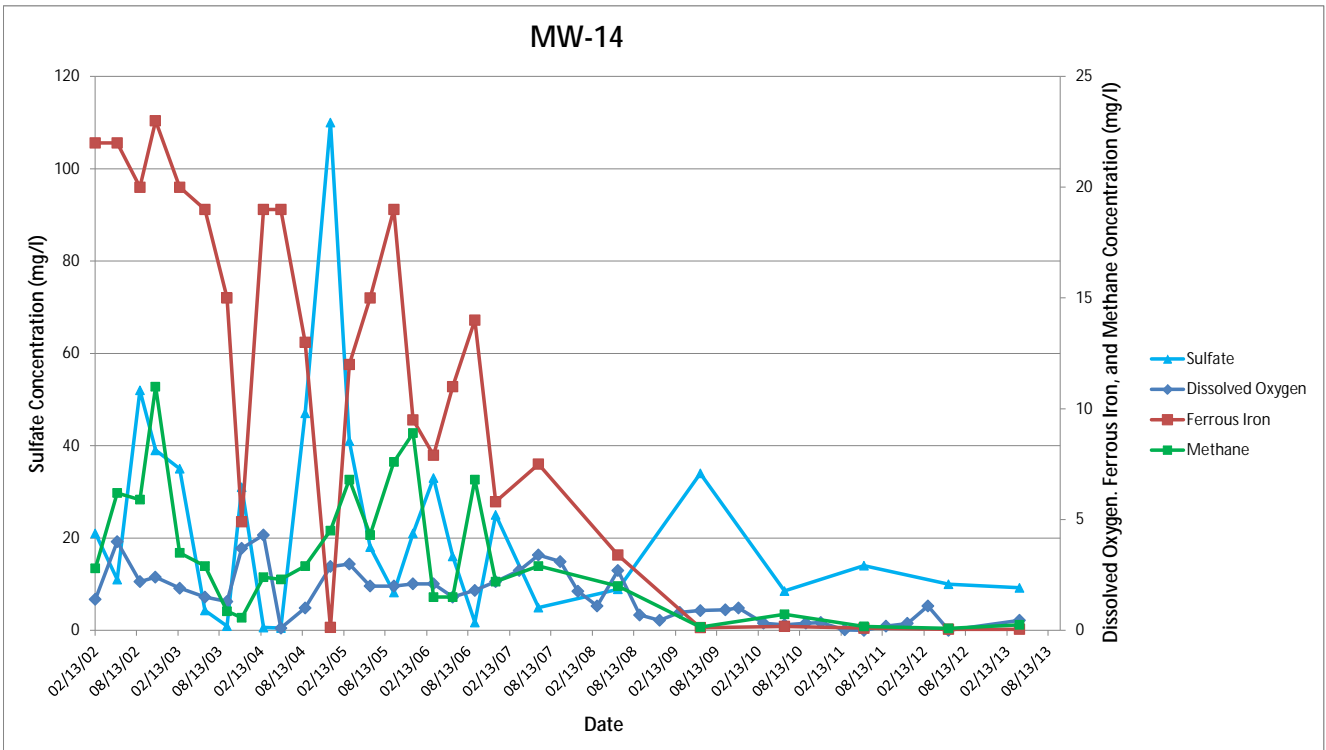
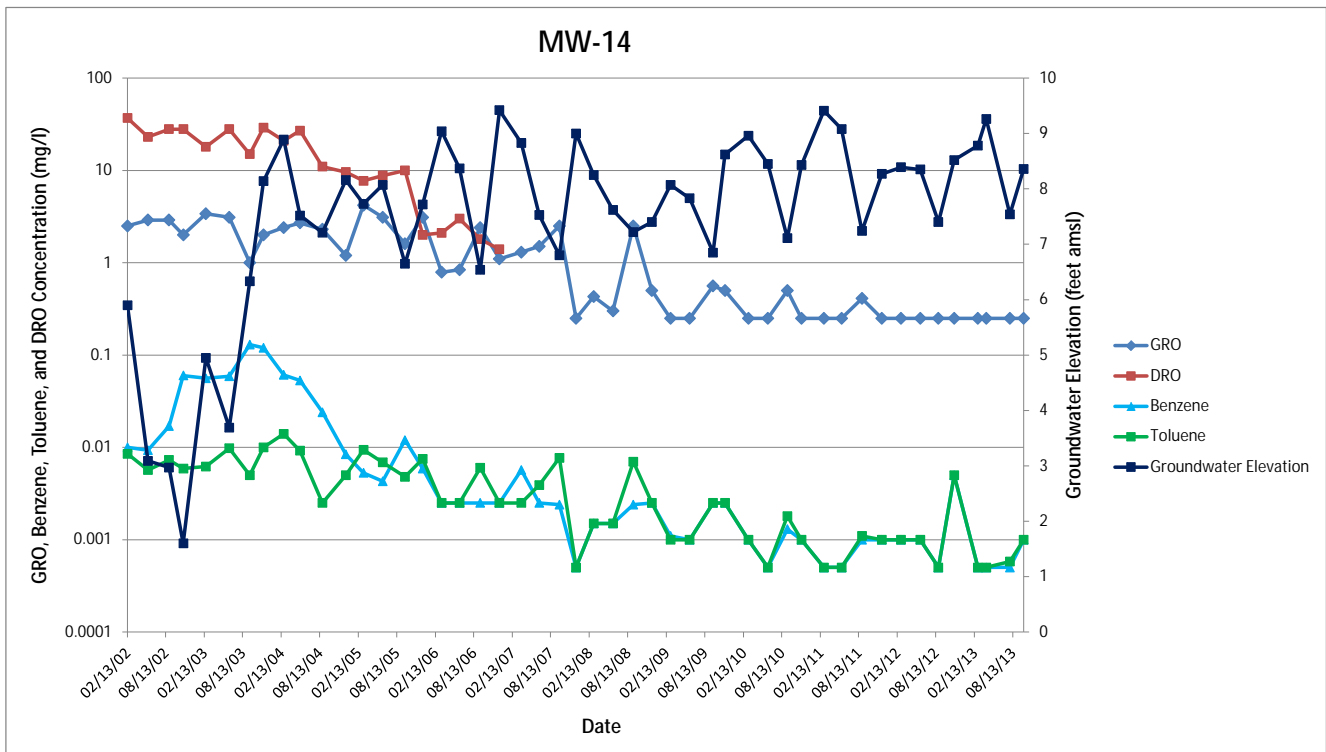
**Attachment A**



KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2014 REVISED GROUNDWATER MONITORING PLAN**  
**ATTACHMENT A**  
**HYDROGRAPH AND CONSTITUENT TREND GRAPHS**



KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2014 REVISED GROUNDWATER MONITORING PLAN**  
**ATTACHMENT A**  
**HYDROGRAPH AND CONSTITUENT TREND GRAPHS**




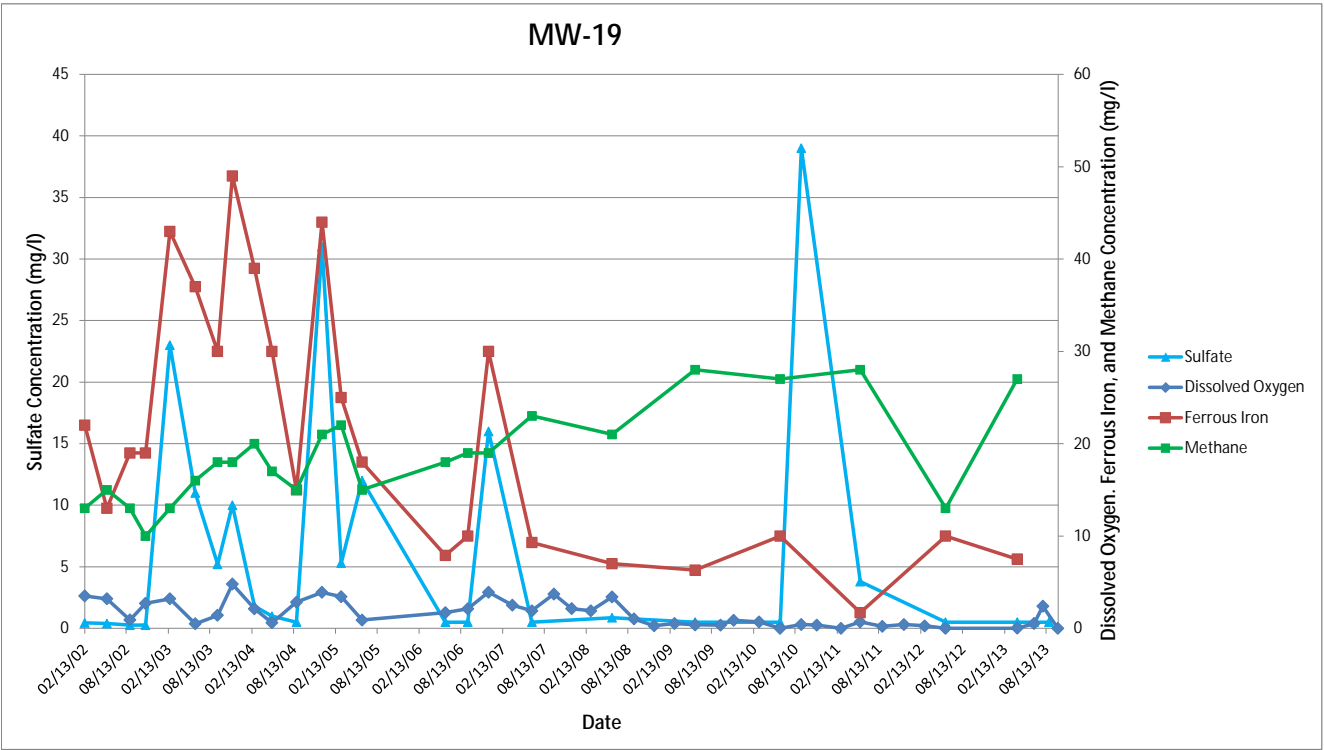
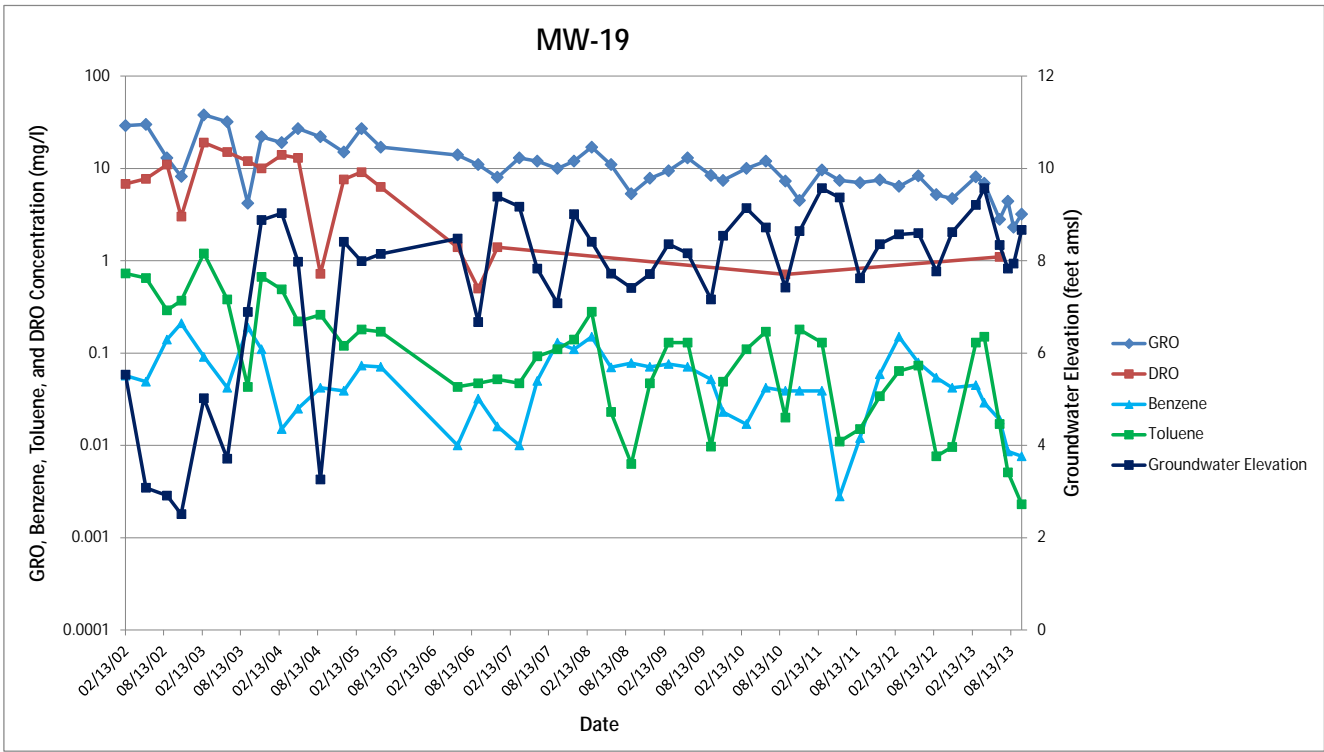
KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2014 REVISED GROUNDWATER MONITORING PLAN**

---

**ATTACHMENT A**  
**HYDROGRAPH AND CONSTITUENT TREND GRAPHS**

---

  
 Infrastructure · Water · Environment · Buildings




KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON  
**2014 REVISED GROUNDWATER MONITORING PLAN**

---

**ATTACHMENT A**  
**HYDROGRAPH AND CONSTITUENT TREND GRAPHS**

---

  
 Infrastructure · Water · Environment · Buildings



**From:** [Flomerfelt, Jonathan](mailto:Flomerfelt_Jonathan)  
**To:** [Wenning, Scott](mailto:Wenning_Scott)  
**Cc:** [Annis, Matt](mailto:Annis_Matt)  
**Subject:** FW: Kinder Morgan Harbor Island Terminal Proposed Revised Compliance Monitoring Plan  
**Date:** Wednesday, August 20, 2014 9:25:42 AM

---

Since there were some clarifications, lets use 8/13, email below as official approval

---

**From:** O'Brien, Maura (ECY) [<mailto:MOBR461@ECY.WA.GOV>]  
**Sent:** Wednesday, August 13, 2014 4:50 PM  
**To:** Annis, Matt; Flomerfelt, Jonathan; Truedinger, Robert  
**Cc:** Wang, Ching-Pi (ECY)  
**Subject:** RE: Kinder Morgan Harbor Island Terminal Proposed Revised Compliance Monitoring Plan

This is fine.

Maura

Maura S. O'Brien, PG/HG #869  
Professional Geologist/Hydrogeologist  
Toxics Cleanup Program - NWRO  
Department of Ecology  
3190 - 160th Avenue SE  
Bellevue, WA 98008-5452  
Tele 425-649-7249  
Fax 425-649-7098  
Email [mobr461@ecy.wa.gov](mailto:mobr461@ecy.wa.gov)

---

**From:** Annis, Matt [<mailto:Matt.Annis@arcadis-us.com>]  
**Sent:** Wednesday, August 13, 2014 3:08 PM  
**To:** O'Brien, Maura (ECY); Flomerfelt, Jonathan; Truedinger, Robert  
**Cc:** Wang, Ching-Pi (ECY)  
**Subject:** RE: Kinder Morgan Harbor Island Terminal Proposed Revised Compliance Monitoring Plan

Hi Maura – One last clarification. Please see below in red. Thanks.

**Matt Annis** | Principal Environmental Scientist | [matt.annis@arcadis-us.com](mailto:matt.annis@arcadis-us.com)  
ARCADIS U.S., Inc. | 1100 Olive Way, Suite 800 | Seattle, WA, 98101  
T: 206.726.4716 | C: 206.434.1929 | F: 206.325.8218  
[www.arcadis-us.com](http://www.arcadis-us.com)

ARCADIS, Imagine the result

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---

**From:** O'Brien, Maura (ECY) [<mailto:MOBR461@ECY.WA.GOV>]  
**Sent:** Wednesday, August 13, 2014 2:07 PM  
**To:** Annis, Matt; Flomerfelt, Jonathan; Truedinger, Robert  
**Cc:** Wang, Ching-Pi (ECY)  
**Subject:** RE: Kinder Morgan Harbor Island Terminal Proposed Revised Compliance Monitoring Plan

Rob Truedinger and Matt Annis,  
Ecology approves the revised Kinder Morgan Harbor Island Terminal Proposed Revised Compliance Monitoring Plan for the KM Terminal prepared by Arcadis on May 20, 2014 and revised August 13, 2014. The revised plan is effective fall 2014 and the next monitoring **quarter event** will occur first quarter 2015.

Maura

Maura S. O'Brien, PG/HG #869  
Professional Geologist/Hydrogeologist  
Toxics Cleanup Program - NWRO  
Department of Ecology  
3190 - 160th Avenue SE  
Bellevue, WA 98008-5452  
Tele 425-649-7249  
Fax 425-649-7098  
Email [mobr461@ecy.wa.gov](mailto:mobr461@ecy.wa.gov)

---

**From:** Annis, Matt [<mailto:Matt.Annis@arcadis-us.com>]  
**Sent:** Wednesday, August 13, 2014 12:50 PM  
**To:** O'Brien, Maura (ECY); Flomerfelt, Jonathan; Truedinger, Robert  
**Cc:** Wang, Ching-Pi (ECY)  
**Subject:** RE: Kinder Morgan Harbor Island Terminal Proposed Revised Compliance Monitoring Plan

Hi Maura,

Below in red are responses/clarifications to your comments. Thank you for reviewing the Revised Site Groundwater Monitoring Plan so quickly.

**Matt Annis** | Principal Environmental Scientist | [matt.annis@arcadis-us.com](mailto:matt.annis@arcadis-us.com)  
ARCADIS U.S., Inc. | 1100 Olive Way, Suite 800 | Seattle, WA, 98101  
T: 206.726.4716 | C: 206.434.1929 | F: 206.325.8218  
[www.arcadis-us.com](http://www.arcadis-us.com)

ARCADIS, Imagine the result

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---

**From:** O'Brien, Maura (ECY) [<mailto:MOBR461@ECY.WA.GOV>]  
**Sent:** Thursday, August 07, 2014 3:35 PM  
**To:** Annis, Matt; Flomerfelt, Jonathan; Truedinger, Robert  
**Cc:** Wang, Ching-Pi (ECY)  
**Subject:** RE: Kinder Morgan Harbor Island Terminal Proposed Revised Compliance Monitoring Plan

Hello

Thank you for your proposed Revised Site Groundwater Monitoring Plan at the Kinder Morgan Harbor Island Terminal site prepared by Arcadis US dated May 20, 2014. Ecology approves this

revised compliance plan with two additions:

-If SPH or LNAPL occur at any well, then gauging and removal will be implemented quarterly for four quarters and then to re-evaluate. If SPH or LNAPL occur at any well, ARCADIS will gauge and remove quarterly. Removal will be performed using absorbent socks, which is consistent with recent SPH/LNAPL removal performed at the site.

-If any groundwater compliance well shows concentration increase for two consecutive events, then to discuss with Ecology if additional monitoring or cleanup action needs to be implemented at that location. OK

Starting third quarter 2014, this revised annual and semi-annual monitoring will begin. The next monitoring event will occur in 1Q2015 and moving forward reporting will be conducted semi-annually.

Thanks for your hard work and continued efforts to bring this site to completion under MTCA.

Maura

Maura S. O'Brien, PG/HG #869  
Professional Geologist/Hydrogeologist  
Toxics Cleanup Program - NWRO  
Department of Ecology  
3190 - 160th Avenue SE  
Bellevue, WA 98008-5452  
Tele 425-649-7249  
Fax 425-649-7098  
Email [mobr461@ecy.wa.gov](mailto:mobr461@ecy.wa.gov)

---

**From:** Annis, Matt [<mailto:Matt.Annis@arcadis-us.com>]  
**Sent:** Thursday, August 07, 2014 11:09 AM  
**To:** O'Brien, Maura (ECY)  
**Cc:** Flomerfelt, Jonathan  
**Subject:** Kinder Morgan Harbor Island Periodic Review

Hi Maura,

Under Section 2.2 of the boilerplate you sent, are you looking for a summary of all site investigations and sample results to date or just those between the last 5-year review and present? Thanks.

**Matt Annis** | Senior Environmental Scientist | [matt.annis@arcadis-us.com](mailto:matt.annis@arcadis-us.com)  
ARCADIS U.S., Inc. | 1100 Olive Way, Suite 800 | Seattle, WA, 98101  
T: 206.726.4716 | C: 206.434.1929 | F: 206.325.8218  
[www.arcadis-us.com](http://www.arcadis-us.com)

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**SUBJECT****Kinder Morgan Harbor Island Terminal  
Groundwater Analytical Reduction Request****DATE**

February 11, 2016

**TO**

Maura O'Brien—Washington Department of Ecology

**COPY**

Rob Truedinger—Kinder Morgan

**PROJECT NUMBER**

WA000804.2016

**FROM**Matt Annis—Arcadis U.S., Inc.  
Kyle Haslam—Arcadis U.S., Inc.

Arcadis U.S., Inc. (Arcadis), on behalf of Kinder Morgan Energy Partners (Kinder Morgan), is requesting a revision to our current sampling scheme at the Kinder Morgan Harbor Island fuel terminal in Seattle, Washington (**Figure 1**). Kinder Morgan is currently analyzing samples from 24 wells for geochemical natural attenuation (NA) indicators (**Table 1**), such as ferrous iron and nitrate, in accordance with the Washington Department of Ecology (Ecology) approved Revised Site Groundwater Monitoring Plan (Arcadis 2014). Based on a review of recent data, it appears that a number of these 24 wells either have groundwater concentrations below site-specific cleanup levels for the constituents of concern (COCs) outlined in the Consent Decree (Ecology 2000), or are in a portion of the site undergoing remedial action via sulfate land application. Analyzing for natural attenuation indicators is not appropriate at these locations, as NA does not need to be demonstrated where groundwater concentrations are already below applicable cleanup levels and NA should not be evaluated in an area where remediation is ongoing. As such, Arcadis proposes to reduce the number of wells where full NA geochemical evaluations are performed from 24 to four (**Table 2**). The four well locations (A-27, A-28R, MW-23, and MW-24) proposed for continued evaluation of NA geochemical indicators are located within the 13<sup>th</sup> Avenue right-of-way, where NA is the approved remedy. We further propose to reduce the frequency of NA geochemical sample collection to annually, which would provide the ample data for continued NA evaluation in this area. Wells that are within the ongoing remedial area would be analyzed for facility COCs, in addition to sulfate, which is the primary remedial performance evaluation analyte. For wells outside of the ongoing remedial area and the 13<sup>th</sup> Avenue right-of-way, all of which have been below site-specific cleanup levels for at least 4 years<sup>1</sup> and a majority of which have been below site-specific cleanup levels for close to 10 years, Arcadis proposes to analyze for COCs only (gasoline-range organics, diesel-range organics, heavy oil, benzene, toluene, ethylbenzene, xylenes, and lead [total and dissolved]).

Arcadis would like to implement this reduced analyte sampling scheme beginning in the first quarter of 2016. Our proposed sampling start date is March 14, 2016. Please contact us if you would like any additional information regarding our request.

## Enclosures:

Figure 1 – Site Plan

Table 1 – Current Groundwater Monitoring Plan

Table 2 – Proposed Groundwater Monitoring Plan

References:

Arcadis. 2014. Revised Wide Groundwater Monitoring Plan. Kinder Morgan Harbor Island Terminal. May 20.

Ecology. 2000. Consent Decree 00-2-07760-2SEA. April 12.

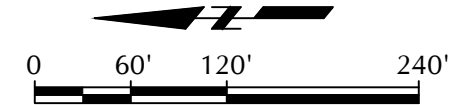
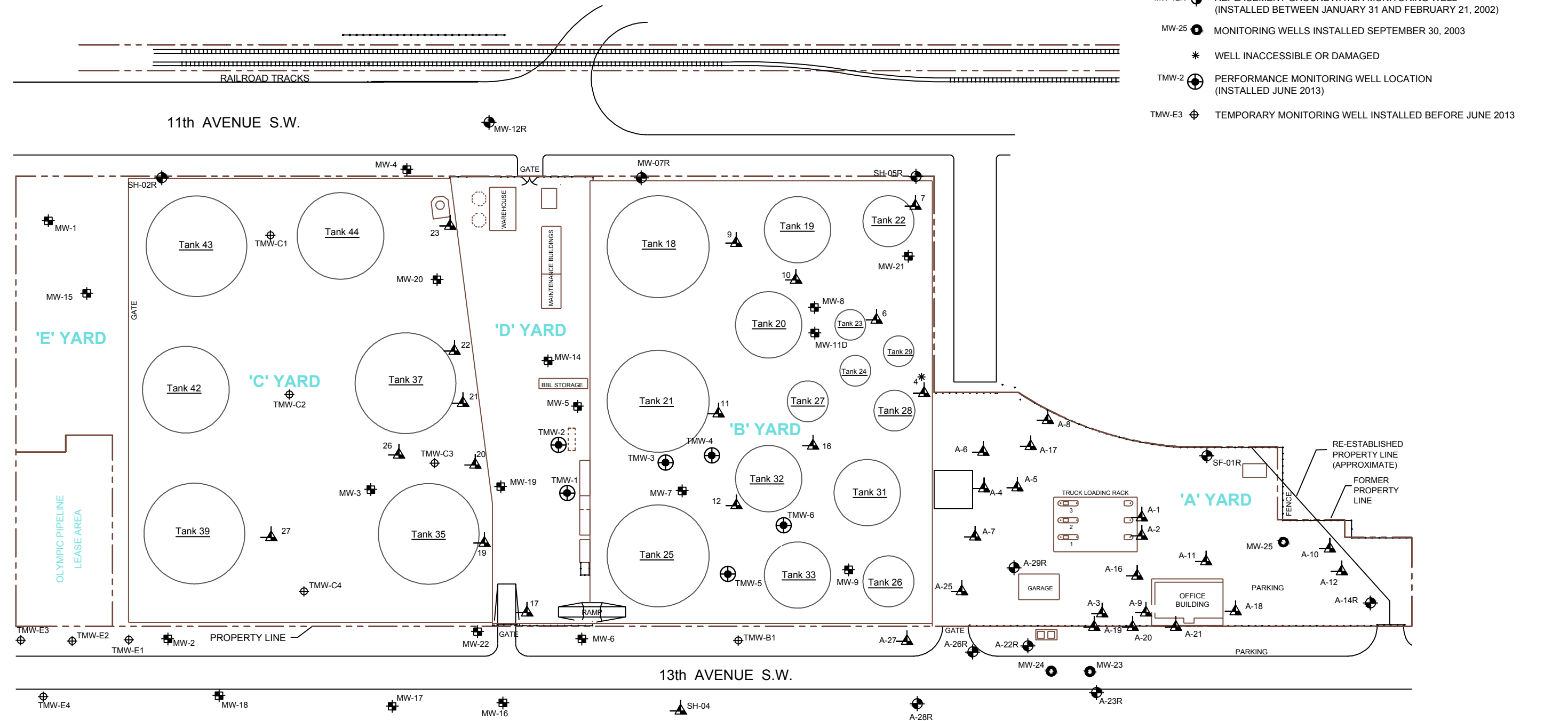
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<sup>i</sup> Well MW-8 has exceeded the site-specific cleanup level for lead since sampling of this well began in 2002. Lead is not a constituent that is subject to NA through biological means, therefore collecting NA geochemical indicator samples would not provide any benefit at this location.

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**LEGEND**

- SH-02 ▲ GROUNDWATER MONITORING WELL (INSTALLED BEFORE 1993)
- MW-7 ■ GROUNDWATER MONITORING WELL (INSTALLED AFTER 1993)
- MW-12R ● REPLACEMENT GROUNDWATER MONITORING WELL (INSTALLED BETWEEN JANUARY 31 AND FEBRUARY 21, 2002)
- MW-25 ● MONITORING WELLS INSTALLED SEPTEMBER 30, 2003
- \* WELL INACCESSIBLE OR DAMAGED
- TMW-2 ⊕ PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-E3 ⊕ TEMPORARY MONITORING WELL INSTALLED BEFORE JUNE 2013



KINDER MORGAN LIQUID TERMINALS, LLC  
 HARBOR ISLAND TERMINAL  
 2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON

**SITE PLAN**



**Table 1  
Current Groundwater Monitoring Plan  
2016 Analyte Reduction Request  
Kinder Morgan Harbor Island Terminal  
Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-4	1Q							X
	3Q							X
A-5	1Q	X			X			X
	3Q	X			X			X
A-6	1Q							X
	3Q							X
A-8	1Q							X
	3Q	X	X	X	X			X
A-10	1Q							X
	3Q	X	X	X	X			X
A-11	1Q							X
	3Q							X
A-12	1Q							X
	3Q							X
A-14R	1Q							X
	3Q	X	X	X	X	X		X
A-16	1Q							X
	3Q							X
A-18	1Q							X
	3Q							X
A-19	1Q							X
	3Q							X
A-20	1Q							X
	3Q							X

**Table 1**  
**Current Groundwater Monitoring Plan**  
**2016 Analyte Reduction Request**  
**Kinder Morgan Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-21	1Q	X			X		X	X
	3Q	X			X	X	X	X
A-22R	1Q							X
	3Q							X
A-23R	1Q							X
	3Q	X			X		X	X
A-25	1Q							X
	3Q							X
A-26R	1Q							X
	3Q							X
A-27 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
A-28R	1Q	X			X		X	X
	3Q	X			X	X	X	X
11 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
12 <sup>2</sup>	1Q	X			X		X	X
	3Q	X	X	X	X	X	X	X
MW-1	1Q							X
	3Q	X	X	X	X	X		X
MW-2	1Q							X
	3Q	X	X	X	X	X	X	X
MW-3	1Q							X
	3Q	X	X	X	X	X		X



**Table 1  
Current Groundwater Monitoring Plan  
2016 Analyte Reduction Request  
Kinder Morgan Harbor Island Terminal  
Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-4	1Q							X
	3Q	X	X	X	X			X
MW-5	1Q							X
	3Q	X	X	X	X	X		X
MW-6	1Q							X
	3Q	X			X	X	X	X
MW-7 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-8	1Q							X
	3Q	X	X	X	X	X		X
MW-9 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-12R	1Q							X
	3Q	X	X	X	X	X	X	X
MW-14	1Q							X
	3Q	X			X		X	X
MW-16	1Q							X
	3Q	X	X	X	X			X
MW-18	1Q	X			X			X
	3Q	X			X			X
MW-19 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
MW-20	1Q							X
	3Q	X	X	X	X			X

**Table 1  
Current Groundwater Monitoring Plan  
2016 Analyte Reduction Request  
Kinder Morgan Harbor Island Terminal  
Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-21	1Q	X	X	X	X		X	X
	3Q	X	X	X	X		X	X
MW-22	1Q							X
	3Q	X	X	X	X			X
MW-23	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-24	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-25	1Q							X
	3Q	X	X	X	X	X		X
MW-07R	1Q							X
	3Q	X	X	X	X	X	X	X
SH-02R	1Q							X
	3Q	X	X	X	X	X	X	X
SH-05R	1Q							X
	3Q	X	X	X	X	X		X
TMW-B1	1Q							X
	3Q	X			X			X

**Table 1**  
**Current Groundwater Monitoring Plan**  
**2016 Analyte Reduction Request**  
**Kinder Morgan Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
TMW-1 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-2 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-3 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-4 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-5 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-6 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X

**Notes**

1 Monitored Natural Attenuation (MNA) Geochemical Parameters include dissolved oxygen, methane, ferrous iron, nitrate, sulfate, and sulfide  
2 Performance monitoring locations  
GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics by Northwest Method NWTPH-Gx  
DRO = Total Petroleum Hydrocarbons - Diesel Range Organics by Northwest Method NWTPH-Dx  
HO = Total Petroleum Hydrocarbons - Heavy Oil by Northwest Method NWTPH-Gx  
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes by Environmental Protection Agency (EPA) Method 8260B.  
1Q, 2Q, 3Q, 4Q = Denotes the quarter for each sampling event  
-- Not Applicable

**Table 2**  
**Proposed Groundwater Monitoring Plan**  
**2016 Analyte Reduction Request**  
**Kinder Morgan Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-4	1Q							X
	3Q							X
A-5	1Q	X			X			X
	3Q	X			X			X
A-6	1Q							X
	3Q							X
A-8	1Q							X
	3Q	X	X	X	X			X
A-10	1Q							X
	3Q	X	X	X	X			X
A-11	1Q							X
	3Q							X
A-12	1Q							X
	3Q							X
A-14R	1Q							X
	3Q	X	X	X	X	X		X
A-16	1Q							X
	3Q							X
A-18	1Q							X
	3Q							X
A-19	1Q							X
	3Q							X
A-20	1Q							X
	3Q							X

**Table 2  
Proposed Groundwater Monitoring Plan  
2016 Analyte Reduction Request  
Kinder Morgan Harbor Island Terminal  
Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
A-21	1Q	X			X			X
	3Q	X			X	X		X
A-22R	1Q							X
	3Q							X
A-23R	1Q							X
	3Q	X			X			X
A-25	1Q							X
	3Q							X
A-26R	1Q							X
	3Q							X
A-27 <sup>2</sup>	1Q	X			X		X	X
	3Q	X			X		X	X
A-28R	1Q	X			X		X	X
	3Q	X			X	X	X	X
11 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X
12 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X	X	X	X	X	X <sup>3</sup>	X
MW-1	1Q							X
	3Q	X	X	X	X	X		X
MW-2	1Q							X
	3Q	X	X	X	X	X		X
MW-3	1Q							X
	3Q	X	X	X	X	X		X

**Table 2**  
**Proposed Groundwater Monitoring Plan**  
**2016 Analyte Reduction Request**  
**Kinder Morgan Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-4	1Q							X
	3Q	X	X	X	X			X
MW-5	1Q							X
	3Q	X	X	X	X	X		X
MW-6	1Q							X
	3Q	X			X	X		X
MW-7 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X	X	X <sup>3</sup>	X
MW-8	1Q							X
	3Q	X	X	X	X	X		X
MW-9 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X	X	X <sup>3</sup>	X
MW-12R	1Q							X
	3Q	X	X	X	X	X		X
MW-14	1Q							X
	3Q	X			X			X
MW-16	1Q							X
	3Q	X	X	X	X			X
MW-18	1Q	X			X			X
	3Q	X			X			X
MW-19 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X
MW-20	1Q							X
	3Q	X	X	X	X			X

**Table 2**  
**Proposed Groundwater Monitoring Plan**  
**2016 Analyte Reduction Request**  
**Kinder Morgan Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
MW-21	1Q	X	X	X	X			X
	3Q	X	X	X	X			X
MW-22	1Q							X
	3Q	X	X	X	X			X
MW-23	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-24	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-25	1Q							X
	3Q	X	X	X	X	X		X
MW-07R	1Q							X
	3Q	X	X	X	X	X		X
SH-02R	1Q							X
	3Q	X	X	X	X	X		X
SH-05R	1Q							X
	3Q	X	X	X	X	X		X
TMW-B1	1Q							X
	3Q	X			X		X	X

**Table 2**  
**Proposed Groundwater Monitoring Plan**  
**2016 Analyte Reduction Request**  
**Kinder Morgan Harbor Island Terminal**  
**Seattle, Washington**

Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters <sup>1</sup>	Depth to Water/SPH by downhole meter
TMW-1 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X
TMW-2 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X
TMW-3 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X
TMW-4 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X
TMW-5 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X
TMW-6 <sup>2</sup>	1Q	X			X		X <sup>3</sup>	X
	3Q	X			X		X <sup>3</sup>	X

**Notes**

1 = Monitored Natural Attenuation (MNA) Geochemical Parameters include dissolved oxygen, methane, ferrous iron, nitrate, sulfate, and sulfide  
2 = Performance monitoring locations  
3 = Sulfate is the only geochemical analysis to be run at this location  
GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics by Northwest Method NWTPH-Gx  
DRO = Total Petroleum Hydrocarbons - Diesel Range Organics by Northwest Method NWTPH-Dx  
HO = Total Petroleum Hydrocarbons - Heavy Oil by Northwest Method NWTPH-Gx  
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes by Environmental Protection Agency (EPA) Method 8260B.  
1Q, 2Q, 3Q, 4Q = Denotes the quarter for each sampling event  
-- Not Applicable



## Ullery, Mark

---

**From:** Cruz, Jerome (ECY) <JCRU461@ECY.WA.GOV>  
**Sent:** Thursday, September 15, 2016 4:15 PM  
**To:** Annis, Matt  
**Cc:** Haslam, Kyle; Truedinger, Robert (Robert\_Truedinger@kindermorgan.com); Wang, Ching-Pi (ECY)  
**Subject:** RE: Kinder Morgan Harbor Island Terminal - analyte frequency reduction request

Hi Rob, Matt, and Kyle,

Thank you for meeting with me today and for your patience while I get up to speed with the site issues and requests.

My understanding is that the reduction request will consist of eliminating only natural attenuation indicators such as ferrous iron and nitrate (with the exception of sulfate) from the list of analytes at select wells depicted in Figure 3 of the Proposed MNA Geochemical Parameters Analytical Reduction Plan. Site COCs will continue to be analyzed.

I concur with the analyte groundwater reduction request in your memo dated August 3, 2016. Please proceed in accordance with the revisions proposed in the memo.

Please also proceed with the proposed sulfate land reapplication in accordance with the August 31, 2016 field implementation memorandum.

Thanks,

Jerome



Jerome B. Cruz, Ph.D.  
Toxics Cleanup Program, Northwest Regional Office  
3190 - 160th SE Bellevue, WA 98008  
Tel: (425) 649-7094 Fax: (425) 649-7098  
[Jerome.Cruz@ecy.wa.gov](mailto:Jerome.Cruz@ecy.wa.gov)  
<http://www.ecy.wa.gov/programs/tcp/cleanup.html>

---

**From:** Annis, Matt [mailto:Matt.Annis@arcadis.com]  
**Sent:** Thursday, August 04, 2016 10:12 AM  
**To:** Cruz, Jerome (ECY) <JCRU461@ECY.WA.GOV>  
**Cc:** Haslam, Kyle <Kyle.Haslam@arcadis.com>; Truedinger, Robert (Robert\_Truedinger@kindermorgan.com) <Robert\_Truedinger@kindermorgan.com>  
**Subject:** RE: Kinder Morgan Harbor Island Terminal - analyte frequency reduction request

Hi Jerome,

We have revised our analyte reduction request memo to incorporate the maps you requested below (see attached). For clarification, at this time we are not proposing to drop any wells from the program. This request is limited to dropping

NA analytical parameters from a handful of wells. Perhaps later this year we should take a look at dropping wells from the program that have been in compliance for several years. Please confirm the revisions meet the expectations of your request. Thanks.

**Matt Annis** | Principal Environmental Scientist | [matt.annis@arcadis.com](mailto:matt.annis@arcadis.com)

**Arcadis** | Arcadis U.S., Inc.

1100 Olive Way, Suite 800 | Seattle, WA | 98101 | USA

T. +1 206 726 4716 | M. +1 206 434 1929

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Be green, leave it on the screen.

---

**From:** Cruz, Jerome (ECY) [<mailto:JCRU461@ECY.WA.GOV>]

**Sent:** Thursday, July 28, 2016 9:18 AM

**To:** Annis, Matt <[Matt.Annis@arcadis.com](mailto:Matt.Annis@arcadis.com)>

**Cc:** Haslam, Kyle <[Kyle.Haslam@arcadis.com](mailto:Kyle.Haslam@arcadis.com)>; Truedinger, Robert ([Robert\\_Truedinger@kindermorgan.com](mailto:Robert_Truedinger@kindermorgan.com)) <[Robert\\_Truedinger@kindermorgan.com](mailto:Robert_Truedinger@kindermorgan.com)>

**Subject:** RE: Kinder Morgan Harbor Island Terminal - analyte frequency reduction request

Hi Matt,

I started reviewing the analyte reduction request and first semiannual 2016 GW monitoring report. In order to understand the nature of this request and evolution, I reviewed the past requests for reduced monitoring in the semiannual monitoring report. From what I could find, there were two requests:

- June 21, 2007 to Roger Nye, approved August 7, 2007
- May 20, 2014 to Maura O'Brien, approved ??

The May 20 request had maps showing current quarterly and annual GW monitoring locations (Fig. 2), proposed semi- and annual locations (Fig. 3), and proposed performance monitoring locations (Fig. 4).

May I request similar maps for the current proposal? This will allow me to better understand the proposal, its variation from past/current monitoring, and its rationale. What might also help is to superimpose contaminant concentrations in the proposed monitoring network/frequency map for me to verify how the current proposal addresses the existing site conditions. I agree that if a well has been in compliance for several years, we should consider dropping it from the monitoring program, but I would like to identify where these are on the maps before I approve anything.

Please don't hesitate to contact me if you have questions or would like to discuss.

Thanks,

Jerome



Jerome B. Cruz, Ph.D.  
Toxics Cleanup Program, Northwest Regional Office  
3190 - 160th SE Bellevue, WA 98008  
Tel: (425) 649-7094 Fax: (425) 649-7098  
[Jerome.Cruz@ecy.wa.gov](mailto:Jerome.Cruz@ecy.wa.gov)  
<http://www.ecy.wa.gov/programs/tcp/cleanup.html>

---

**From:** Annis, Matt [<mailto:Matt.Annis@arcadis.com>]  
**Sent:** Wednesday, July 20, 2016 1:43 PM  
**To:** Cruz, Jerome (ECY) <[JCRU461@ECY.WA.GOV](mailto:JCRU461@ECY.WA.GOV)>  
**Cc:** Haslam, Kyle <[Kyle.Haslam@arcadis.com](mailto:Kyle.Haslam@arcadis.com)>; Truedinger, Robert ([Robert.Truedinger@kindermorgan.com](mailto:Robert.Truedinger@kindermorgan.com)) <[Robert.Truedinger@kindermorgan.com](mailto:Robert.Truedinger@kindermorgan.com)>  
**Subject:** FW: Kinder Morgan Harbor Island Terminal - analyte frequency reduction request

Hi Jerome,

Please see below and attached. We are starting to plan for our Q3 monitoring event and were hoping Ecology would provide an opinion on our request before then. Please give me a call if you have questions or would like to discuss. Thanks.

**Matt Annis** | Principal Environmental Scientist | [matt.annis@arcadis.com](mailto:matt.annis@arcadis.com)  
**Arcadis** | Arcadis U.S., Inc.  
1100 Olive Way, Suite 800 | Seattle, WA | 98101 | USA  
T. +1 206 726 4716 | M. +1 206 434 1929

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---

**From:** Annis, Matt  
**Sent:** Wednesday, February 24, 2016 3:53 PM  
**To:** 'mobr461@ecy.wa.gov' <[mobr461@ecy.wa.gov](mailto:mobr461@ecy.wa.gov)>  
**Cc:** Truedinger, Robert ([Robert.Truedinger@kindermorgan.com](mailto:Robert.Truedinger@kindermorgan.com)) <[Robert.Truedinger@kindermorgan.com](mailto:Robert.Truedinger@kindermorgan.com)>  
**Subject:** FW: Kinder Morgan Harbor Island Terminal - analyte frequency reduction request

Hi Maura,

Thanks for taking the time to call me on 2/22 to discuss this request and your pending retirement (good for you!). You indicated you were in general agreement with our request to reduce the number of wells we have been performing natural attenuation analyses on and were also going to discuss with the new site manager (Jerome Cruz). As you suggested, we will push our Q1 sampling back to the week of 3/21 so Ecology has sufficient time to provide an opinion on our request.

Also, you mentioned having a transition meeting with Ecology, Kinder Morgan and Arcadis prior to your last day. Kinder Morgan and Arcadis definitely want to take you up on that offer. Are you and Jerome available for this transition meeting on the afternoon of 3/24? Please let us know as soon as you can as Rob will need to travel from Portland to attend. Thanks.

**Matt Annis** | Principal Environmental Scientist | [matt.annis@arcadis.com](mailto:matt.annis@arcadis.com)

**Arcadis** | T. +1 206 726 4716 | M. +1 206 434 1929

[www.arcadis.com](http://www.arcadis.com)

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**From:** Annis, Matt

**Sent:** Thursday, February 11, 2016 2:23 PM

**To:** 'mobr461@ecy.wa.gov' <[mobr461@ecy.wa.gov](mailto:mobr461@ecy.wa.gov)>

**Cc:** Truedinger, Robert ([Robert\\_Truedinger@kindermorgan.com](mailto:Robert_Truedinger@kindermorgan.com)) <[Robert\\_Truedinger@kindermorgan.com](mailto:Robert_Truedinger@kindermorgan.com)>; Haslam, Kyle <[Kyle.Haslam@arcadis.com](mailto:Kyle.Haslam@arcadis.com)>

**Subject:** Kinder Morgan Harbor Island Terminal - analyte frequency reduction request

Hi Maura,

Attached is a memorandum that includes a request to cease the analysis of natural attenuation parameters in monitoring wells that are currently below site-specific cleanup levels (and have been for some time) at the Kinder Morgan terminal on Harbor Island. The memorandum also includes a request to temporarily cease the analysis of natural attenuation parameters (with the exception of sulfate) at the performance monitoring wells located with the sulfate land application. We are hoping to have an opinion from Ecology on this request prior to our first quarter sampling event, which is current scheduled for mid-March 2016. Please give me a call if you have any questions or would like to discuss. Thanks.

**Matt Annis** | Principal Environmental Scientist | [matt.annis@arcadis.com](mailto:matt.annis@arcadis.com)

**Arcadis** | Arcadis U.S., Inc.

1100 Olive Way, Suite 800 | Seattle, WA | 98101 | USA

T. +1 206 726 4716 | M. +1 206 434 1929

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# APPENDIX B

Groundwater Monitoring Field Data Sheets



# Low-Flow Test Report:

Test Date / Time: 3/25/2020 2:51:41 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: TMW-2</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.7 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 2.7 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

## Weather Conditions:

Sunny 50°

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/25/2020 2:51 PM	00:00	6.32 pH	11.97 °C	2,184.5 µS/cm	6.02 mg/L	187.6 mV	2.70 ft	150.00 ml/min
3/25/2020 2:54 PM	03:00	7.05 pH	11.40 °C	2,195.5 µS/cm	7.40 mg/L	123.2 mV	2.70 ft	150.00 ml/min
3/25/2020 2:57 PM	06:00	7.26 pH	11.24 °C	2,194.4 µS/cm	7.11 mg/L	93.4 mV	2.70 ft	150.00 ml/min
3/25/2020 3:00 PM	09:00	7.34 pH	11.21 °C	2,192.9 µS/cm	6.80 mg/L	77.2 mV	2.70 ft	150.00 ml/min
3/25/2020 3:03 PM	12:00	7.37 pH	11.15 °C	2,182.1 µS/cm	7.15 mg/L	68.9 mV	2.70 ft	150.00 ml/min
3/25/2020 3:06 PM	15:00	7.39 pH	11.20 °C	2,180.6 µS/cm	7.67 mg/L	67.2 mV	2.70 ft	150.00 ml/min
3/25/2020 3:09 PM	18:00	7.42 pH	11.13 °C	2,170.3 µS/cm	7.42 mg/L	62.3 mV	2.70 ft	150.00 ml/min

## Samples

Sample ID:	Description:
TMW-2	Sample time 1515 Final DTW 2.70

# Low-Flow Test Report:

Test Date / Time: 3/26/2020 2:54:35 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: MW-19</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.09 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.03 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Weather Conditions:

Sun

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/26/2020 2:54 PM	00:00	6.65 pH	12.57 °C	473.02 µS/cm	5.84 mg/L	55.3 mV	2.09 ft	150.00 ml/min
3/26/2020 2:57 PM	03:00	6.60 pH	12.06 °C	553.88 µS/cm	2.86 mg/L	32.3 mV	2.09 ft	150.00 ml/min
3/26/2020 3:00 PM	06:00	6.61 pH	11.94 °C	989.28 µS/cm	2.10 mg/L	29.7 mV	2.09 ft	150.00 ml/min
3/26/2020 3:03 PM	09:00	6.63 pH	11.91 °C	1,912.7 µS/cm	1.32 mg/L	34.1 mV	2.09 ft	150.00 ml/min
3/26/2020 3:06 PM	12:00	6.64 pH	11.93 °C	2,459.3 µS/cm	1.21 mg/L	23.9 mV	2.09 ft	150.00 ml/min
3/26/2020 3:09 PM	15:00	6.65 pH	11.95 °C	2,681.8 µS/cm	0.77 mg/L	18.0 mV	2.09 ft	150.00 ml/min
3/26/2020 3:12 PM	18:00	6.66 pH	11.98 °C	2,754.7 µS/cm	0.54 mg/L	15.3 mV	2.09 ft	150.00 ml/min
3/26/2020 3:15 PM	21:00	6.67 pH	11.98 °C	2,787.4 µS/cm	0.38 mg/L	12.0 mV	2.09 ft	150.00 ml/min
3/26/2020 3:18 PM	24:00	6.67 pH	12.00 °C	2,784.2 µS/cm	0.31 mg/L	10.5 mV	2.09 ft	150.00 ml/min
3/26/2020 3:21 PM	27:00	6.67 pH	12.02 °C	2,804.1 µS/cm	0.25 mg/L	11.9 mV	2.09 ft	150.00 ml/min
3/26/2020 3:24 PM	30:00	6.68 pH	12.04 °C	2,787.4 µS/cm	0.23 mg/L	8.9 mV	2.09 ft	150.00 ml/min
3/26/2020 3:27 PM	33:00	6.68 pH	12.07 °C	2,762.5 µS/cm	0.20 mg/L	12.5 mV	2.09 ft	150.00 ml/min
3/26/2020 3:30 PM	36:00	6.69 pH	12.15 °C	2,811.7 µS/cm	0.20 mg/L	12.0 mV	2.09 ft	150.00 ml/min

3/26/2020 3:33 PM	39:00	6.69 pH	12.14 °C	2,753.6 µS/cm	0.23 mg/L	12.7 mV	2.09 ft	150.00 ml/min
3/26/2020 3:36 PM	42:00	6.69 pH	12.12 °C	2,733.8 µS/cm	0.22 mg/L	12.0 mV	2.09 ft	150.00 ml/min
3/26/2020 3:39 PM	45:00	6.69 pH	12.15 °C	2,732.0 µS/cm	0.29 mg/L	14.5 mV	2.09 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-19	Final DTW: 2.12 Sample Time: 1550



# Low-Flow Test Report:

Test Date / Time: 3/25/2020 3:36:50 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: TMW-1</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.52 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Final DTW 2.53

## Weather Conditions:

Sunny 50

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/25/2020 3:36 PM	00:00	7.26 pH	10.71 °C	1,062.5 µS/cm	9.84 mg/L	96.4 mV	2.52 ft	150.00 ml/min
3/25/2020 3:39 PM	03:00	6.95 pH	9.71 °C	1,149.4 µS/cm	9.61 mg/L	66.4 mV	2.52 ft	150.00 ml/min
3/25/2020 3:42 PM	06:00	6.66 pH	9.58 °C	1,197.7 µS/cm	9.52 mg/L	119.4 mV	2.52 ft	150.00 ml/min
3/25/2020 3:45 PM	09:00	6.62 pH	9.49 °C	1,188.0 µS/cm	9.48 mg/L	135.3 mV	2.52 ft	150.00 ml/min
3/25/2020 3:48 PM	12:00	6.67 pH	9.43 °C	1,185.7 µS/cm	9.84 mg/L	142.4 mV	2.52 ft	150.00 ml/min
3/25/2020 3:51 PM	15:00	6.66 pH	9.42 °C	1,204.1 µS/cm	9.74 mg/L	148.1 mV	2.52 ft	150.00 ml/min
3/25/2020 3:54 PM	18:00	6.71 pH	9.40 °C	1,205.0 µS/cm	9.59 mg/L	152.3 mV	2.52 ft	150.00 ml/min

## Samples

Sample ID:	Description:
TMW-1	Sample time 1600

# Low-Flow Test Report:

Test Date / Time: 3/27/2020 9:54:20 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: TMW-5</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.56 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 4500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.15 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Weather Conditions:

Overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 9:54 AM	00:00	7.62 pH	9.24 °C	3,914.2 µS/cm	9.00 mg/L	24.6 mV	2.56 ft	150.00 ml/min
3/27/2020 9:57 AM	03:00	7.64 pH	10.70 °C	3,623.4 µS/cm	4.88 mg/L	-113.0 mV	2.56 ft	150.00 ml/min
3/27/2020 10:00 AM	06:00	7.60 pH	10.87 °C	3,507.4 µS/cm	2.10 mg/L	-139.5 mV	2.56 ft	150.00 ml/min
3/27/2020 10:03 AM	09:00	7.60 pH	10.97 °C	3,419.8 µS/cm	0.97 mg/L	-154.9 mV	2.56 ft	150.00 ml/min
3/27/2020 10:06 AM	12:00	7.58 pH	11.00 °C	3,370.5 µS/cm	0.41 mg/L	-166.1 mV	2.56 ft	150.00 ml/min
3/27/2020 10:09 AM	15:00	7.57 pH	11.27 °C	3,339.0 µS/cm	0.27 mg/L	-172.8 mV	2.56 ft	150.00 ml/min
3/27/2020 10:12 AM	18:00	7.56 pH	11.48 °C	3,304.3 µS/cm	0.25 mg/L	-177.5 mV	2.56 ft	150.00 ml/min
3/27/2020 10:15 AM	21:00	7.55 pH	11.59 °C	3,227.1 µS/cm	0.24 mg/L	-185.8 mV	2.56 ft	150.00 ml/min
3/27/2020 10:18 AM	24:00	7.55 pH	11.59 °C	3,171.3 µS/cm	0.21 mg/L	-191.7 mV	2.56 ft	150.00 ml/min
3/27/2020 10:21 AM	27:00	7.55 pH	11.45 °C	3,179.3 µS/cm	0.23 mg/L	-199.5 mV	2.56 ft	150.00 ml/min
3/27/2020 10:24 AM	30:00	7.54 pH	11.50 °C	3,152.3 µS/cm	0.21 mg/L	-203.0 mV	2.56 ft	150.00 ml/min

## Samples

Sample ID:	Description:
TMW-5	Final DTW: 2.71 Sample Time: 1030

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# Low-Flow Test Report:

Test Date / Time: 3/26/2020 10:04:06 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: 12</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 7.5 ft</b> <b>Initial Depth to Water: 1.43 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 3.5 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Turbidity, DO, ORP didn't stabilize

## Weather Conditions:

Cloudy 40F

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/26/2020 10:04 AM	00:00	6.80 pH	8.90 °C	106.57 µS/cm	3.98 mg/L	103.8 mV	1.43 ft	150.00 ml/min
3/26/2020 10:07 AM	03:00	6.72 pH	9.26 °C	89.61 µS/cm	0.57 mg/L	124.7 mV	1.43 ft	150.00 ml/min
3/26/2020 10:10 AM	06:00	6.70 pH	9.39 °C	87.08 µS/cm	0.56 mg/L	133.6 mV	1.43 ft	150.00 ml/min
3/26/2020 10:13 AM	09:00	6.68 pH	9.51 °C	86.68 µS/cm	0.63 mg/L	138.2 mV	1.43 ft	150.00 ml/min
3/26/2020 10:16 AM	12:00	6.77 pH	9.54 °C	32.84 µS/cm	5.01 mg/L	59.1 mV	1.43 ft	150.00 ml/min
3/26/2020 10:19 AM	15:00	6.70 pH	9.54 °C	1,546.8 µS/cm	3.47 mg/L	53.7 mV	1.43 ft	150.00 ml/min
3/26/2020 10:22 AM	18:00	6.69 pH	9.58 °C	1,714.6 µS/cm	0.51 mg/L	50.2 mV	1.43 ft	150.00 ml/min
3/26/2020 10:25 AM	21:00	6.69 pH	9.61 °C	1,716.8 µS/cm	0.40 mg/L	47.9 mV	1.43 ft	150.00 ml/min
3/26/2020 10:28 AM	24:00	6.70 pH	9.64 °C	1,717.1 µS/cm	0.26 mg/L	45.0 mV	1.43 ft	150.00 ml/min
3/26/2020 10:31 AM	27:00	6.70 pH	9.57 °C	1,720.8 µS/cm	0.37 mg/L	42.6 mV	1.43 ft	150.00 ml/min
3/26/2020 10:34 AM	30:00	6.70 pH	9.57 °C	1,718.8 µS/cm	0.60 mg/L	39.2 mV	1.43 ft	150.00 ml/min
3/26/2020 10:37 AM	33:00	6.70 pH	9.63 °C	1,718.2 µS/cm	0.41 mg/L	33.1 mV	1.43 ft	150.00 ml/min
3/26/2020 10:40 AM	36:00	6.70 pH	9.62 °C	1,720.7 µS/cm	0.53 mg/L	27.8 mV	1.43 ft	150.00 ml/min

3/26/2020 10:43 AM	39:00	6.71 pH	9.62 °C	1,721.5 µS/cm	0.52 mg/L	22.0 mV	1.43 ft	150.00 ml/min
3/26/2020 10:46 AM	42:00	6.71 pH	9.61 °C	1,726.5 µS/cm	0.50 mg/L	16.5 mV	1.43 ft	150.00 ml/min
3/26/2020 10:49 AM	45:00	6.71 pH	9.59 °C	1,729.7 µS/cm	0.66 mg/L	11.4 mV	1.43 ft	150.00 ml/min

## Samples

Sample ID:	Description:
12	1055

# Low-Flow Test Report:

Test Date / Time: 3/27/2020 11:04:26 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: MW-7</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.08 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

RDO did not stabilize

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 11:04 AM	00:00	7.21 pH	10.40 °C	3,527.9 µS/cm	8.05 mg/L	-16.7 mV	2.08 ft	150.00 ml/min
3/27/2020 11:07 AM	03:00	7.13 pH	10.81 °C	3,497.8 µS/cm	3.14 mg/L	-107.9 mV	2.08 ft	150.00 ml/min
3/27/2020 11:10 AM	06:00	7.12 pH	10.91 °C	3,484.3 µS/cm	1.82 mg/L	-125.4 mV	2.08 ft	150.00 ml/min
3/27/2020 11:13 AM	09:00	7.12 pH	10.94 °C	3,453.5 µS/cm	0.99 mg/L	-136.0 mV	2.08 ft	150.00 ml/min
3/27/2020 11:16 AM	12:00	7.12 pH	10.91 °C	3,445.8 µS/cm	0.51 mg/L	-141.3 mV	2.08 ft	150.00 ml/min
3/27/2020 11:19 AM	15:00	7.12 pH	10.89 °C	3,427.7 µS/cm	0.33 mg/L	-144.7 mV	2.08 ft	150.00 ml/min
3/27/2020 11:22 AM	18:00	7.12 pH	10.89 °C	3,382.1 µS/cm	0.27 mg/L	-148.9 mV	2.08 ft	150.00 ml/min
3/27/2020 11:25 AM	21:00	7.13 pH	10.92 °C	3,580.6 µS/cm	0.27 mg/L	-154.8 mV	2.08 ft	150.00 ml/min
3/27/2020 11:28 AM	24:00	7.12 pH	10.93 °C	3,553.3 µS/cm	0.24 mg/L	-160.0 mV	2.08 ft	150.00 ml/min
3/27/2020 11:31 AM	27:00	7.13 pH	10.99 °C	3,496.7 µS/cm	0.23 mg/L	-165.4 mV	2.08 ft	150.00 ml/min
3/27/2020 11:34 AM	30:00	7.14 pH	11.02 °C	3,675.5 µS/cm	0.33 mg/L	-169.6 mV	2.08 ft	150.00 ml/min
3/27/2020 11:37 AM	33:00	7.15 pH	11.02 °C	3,612.8 µS/cm	0.31 mg/L	-172.8 mV	2.08 ft	150.00 ml/min
3/27/2020 11:40 AM	36:00	7.15 pH	11.02 °C	3,512.4 µS/cm	0.30 mg/L	-175.1 mV	2.08 ft	150.00 ml/min
3/27/2020 11:43 AM	39:00	7.14 pH	11.03 °C	3,421.8 µS/cm	0.26 mg/L	-177.0 mV	2.08 ft	150.00 ml/min
3/27/2020 11:46 AM	42:00	7.15 pH	11.02 °C	3,494.3 µS/cm	0.21 mg/L	-178.2 mV	2.08 ft	150.00 ml/min

3/27/2020 11:49 AM	45:00	7.15 pH	10.98 °C	3,491.9 µS/cm	0.18 mg/L	-179.9 mV	2.08 ft	150.00 ml/min
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## Samples

Sample ID:	Description:
MW-7	Final DTW: 2.53 Sample Time: 1150

# Low-Flow Test Report:

Test Date / Time: 3/26/2020 11:26:13 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: TMW-4</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.7 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 8.5 ft</b> <b>Estimated Total Volume Pumped: 5537.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Final DTW 2.75

## Weather Conditions:

40 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/26/2020 11:26 AM	00:00	7.12 pH	9.41 °C	943.65 µS/cm	9.13 mg/L	72.1 mV	2.70 ft	150.00 ml/min
3/26/2020 11:29 AM	03:00	7.33 pH	9.81 °C	1,836.8 µS/cm	5.74 mg/L	47.0 mV	2.70 ft	150.00 ml/min
3/26/2020 11:32 AM	06:00	7.40 pH	10.08 °C	2,494.3 µS/cm	5.39 mg/L	27.4 mV	2.70 ft	150.00 ml/min
3/26/2020 11:35 AM	09:00	7.41 pH	10.30 °C	2,724.3 µS/cm	7.48 mg/L	4.2 mV	2.70 ft	150.00 ml/min
3/26/2020 11:38 AM	12:00	7.42 pH	10.38 °C	2,778.0 µS/cm	6.63 mg/L	-11.0 mV	2.70 ft	150.00 ml/min
3/26/2020 11:41 AM	15:00	7.42 pH	10.42 °C	2,814.9 µS/cm	6.68 mg/L	-22.3 mV	2.70 ft	150.00 ml/min
3/26/2020 11:44 AM	18:00	7.42 pH	10.40 °C	2,828.7 µS/cm	6.34 mg/L	-30.2 mV	2.70 ft	150.00 ml/min
3/26/2020 11:47 AM	21:00	7.42 pH	10.49 °C	2,803.2 µS/cm	7.53 mg/L	-35.9 mV	2.70 ft	150.00 ml/min
3/26/2020 11:51 AM	25:36	7.43 pH	10.34 °C	2,812.4 µS/cm	2.48 mg/L	-25.4 mV	2.70 ft	150.00 ml/min
3/26/2020 11:54 AM	27:55	7.44 pH	9.99 °C	2,758.0 µS/cm	1.44 mg/L	-26.6 mV	2.70 ft	150.00 ml/min
3/26/2020 11:57 AM	30:55	7.43 pH	10.55 °C	2,780.1 µS/cm	3.26 mg/L	-37.8 mV	2.70 ft	150.00 ml/min
3/26/2020 12:00 PM	33:55	7.43 pH	10.64 °C	2,749.5 µS/cm	3.28 mg/L	-43.0 mV	2.70 ft	150.00 ml/min
3/26/2020 12:03 PM	36:55	7.43 pH	10.68 °C	2,721.9 µS/cm	3.36 mg/L	-46.1 mV	2.70 ft	150.00 ml/min



**Samples**

Sample ID:	Description:
TMW4	1210

# Low-Flow Test Report:

Test Date / Time: 3/26/2020 12:42:27 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: 11</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 11 ft</b> <b>Initial Depth to Water: 3.95 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 2700 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Final DTW 4.19

## Weather Conditions:

40 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/26/2020 12:42 PM	00:00	7.81 pH	11.64 °C	688.77 µS/cm	9.37 mg/L	58.8 mV	3.95 ft	150.00 ml/min
3/26/2020 12:45 PM	03:00	7.12 pH	11.68 °C	694.04 µS/cm	7.65 mg/L	38.8 mV	3.95 ft	150.00 ml/min
3/26/2020 12:48 PM	06:00	6.90 pH	11.61 °C	696.18 µS/cm	7.47 mg/L	41.3 mV	3.95 ft	150.00 ml/min
3/26/2020 12:51 PM	09:00	6.81 pH	11.60 °C	694.38 µS/cm	7.81 mg/L	42.7 mV	3.95 ft	150.00 ml/min
3/26/2020 12:54 PM	12:00	6.74 pH	11.58 °C	706.31 µS/cm	7.62 mg/L	42.7 mV	3.95 ft	150.00 ml/min
3/26/2020 12:57 PM	15:00	6.69 pH	11.60 °C	715.78 µS/cm	7.48 mg/L	42.6 mV	3.95 ft	150.00 ml/min
3/26/2020 1:00 PM	18:00	6.66 pH	11.61 °C	709.96 µS/cm	7.31 mg/L	43.3 mV	3.95 ft	150.00 ml/min

## Samples

Sample ID:	Description:
11	1305

# Low-Flow Test Report:

Test Date / Time: 3/27/2020 12:34:43 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: TMW-3</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.95 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 5850 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 12:34 PM	00:00	7.35 pH	10.78 °C	1,997.7 µS/cm	6.57 mg/L	-24.8 mV	2.95 ft	150.00 ml/min
3/27/2020 12:37 PM	03:00	7.37 pH	10.70 °C	2,060.8 µS/cm	2.46 mg/L	-60.3 mV	2.95 ft	150.00 ml/min
3/27/2020 12:40 PM	06:00	7.36 pH	10.69 °C	2,042.2 µS/cm	1.49 mg/L	-74.1 mV	2.95 ft	150.00 ml/min
3/27/2020 12:43 PM	09:00	7.37 pH	10.71 °C	2,058.2 µS/cm	0.99 mg/L	-81.2 mV	2.95 ft	150.00 ml/min
3/27/2020 12:46 PM	12:00	7.38 pH	10.76 °C	2,068.9 µS/cm	0.73 mg/L	-87.1 mV	2.95 ft	150.00 ml/min
3/27/2020 12:49 PM	15:00	7.39 pH	10.73 °C	2,061.3 µS/cm	0.55 mg/L	-90.7 mV	2.95 ft	150.00 ml/min
3/27/2020 12:52 PM	18:00	7.39 pH	10.72 °C	2,066.9 µS/cm	0.40 mg/L	-93.0 mV	2.95 ft	150.00 ml/min
3/27/2020 12:55 PM	21:00	7.40 pH	10.66 °C	2,064.3 µS/cm	0.33 mg/L	-95.4 mV	2.95 ft	150.00 ml/min
3/27/2020 12:58 PM	24:00	7.40 pH	10.68 °C	2,070.7 µS/cm	0.29 mg/L	-97.2 mV	2.95 ft	150.00 ml/min
3/27/2020 1:01 PM	27:00	7.40 pH	10.64 °C	2,071.5 µS/cm	0.27 mg/L	-98.6 mV	2.95 ft	150.00 ml/min
3/27/2020 1:04 PM	30:00	7.40 pH	10.63 °C	2,079.7 µS/cm	0.25 mg/L	-99.9 mV	2.95 ft	150.00 ml/min
3/27/2020 1:07 PM	33:00	7.39 pH	10.62 °C	2,071.3 µS/cm	0.23 mg/L	-101.1 mV	2.95 ft	150.00 ml/min
3/27/2020 1:10 PM	36:00	7.40 pH	10.66 °C	2,074.9 µS/cm	0.22 mg/L	-102.1 mV	2.95 ft	150.00 ml/min
3/27/2020 1:13 PM	39:00	7.39 pH	10.62 °C	2,070.5 µS/cm	0.21 mg/L	-103.2 mV	2.95 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
TMW-3	Final DTW: 2.96 Sample Time: 1330

# Low-Flow Test Report:

Test Date / Time: 3/26/2020 2:26:40 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: TMW-6</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 14 ft</b> <b>Initial Depth to Water: 2.04 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 4050 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Final DTW 2.17

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/26/2020 2:26 PM	00:00	6.52 pH	10.34 °C	4,922.4 µS/cm	3.25 mg/L	85.9 mV	2.04 ft	150.00 ml/min
3/26/2020 2:29 PM	03:00	6.44 pH	10.03 °C	4,932.4 µS/cm	0.21 mg/L	46.5 mV	2.04 ft	150.00 ml/min
3/26/2020 2:32 PM	06:00	6.47 pH	9.97 °C	5,009.8 µS/cm	0.15 mg/L	28.0 mV	2.04 ft	150.00 ml/min
3/26/2020 2:35 PM	09:00	6.48 pH	10.07 °C	4,999.3 µS/cm	0.35 mg/L	14.9 mV	2.04 ft	150.00 ml/min
3/26/2020 2:38 PM	12:00	6.49 pH	10.09 °C	5,003.8 µS/cm	0.31 mg/L	5.7 mV	2.04 ft	150.00 ml/min
3/26/2020 2:41 PM	15:00	6.50 pH	10.16 °C	4,987.6 µS/cm	0.29 mg/L	-1.9 mV	2.04 ft	150.00 ml/min
3/26/2020 2:44 PM	18:00	6.51 pH	10.18 °C	4,948.7 µS/cm	0.28 mg/L	-7.1 mV	2.04 ft	150.00 ml/min
3/26/2020 2:47 PM	21:00	6.52 pH	10.17 °C	4,923.3 µS/cm	0.25 mg/L	-11.5 mV	2.04 ft	150.00 ml/min
3/26/2020 2:50 PM	24:00	6.53 pH	10.14 °C	4,881.3 µS/cm	0.27 mg/L	-14.9 mV	2.04 ft	150.00 ml/min
3/26/2020 2:53 PM	27:00	6.54 pH	10.13 °C	4,824.6 µS/cm	0.26 mg/L	-18.1 mV	2.04 ft	150.00 ml/min

## Samples

Sample ID:	Description:
TMW-6	1500



# Low-Flow Test Report:

Test Date / Time: 3/27/2020 2:30:25 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: MW-21</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.55 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 5850 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.35 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 2:30 PM	00:00	6.28 pH	10.84 °C	71.88 µS/cm	6.98 mg/L	108.2 mV	2.55 ft	150.00 ml/min
3/27/2020 2:33 PM	03:00	5.94 pH	11.01 °C	57.52 µS/cm	2.78 mg/L	111.5 mV	2.55 ft	150.00 ml/min
3/27/2020 2:36 PM	06:00	5.91 pH	10.89 °C	57.72 µS/cm	1.42 mg/L	124.1 mV	2.55 ft	150.00 ml/min
3/27/2020 2:39 PM	09:00	5.87 pH	10.99 °C	57.37 µS/cm	0.81 mg/L	128.4 mV	2.55 ft	150.00 ml/min
3/27/2020 2:42 PM	12:00	5.87 pH	11.06 °C	57.95 µS/cm	0.51 mg/L	116.9 mV	2.55 ft	150.00 ml/min
3/27/2020 2:45 PM	15:00	5.88 pH	11.04 °C	58.12 µS/cm	0.49 mg/L	106.0 mV	2.55 ft	150.00 ml/min
3/27/2020 2:48 PM	18:00	5.88 pH	11.09 °C	58.18 µS/cm	0.52 mg/L	94.0 mV	2.55 ft	150.00 ml/min
3/27/2020 2:51 PM	21:00	5.89 pH	11.03 °C	58.59 µS/cm	0.53 mg/L	86.5 mV	2.55 ft	150.00 ml/min
3/27/2020 2:54 PM	24:00	5.87 pH	11.04 °C	58.12 µS/cm	0.58 mg/L	79.9 mV	2.55 ft	150.00 ml/min
3/27/2020 2:57 PM	27:00	5.88 pH	11.12 °C	58.16 µS/cm	0.59 mg/L	85.1 mV	2.55 ft	150.00 ml/min
3/27/2020 3:00 PM	30:00	5.90 pH	11.12 °C	59.20 µS/cm	0.68 mg/L	84.1 mV	2.55 ft	150.00 ml/min
3/27/2020 3:03 PM	33:00	5.91 pH	11.07 °C	59.15 µS/cm	0.87 mg/L	82.7 mV	2.55 ft	150.00 ml/min
3/27/2020 3:06 PM	36:00	5.92 pH	11.05 °C	59.24 µS/cm	0.94 mg/L	82.9 mV	2.55 ft	150.00 ml/min
3/27/2020 3:09 PM	39:00	5.91 pH	11.10 °C	58.86 µS/cm	0.96 mg/L	84.4 mV	2.55 ft	150.00 ml/min

**Samples**

Sample ID:	Description:
MW-21	Final DTW: 2.90 Sample Time: 1525  DUP-2



# Low-Flow Test Report:

Test Date / Time: 3/27/2020 3:40:14 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: MW-9</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 2.35 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 3600 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.05 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 3:40 PM	00:00	6.53 pH	10.51 °C	165.69 µS/cm	9.20 mg/L	121.1 mV	2.35 ft	150.00 ml/min
3/27/2020 3:43 PM	03:00	6.73 pH	10.13 °C	168.52 µS/cm	6.54 mg/L	104.1 mV	2.35 ft	150.00 ml/min
3/27/2020 3:46 PM	06:00	6.74 pH	9.99 °C	170.75 µS/cm	5.66 mg/L	80.9 mV	2.35 ft	150.00 ml/min
3/27/2020 3:49 PM	09:00	6.76 pH	9.99 °C	170.79 µS/cm	5.30 mg/L	60.5 mV	2.35 ft	150.00 ml/min
3/27/2020 3:52 PM	12:00	6.77 pH	9.97 °C	169.52 µS/cm	5.23 mg/L	72.0 mV	2.35 ft	150.00 ml/min
3/27/2020 3:55 PM	15:00	6.77 pH	10.02 °C	169.10 µS/cm	5.31 mg/L	70.6 mV	2.35 ft	150.00 ml/min
3/27/2020 3:58 PM	18:00	6.78 pH	9.97 °C	169.40 µS/cm	5.37 mg/L	61.2 mV	2.35 ft	150.00 ml/min
3/27/2020 4:01 PM	21:00	6.78 pH	9.99 °C	169.34 µS/cm	5.31 mg/L	57.9 mV	2.35 ft	150.00 ml/min
3/27/2020 4:04 PM	24:00	6.77 pH	9.87 °C	170.26 µS/cm	5.24 mg/L	53.4 mV	2.35 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-9	Final DTW: 2.40 Sample Time: 1625

# Low-Flow Test Report:

Test Date / Time: 3/26/2020 3:41:11 PM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: A-28R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 14 ft</b> <b>Initial Depth to Water: 7.74 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

RDO didn't stabilize

Final DTW 7.75

## Weather Conditions:

45 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/26/2020 3:41 PM	00:00	6.72 pH	10.60 °C	169.74 µS/cm	3.49 mg/L	26.9 mV	7.74 ft	150.00 ml/min
3/26/2020 3:44 PM	03:00	6.48 pH	10.11 °C	159.11 µS/cm	0.25 mg/L	-6.4 mV	7.74 ft	150.00 ml/min
3/26/2020 3:47 PM	06:00	6.50 pH	10.02 °C	144.87 µS/cm	0.20 mg/L	-15.1 mV	7.74 ft	150.00 ml/min
3/26/2020 3:50 PM	09:00	6.52 pH	10.02 °C	136.84 µS/cm	0.17 mg/L	-18.5 mV	7.74 ft	150.00 ml/min
3/26/2020 3:53 PM	12:00	6.52 pH	10.01 °C	133.49 µS/cm	0.13 mg/L	-22.0 mV	7.74 ft	150.00 ml/min
3/26/2020 3:56 PM	15:00	6.55 pH	9.99 °C	124.62 µS/cm	0.12 mg/L	-25.2 mV	7.74 ft	150.00 ml/min
3/26/2020 3:59 PM	18:00	6.54 pH	9.95 °C	127.29 µS/cm	0.12 mg/L	-27.0 mV	7.74 ft	150.00 ml/min
3/26/2020 4:02 PM	21:00	6.57 pH	9.95 °C	121.42 µS/cm	0.10 mg/L	-30.0 mV	7.74 ft	150.00 ml/min
3/26/2020 4:05 PM	24:00	6.55 pH	9.93 °C	124.99 µS/cm	0.12 mg/L	-30.2 mV	7.74 ft	150.00 ml/min
3/26/2020 4:08 PM	27:00	6.55 pH	9.88 °C	127.56 µS/cm	0.12 mg/L	-30.7 mV	7.74 ft	150.00 ml/min
3/26/2020 4:11 PM	30:00	6.58 pH	9.86 °C	116.36 µS/cm	0.09 mg/L	-32.5 mV	7.74 ft	150.00 ml/min
3/26/2020 4:14 PM	33:00	6.57 pH	9.84 °C	121.18 µS/cm	0.12 mg/L	-32.4 mV	7.74 ft	150.00 ml/min
3/26/2020 4:17 PM	36:00	6.57 pH	9.84 °C	117.04 µS/cm	0.13 mg/L	-33.1 mV	7.74 ft	150.00 ml/min

3/26/2020 4:20 PM	39:00	6.58 pH	9.85 °C	117.43 µS/cm	0.16 mg/L	-34.0 mV	7.74 ft	150.00 ml/min
3/26/2020 4:23 PM	42:00	6.57 pH	9.82 °C	115.88 µS/cm	0.17 mg/L	-34.5 mV	7.74 ft	150.00 ml/min
3/26/2020 4:26 PM	45:00	6.58 pH	9.85 °C	118.57 µS/cm	0.18 mg/L	-35.8 mV	7.74 ft	150.00 ml/min

## Samples

Sample ID:	Description:
A-28R	Sample time 1630

# Low-Flow Test Report:

Test Date / Time: 3/28/2020 9:21:22 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: MW-18</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 6.36 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 4500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Weather Conditions:

Rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/28/2020 9:21 AM	00:00	6.74 pH	9.71 °C	237.44 µS/cm	4.09 mg/L	146.7 mV	6.36 ft	150.00 ml/min
3/28/2020 9:24 AM	03:00	6.92 pH	11.04 °C	230.95 µS/cm	1.42 mg/L	24.1 mV	6.36 ft	150.00 ml/min
3/28/2020 9:27 AM	06:00	6.96 pH	11.42 °C	230.70 µS/cm	0.77 mg/L	-18.9 mV	6.36 ft	150.00 ml/min
3/28/2020 9:30 AM	09:00	6.99 pH	11.59 °C	230.72 µS/cm	0.55 mg/L	-41.7 mV	6.36 ft	150.00 ml/min
3/28/2020 9:33 AM	12:00	7.02 pH	11.77 °C	228.52 µS/cm	0.47 mg/L	-53.6 mV	6.36 ft	150.00 ml/min
3/28/2020 9:36 AM	15:00	7.02 pH	11.92 °C	227.35 µS/cm	0.38 mg/L	-69.1 mV	6.36 ft	150.00 ml/min
3/28/2020 9:39 AM	18:00	7.07 pH	12.03 °C	225.50 µS/cm	0.33 mg/L	-76.5 mV	6.36 ft	150.00 ml/min
3/28/2020 9:42 AM	21:00	7.07 pH	12.09 °C	226.46 µS/cm	0.29 mg/L	-70.3 mV	6.36 ft	150.00 ml/min
3/28/2020 9:45 AM	24:00	7.05 pH	12.19 °C	223.73 µS/cm	0.27 mg/L	-81.2 mV	6.36 ft	150.00 ml/min
3/28/2020 9:48 AM	27:00	7.08 pH	12.21 °C	221.02 µS/cm	0.27 mg/L	-82.0 mV	6.36 ft	150.00 ml/min
3/28/2020 9:51 AM	30:00	7.08 pH	12.24 °C	219.62 µS/cm	0.25 mg/L	-81.6 mV	6.36 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-18	Final DTW: 6.36 Sample Time: 1005

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# Low-Flow Test Report:

Test Date / Time: 3/27/2020 9:22:43 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: A-5</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.53 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Final DTW 7.53

## Weather Conditions:

45F rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 9:22 AM	00:00	6.50 pH	11.46 °C	664.16 µS/cm	3.29 mg/L	100.4 mV	7.53 ft	150.00 ml/min
3/27/2020 9:25 AM	03:00	6.65 pH	12.72 °C	637.78 µS/cm	5.76 mg/L	56.7 mV	7.53 ft	150.00 ml/min
3/27/2020 9:28 AM	06:00	6.66 pH	12.94 °C	632.23 µS/cm	0.50 mg/L	-31.0 mV	7.53 ft	150.00 ml/min
3/27/2020 9:31 AM	09:00	6.66 pH	13.20 °C	624.47 µS/cm	0.61 mg/L	-45.0 mV	7.53 ft	150.00 ml/min
3/27/2020 9:34 AM	12:00	6.67 pH	13.27 °C	611.73 µS/cm	0.22 mg/L	19.2 mV	7.53 ft	150.00 ml/min
3/27/2020 9:37 AM	15:00	6.68 pH	13.31 °C	607.13 µS/cm	0.46 mg/L	42.2 mV	7.53 ft	150.00 ml/min
3/27/2020 9:40 AM	18:00	6.68 pH	13.41 °C	600.92 µS/cm	0.32 mg/L	57.6 mV	7.53 ft	150.00 ml/min
3/27/2020 9:43 AM	21:00	6.69 pH	13.39 °C	588.80 µS/cm	0.32 mg/L	66.5 mV	7.53 ft	150.00 ml/min
3/27/2020 9:46 AM	24:00	6.70 pH	13.21 °C	579.62 µS/cm	0.50 mg/L	72.7 mV	7.53 ft	150.00 ml/min
3/27/2020 9:49 AM	27:00	6.69 pH	13.28 °C	581.19 µS/cm	0.51 mg/L	78.6 mV	7.53 ft	150.00 ml/min
3/27/2020 9:52 AM	30:00	6.69 pH	13.31 °C	579.51 µS/cm	0.37 mg/L	82.6 mV	7.53 ft	150.00 ml/min
3/27/2020 9:55 AM	33:00	6.68 pH	13.29 °C	576.94 µS/cm	0.26 mg/L	85.9 mV	7.53 ft	150.00 ml/min
3/27/2020 9:58 AM	36:00	6.68 pH	13.32 °C	570.62 µS/cm	0.29 mg/L	88.3 mV	7.53 ft	150.00 ml/min

3/27/2020 10:01 AM	39:00	6.69 pH	13.31 °C	566.95 µS/cm	0.18 mg/L	90.4 mV	7.53 ft	150.00 ml/min
3/27/2020 10:04 AM	42:00	6.69 pH	13.35 °C	562.74 µS/cm	0.17 mg/L	91.9 mV	7.53 ft	150.00 ml/min
3/27/2020 10:07 AM	45:00	6.68 pH	13.37 °C	554.47 µS/cm	0.17 mg/L	93.5 mV	7.53 ft	150.00 ml/min

## Samples

Sample ID:	Description:
A-5	1015

# Low-Flow Test Report:

Test Date / Time: 3/28/2020 10:15:08 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: A-27</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 18.13 ft</b> <b>Initial Depth to Water: 10.24 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 15 ft</b> <b>Estimated Total Volume Pumped: 4950 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0.05 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Weather Conditions:

Rain

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/28/2020 10:15 AM	00:00	6.65 pH	11.68 °C	361.44 µS/cm	8.03 mg/L	25.0 mV	10.24 ft	150.00 ml/min
3/28/2020 10:18 AM	03:00	6.60 pH	12.01 °C	360.99 µS/cm	2.32 mg/L	-54.7 mV	10.24 ft	150.00 ml/min
3/28/2020 10:21 AM	06:00	6.59 pH	12.11 °C	359.41 µS/cm	0.94 mg/L	-65.5 mV	10.24 ft	150.00 ml/min
3/28/2020 10:24 AM	09:00	6.60 pH	12.05 °C	357.00 µS/cm	0.48 mg/L	-70.3 mV	10.24 ft	150.00 ml/min
3/28/2020 10:27 AM	12:00	6.60 pH	12.04 °C	353.97 µS/cm	0.38 mg/L	-73.8 mV	10.24 ft	150.00 ml/min
3/28/2020 10:30 AM	15:00	6.60 pH	12.05 °C	352.58 µS/cm	0.35 mg/L	-76.2 mV	10.24 ft	150.00 ml/min
3/28/2020 10:33 AM	18:00	6.61 pH	12.04 °C	348.42 µS/cm	0.31 mg/L	-79.7 mV	10.24 ft	150.00 ml/min
3/28/2020 10:36 AM	21:00	6.62 pH	12.05 °C	344.55 µS/cm	0.29 mg/L	-81.1 mV	10.24 ft	150.00 ml/min
3/28/2020 10:39 AM	24:00	6.61 pH	12.01 °C	339.49 µS/cm	0.23 mg/L	-76.7 mV	10.24 ft	150.00 ml/min
3/28/2020 10:42 AM	27:00	6.59 pH	12.03 °C	336.51 µS/cm	0.22 mg/L	-73.9 mV	10.24 ft	150.00 ml/min
3/28/2020 10:45 AM	30:00	6.60 pH	12.11 °C	336.94 µS/cm	0.20 mg/L	-72.9 mV	10.24 ft	150.00 ml/min
3/28/2020 10:48 AM	33:00	6.60 pH	12.11 °C	333.23 µS/cm	0.21 mg/L	-72.7 mV	10.24 ft	150.00 ml/min



**Samples**

Sample ID:	Description:
A-27	Final DTW: 10.29 Sample Time: 1105

# Low-Flow Test Report:

Test Date / Time: 3/27/2020 10:31:52 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: A-21</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.95 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 12 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Final DTW 7.54

## Weather Conditions:

45 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 10:31 AM	00:00	7.11 pH	12.35 °C	5,001.4 µS/cm	4.68 mg/L	13.3 mV	7.95 ft	150.00 ml/min
3/27/2020 10:34 AM	03:00	7.16 pH	12.99 °C	244.70 µS/cm	4.04 mg/L	-57.8 mV	7.95 ft	150.00 ml/min
3/27/2020 10:37 AM	06:00	7.20 pH	13.43 °C	232.44 µS/cm	0.27 mg/L	19.0 mV	7.95 ft	150.00 ml/min
3/27/2020 10:40 AM	09:00	7.21 pH	13.57 °C	6,004.8 µS/cm	0.23 mg/L	37.5 mV	7.95 ft	150.00 ml/min
3/27/2020 10:43 AM	12:00	7.21 pH	13.61 °C	4,513.9 µS/cm	0.18 mg/L	43.3 mV	7.95 ft	150.00 ml/min
3/27/2020 10:46 AM	15:00	7.25 pH	13.57 °C	3,133.2 µS/cm	0.15 mg/L	45.8 mV	7.95 ft	150.00 ml/min
3/27/2020 10:49 AM	18:00	7.23 pH	13.44 °C	2,518.9 µS/cm	0.23 mg/L	48.0 mV	7.95 ft	150.00 ml/min
3/27/2020 10:52 AM	21:00	7.15 pH	13.40 °C	2,250.9 µS/cm	0.28 mg/L	50.7 mV	7.95 ft	150.00 ml/min
3/27/2020 10:55 AM	24:00	7.08 pH	13.39 °C	2,056.1 µS/cm	0.26 mg/L	54.2 mV	7.95 ft	150.00 ml/min
3/27/2020 10:58 AM	27:00	6.97 pH	13.36 °C	1,865.9 µS/cm	0.25 mg/L	57.9 mV	7.95 ft	150.00 ml/min
3/27/2020 11:01 AM	30:00	6.89 pH	13.31 °C	1,399.4 µS/cm	0.19 mg/L	62.6 mV	7.95 ft	150.00 ml/min
3/27/2020 11:04 AM	33:00	6.82 pH	13.28 °C	1,490.0 µS/cm	0.20 mg/L	65.6 mV	7.95 ft	150.00 ml/min
3/27/2020 11:07 AM	36:00	6.77 pH	13.25 °C	1,497.2 µS/cm	0.21 mg/L	68.3 mV	7.95 ft	150.00 ml/min

3/27/2020 11:10 AM	39:00	6.74 pH	13.25 °C	1,462.4 µS/cm	0.85 mg/L	71.0 mV	7.95 ft	150.00 ml/min
3/27/2020 11:13 AM	42:00	6.73 pH	13.22 °C	1,431.0 µS/cm	0.23 mg/L	72.6 mV	7.95 ft	150.00 ml/min
3/27/2020 11:16 AM	45:00	6.72 pH	13.22 °C	1,422.4 µS/cm	0.25 mg/L	75.3 mV	7.95 ft	150.00 ml/min

## Samples

Sample ID:	Description:
A-21	1120

# Low-Flow Test Report:

Test Date / Time: 3/27/2020 11:35:17 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: L.S.

<b>Location Name: MW-23</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.29 ft</b>	<b>Pump Type: Peri pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 12 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467545</b>
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## Test Notes:

Final DTW 7.29

## Weather Conditions:

50 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/27/2020 11:35 AM	00:00	6.64 pH	12.56 °C	947.90 µS/cm	7.09 mg/L	35.0 mV	7.29 ft	150.00 ml/min
3/27/2020 11:38 AM	03:00	6.59 pH	13.04 °C	851.02 µS/cm	3.88 mg/L	22.8 mV	7.29 ft	150.00 ml/min
3/27/2020 11:41 AM	06:00	6.57 pH	13.18 °C	825.98 µS/cm	7.24 mg/L	44.1 mV	7.29 ft	150.00 ml/min
3/27/2020 11:44 AM	09:00	6.54 pH	13.27 °C	806.07 µS/cm	7.24 mg/L	54.8 mV	7.29 ft	150.00 ml/min
3/27/2020 11:47 AM	12:00	6.54 pH	13.31 °C	805.24 µS/cm	7.30 mg/L	60.3 mV	7.29 ft	150.00 ml/min
3/27/2020 11:50 AM	15:00	6.53 pH	13.35 °C	771.40 µS/cm	7.03 mg/L	62.1 mV	7.29 ft	150.00 ml/min
3/27/2020 11:53 AM	18:00	6.52 pH	13.39 °C	730.30 µS/cm	0.50 mg/L	-20.4 mV	7.29 ft	150.00 ml/min
3/27/2020 11:56 AM	21:00	6.51 pH	13.37 °C	697.04 µS/cm	0.29 mg/L	-28.7 mV	7.29 ft	150.00 ml/min
3/27/2020 11:59 AM	24:00	6.51 pH	13.40 °C	676.54 µS/cm	0.35 mg/L	-31.4 mV	7.29 ft	150.00 ml/min
3/27/2020 12:02 PM	27:00	6.52 pH	13.39 °C	635.50 µS/cm	0.36 mg/L	-33.2 mV	7.29 ft	150.00 ml/min
3/27/2020 12:05 PM	30:00	6.51 pH	13.40 °C	614.70 µS/cm	0.32 mg/L	-34.0 mV	7.29 ft	150.00 ml/min
3/27/2020 12:08 PM	33:00	6.51 pH	13.41 °C	586.70 µS/cm	0.28 mg/L	-34.7 mV	7.29 ft	150.00 ml/min
3/27/2020 12:11 PM	36:00	6.51 pH	13.43 °C	553.61 µS/cm	0.18 mg/L	-35.4 mV	7.29 ft	150.00 ml/min

3/27/2020 12:14 PM	39:00	6.52 pH	13.48 °C	521.68 µS/cm	0.15 mg/L	-35.2 mV	7.29 ft	150.00 ml/min
3/27/2020 12:17 PM	42:00	6.51 pH	13.48 °C	465.93 µS/cm	0.16 mg/L	-35.3 mV	7.29 ft	150.00 ml/min
3/27/2020 12:20 PM	45:00	6.51 pH	13.51 °C	475.71 µS/cm	0.16 mg/L	-35.6 mV	7.29 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-23	1225
DUP-1	

# Low-Flow Test Report:

Test Date / Time: 3/28/2020 11:37:00 AM

Project: KMLT Harbor Island 1SA GWM

Operator Name: KF

<b>Location Name: MW-24</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Initial Depth to Water: 7.3 ft</b>	<b>Pump Type: Peri Pump</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 7047.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 150 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10		
3/28/2020 11:37 AM	00:00	6.35 pH	11.93 °C	341.85 µS/cm	8.21 mg/L	49.5 mV	7.30 ft	150.00 ml/min
3/28/2020 11:40 AM	03:00	6.31 pH	12.41 °C	346.73 µS/cm	2.47 mg/L	-11.1 mV	7.30 ft	150.00 ml/min
3/28/2020 11:43 AM	06:00	6.31 pH	12.53 °C	343.87 µS/cm	1.04 mg/L	-22.4 mV	7.30 ft	150.00 ml/min
3/28/2020 11:46 AM	09:00	6.32 pH	12.62 °C	360.12 µS/cm	0.59 mg/L	-29.8 mV	7.30 ft	150.00 ml/min
3/28/2020 11:49 AM	12:00	6.33 pH	12.68 °C	371.24 µS/cm	0.43 mg/L	-33.5 mV	7.30 ft	150.00 ml/min
3/28/2020 11:52 AM	15:00	6.34 pH	12.68 °C	402.33 µS/cm	0.48 mg/L	-39.5 mV	7.30 ft	150.00 ml/min
3/28/2020 11:55 AM	18:00	6.35 pH	12.68 °C	400.65 µS/cm	0.35 mg/L	-42.8 mV	7.30 ft	150.00 ml/min
3/28/2020 11:58 AM	21:00	6.36 pH	12.62 °C	425.81 µS/cm	0.40 mg/L	-44.6 mV	7.30 ft	150.00 ml/min
3/28/2020 12:01 PM	24:00	6.37 pH	12.69 °C	439.38 µS/cm	0.50 mg/L	-44.2 mV	7.30 ft	150.00 ml/min
3/28/2020 12:04 PM	27:00	6.37 pH	12.64 °C	454.64 µS/cm	0.53 mg/L	-41.0 mV	7.30 ft	150.00 ml/min
3/28/2020 12:07 PM	30:00	6.38 pH	12.65 °C	462.13 µS/cm	0.55 mg/L	-41.0 mV	7.30 ft	150.00 ml/min
3/28/2020 12:10 PM	33:00	6.39 pH	12.67 °C	475.25 µS/cm	0.55 mg/L	-33.7 mV	7.30 ft	150.00 ml/min
3/28/2020 12:13 PM	36:00	6.39 pH	12.70 °C	484.40 µS/cm	0.57 mg/L	-30.8 mV	7.30 ft	150.00 ml/min
3/28/2020 12:16 PM	39:00	6.40 pH	12.78 °C	498.41 µS/cm	0.51 mg/L	-29.1 mV	7.30 ft	150.00 ml/min
3/28/2020 12:17 PM	40:59	6.40 pH	12.80 °C	506.75 µS/cm	0.40 mg/L	-41.9 mV	7.30 ft	150.00 ml/min

3/28/2020 12:20 PM	43:59	6.41 pH	12.76 °C	524.79 µS/cm	0.32 mg/L	-55.0 mV	7.30 ft	150.00 ml/min
3/28/2020 12:23 PM	46:59	6.42 pH	12.78 °C	529.77 µS/cm	0.32 mg/L	-57.8 mV	7.30 ft	150.00 ml/min

## Samples

Sample ID:	Description:
MW-24	Final DTW: 7.30 Sample Time: 1225

# Low-Flow Test Report:

Test Date / Time: 10/19/2020 1:50:41 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: A-23R</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15.8 ft</b> <b>Initial Depth to Water: 9.13 m</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Estimated Total Volume Pumped: 7808.333 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0.01 ft</b>	<b>Instrument Used: Aqua TROLL 600</b> <b>Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 9.14

## Weather Conditions:

60 clouds

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/19/2020 1:50 PM	00:00	6.75 pH	62.97 °F	889.34 µS/cm	7.26 mg/L	25.22 NTU	39.1 mV	9.13 m	250.00 ml/min
10/19/2020 1:53 PM	03:00	6.85 pH	63.70 °F	884.91 µS/cm	0.74 mg/L	7.13 NTU	-59.9 mV	9.13 m	250.00 ml/min
10/19/2020 1:56 PM	06:00	6.86 pH	63.60 °F	885.06 µS/cm	0.51 mg/L	2.97 NTU	-67.9 mV	9.13 m	250.00 ml/min
10/19/2020 1:59 PM	09:00	6.86 pH	63.52 °F	886.30 µS/cm	0.41 mg/L	1.83 NTU	-72.0 mV	9.13 m	250.00 ml/min
10/19/2020 2:02 PM	12:00	6.86 pH	63.56 °F	887.58 µS/cm	0.39 mg/L	3.27 NTU	-75.4 mV	9.13 m	250.00 ml/min
10/19/2020 2:05 PM	15:00	6.86 pH	63.51 °F	886.53 µS/cm	0.31 mg/L	2.26 NTU	-77.8 mV	9.13 m	250.00 ml/min
10/19/2020 2:08 PM	18:00	6.86 pH	63.51 °F	886.60 µS/cm	0.28 mg/L	3.14 NTU	-79.7 mV	9.13 m	250.00 ml/min
10/19/2020 2:11 PM	21:00	6.86 pH	63.49 °F	885.61 µS/cm	0.26 mg/L	3.19 NTU	-81.2 mV	9.13 m	250.00 ml/min
10/19/2020 2:15 PM	25:14	6.85 pH	63.21 °F	892.18 µS/cm	0.32 mg/L	0.72 NTU	-82.6 mV	9.13 m	250.00 ml/min
10/19/2020 2:18 PM	28:14	6.85 pH	63.51 °F	897.26 µS/cm	0.23 mg/L	0.06 NTU	-86.8 mV	9.13 m	250.00 ml/min
10/19/2020 2:21 PM	31:14	6.85 pH	63.54 °F	897.72 µS/cm	0.22 mg/L	0.00 NTU	-89.4 mV	9.13 m	250.00 ml/min

## Samples

Sample ID:	Description:
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A-23R

ST 14:25

Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

Test Date / Time: 10/19/2020 3:34:38 PM

Project: KMLT Harbor Island (2)

Operator Name: L.Selleck

<b>Location Name: MW-14</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 3.67 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Estimated Total Volume Pumped:</b> <b>11250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600</b> <b>Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.78

## Weather Conditions:

60 clouds

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/19/2020 3:34 PM	00:00	6.59 pH	63.45 °F	235.23 µS/cm	3.20 mg/L	17.53 NTU	54.5 mV	3.67 ft	250.00 ml/min
10/19/2020 3:37 PM	03:00	6.51 pH	64.39 °F	176.03 µS/cm	2.06 mg/L	102.14 NTU	47.1 mV	3.67 ft	250.00 ml/min
10/19/2020 3:40 PM	06:00	6.47 pH	64.95 °F	176.89 µS/cm	0.82 mg/L	311.81 NTU	65.3 mV	3.67 ft	250.00 ml/min
10/19/2020 3:43 PM	09:00	6.44 pH	65.25 °F	177.07 µS/cm	0.63 mg/L	22.28 NTU	75.7 mV	3.67 ft	250.00 ml/min
10/19/2020 3:46 PM	12:00	6.43 pH	65.40 °F	176.79 µS/cm	0.52 mg/L	15.36 NTU	82.3 mV	3.67 ft	250.00 ml/min
10/19/2020 3:49 PM	15:00	6.43 pH	65.42 °F	176.90 µS/cm	0.58 mg/L	20.86 NTU	85.9 mV	3.67 ft	250.00 ml/min
10/19/2020 3:52 PM	18:00	6.42 pH	65.45 °F	176.67 µS/cm	0.72 mg/L	51.92 NTU	88.8 mV	3.67 ft	250.00 ml/min
10/19/2020 3:55 PM	21:00	6.42 pH	65.33 °F	176.18 µS/cm	0.82 mg/L	57.35 NTU	91.0 mV	3.67 ft	250.00 ml/min
10/19/2020 3:58 PM	24:00	6.40 pH	65.46 °F	176.20 µS/cm	1.06 mg/L	37.56 NTU	92.9 mV	3.67 ft	250.00 ml/min
10/19/2020 4:01 PM	27:00	6.40 pH	65.53 °F	176.15 µS/cm	1.35 mg/L	61.20 NTU	94.4 mV	3.67 ft	250.00 ml/min
10/19/2020 4:04 PM	30:00	6.41 pH	65.33 °F	176.00 µS/cm	1.55 mg/L	66.69 NTU	95.9 mV	3.67 ft	250.00 ml/min
10/19/2020 4:07 PM	33:00	6.40 pH	65.54 °F	175.49 µS/cm	1.87 mg/L	35.71 NTU	97.2 mV	3.67 ft	250.00 ml/min
10/19/2020 4:10 PM	36:00	6.42 pH	65.24 °F	176.51 µS/cm	1.24 mg/L	90.44 NTU	98.8 mV	3.67 ft	250.00 ml/min
10/19/2020 4:13 PM	39:00	6.41 pH	65.23 °F	175.74 µS/cm	1.66 mg/L	78.81 NTU	98.9 mV	3.67 ft	250.00 ml/min

10/19/2020 4:16 PM	42:00	6.40 pH	65.36 °F	175.73 µS/cm	2.26 mg/L	54.12 NTU	96.6 mV	3.67 ft	250.00 ml/min
10/19/2020 4:19 PM	45:00	6.41 pH	65.40 °F	175.88 µS/cm	2.42 mg/L	89.98 NTU	92.1 mV	3.67 ft	250.00 ml/min

## Samples

Sample ID:	Description:
MW-14	ST 1620

# Low-Flow Test Report:

Test Date / Time: 10/19/2020 3:35:27 PM

Project:

Operator Name:

<b>Location Name: MW-5</b>	<b>Estimated Total Volume Pumped: 3750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 3.29 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/19/2020 3:35 PM	00:00	6.60 pH	60.28 °F	136.99 µS/cm	1.98 mg/L	2.10 NTU	71.0 mV	250.00 ml/min
10/19/2020 3:38 PM	03:00	6.31 pH	60.51 °F	115.89 µS/cm	1.43 mg/L	1.59 NTU	120.7 mV	250.00 ml/min
10/19/2020 3:41 PM	06:00	6.26 pH	60.64 °F	110.77 µS/cm	1.39 mg/L	8.67 NTU	160.2 mV	250.00 ml/min
10/19/2020 3:44 PM	09:00	6.28 pH	60.74 °F	108.96 µS/cm	1.38 mg/L	4.84 NTU	177.8 mV	250.00 ml/min
10/19/2020 3:47 PM	12:00	6.36 pH	60.81 °F	107.39 µS/cm	1.37 mg/L	4.29 NTU	175.8 mV	250.00 ml/min
10/19/2020 3:50 PM	15:00	6.31 pH	61.01 °F	107.17 µS/cm	1.37 mg/L	2.22 NTU	177.1 mV	250.00 ml/min

## Samples

Sample ID:	Description:
MW-5	Sampled at 15:55

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 8:57:19 AM

Project: Kinder Morgan Liquid Terminals, LLC

Operator Name:

<b>Location Name: TMW-2</b>	<b>Estimated Total Volume Pumped: 13500 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 3.91 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/20/2020 8:57 AM	00:00	7.22 pH	59.49 °F	1,823.6 µS/cm	0.28 mg/L	12.51 NTU	-42.1 mV	250.00 ml/min
10/20/2020 9:00 AM	03:00	7.40 pH	60.13 °F	1,813.4 µS/cm	0.16 mg/L	5.60 NTU	-102.4 mV	250.00 ml/min
10/20/2020 9:03 AM	06:00	7.42 pH	60.63 °F	1,806.8 µS/cm	0.11 mg/L	2.72 NTU	-114.3 mV	250.00 ml/min
10/20/2020 9:06 AM	09:00	7.44 pH	61.00 °F	1,781.7 µS/cm	0.10 mg/L	15.34 NTU	-124.3 mV	250.00 ml/min
10/20/2020 9:09 AM	12:00	7.48 pH	61.28 °F	1,741.8 µS/cm	0.09 mg/L	0.44 NTU	-134.3 mV	250.00 ml/min
10/20/2020 9:12 AM	15:00	7.46 pH	61.54 °F	1,735.7 µS/cm	0.08 mg/L	0.13 NTU	-138.1 mV	250.00 ml/min
10/20/2020 9:15 AM	18:00	7.47 pH	61.77 °F	1,670.0 µS/cm	0.09 mg/L	0.00 NTU	-139.5 mV	250.00 ml/min
10/20/2020 9:18 AM	21:00	7.46 pH	61.94 °F	1,649.8 µS/cm	0.09 mg/L	0.00 NTU	-141.9 mV	250.00 ml/min
10/20/2020 9:21 AM	24:00	7.46 pH	62.08 °F	1,747.6 µS/cm	0.10 mg/L	0.00 NTU	-143.2 mV	250.00 ml/min
10/20/2020 9:24 AM	27:00	7.47 pH	62.14 °F	1,741.2 µS/cm	0.11 mg/L	0.00 NTU	-143.6 mV	250.00 ml/min
10/20/2020 9:27 AM	30:00	7.47 pH	62.29 °F	1,639.6 µS/cm	0.10 mg/L	0.00 NTU	-149.3 mV	250.00 ml/min
10/20/2020 9:30 AM	33:00	7.48 pH	62.30 °F	1,755.9 µS/cm	0.09 mg/L	0.00 NTU	-146.5 mV	250.00 ml/min
10/20/2020 9:33 AM	36:00	7.48 pH	62.40 °F	1,701.6 µS/cm	0.08 mg/L	0.00 NTU	-154.7 mV	250.00 ml/min
10/20/2020 9:36 AM	39:00	7.48 pH	62.44 °F	1,676.1 µS/cm	0.07 mg/L	0.00 NTU	-156.4 mV	250.00 ml/min
10/20/2020 9:39 AM	42:00	7.49 pH	62.53 °F	1,516.8 µS/cm	0.06 mg/L	0.00 NTU	-161.2 mV	250.00 ml/min
10/20/2020 9:42 AM	45:00	7.49 pH	62.67 °F	1,638.8 µS/cm	0.06 mg/L	0.00 NTU	-163.8 mV	250.00 ml/min
10/20/2020 9:45 AM	48:00	7.51 pH	62.66 °F	1,538.6 µS/cm	0.04 mg/L	0.00 NTU	-165.0 mV	250.00 ml/min

10/20/2020 9:48 AM	51:00	7.50 pH	62.65 °F	1,771.5 µS/cm	0.05 mg/L	0.13 NTU	-166.4 mV	250.00 ml/min
10/20/2020 9:51 AM	54:00	7.51 pH	62.64 °F	1,667.4 µS/cm	0.03 mg/L	1.00 NTU	-170.0 mV	250.00 ml/min

## Samples

Sample ID:	Description:
TMW-2	9:57

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 9:42:14 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: TMW-5</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 3.63 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Estimated Total Volume Pumped: 5250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.63

## Weather Conditions:

60 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/20/2020 9:42 AM	00:00	7.28 pH	62.25 °F	2,449.5 µS/cm	0.74 mg/L	1.08 NTU	-159.1 mV	3.63 ft	250.00 ml/min
10/20/2020 9:45 AM	03:00	7.52 pH	65.09 °F	2,405.1 µS/cm	0.32 mg/L	0.56 NTU	-198.6 mV	3.63 ft	250.00 ml/min
10/20/2020 9:48 AM	06:00	7.50 pH	65.69 °F	2,243.8 µS/cm	0.27 mg/L	0.48 NTU	-212.4 mV	3.63 ft	250.00 ml/min
10/20/2020 9:51 AM	09:00	7.50 pH	65.71 °F	2,157.8 µS/cm	0.27 mg/L	0.79 NTU	-220.2 mV	3.63 ft	250.00 ml/min
10/20/2020 9:54 AM	12:00	7.49 pH	65.82 °F	2,131.6 µS/cm	0.24 mg/L	2.32 NTU	-229.8 mV	3.63 ft	250.00 ml/min
10/20/2020 9:57 AM	15:00	7.49 pH	65.98 °F	2,074.4 µS/cm	0.22 mg/L	1.65 NTU	-236.8 mV	3.63 ft	250.00 ml/min
10/20/2020 10:00 AM	18:00	7.48 pH	65.96 °F	2,061.6 µS/cm	0.23 mg/L	2.27 NTU	-238.9 mV	3.63 ft	250.00 ml/min
10/20/2020 10:03 AM	21:00	7.49 pH	65.87 °F	2,062.0 µS/cm	0.23 mg/L	3.02 NTU	-233.4 mV	3.63 ft	250.00 ml/min

## Samples

Sample ID:	Description:
TMW-5	ST 1005

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 10:17:21 AM

Project: Kinder Morgan Liquid Terminals, LLC (2)

Operator Name:

<b>Location Name: TMW-1</b>	<b>Estimated Total Volume Pumped: 11250 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 3.81 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/20/2020 10:17 AM	00:00	7.02 pH	61.57 °F	385.05 µS/cm	5.38 mg/L	5,622.9 NTU	30.3 mV	250.00 ml/min
10/20/2020 10:20 AM	03:00	6.87 pH	62.12 °F	577.85 µS/cm	5.21 mg/L	333.44 NTU	86.0 mV	250.00 ml/min
10/20/2020 10:23 AM	06:00	6.83 pH	62.27 °F	576.24 µS/cm	5.18 mg/L	241.01 NTU	99.4 mV	250.00 ml/min
10/20/2020 10:26 AM	09:00	6.80 pH	62.24 °F	571.12 µS/cm	5.15 mg/L	1,240.1 NTU	119.0 mV	250.00 ml/min
10/20/2020 10:29 AM	12:00	6.82 pH	62.10 °F	580.87 µS/cm	5.05 mg/L	211.66 NTU	129.2 mV	250.00 ml/min
10/20/2020 10:32 AM	15:00	6.81 pH	62.16 °F	595.15 µS/cm	4.92 mg/L	155.20 NTU	126.6 mV	250.00 ml/min
10/20/2020 10:35 AM	18:00	6.79 pH	62.14 °F	615.18 µS/cm	4.81 mg/L	216.38 NTU	128.1 mV	250.00 ml/min
10/20/2020 10:38 AM	21:00	6.81 pH	62.19 °F	620.79 µS/cm	4.79 mg/L	47.55 NTU	129.0 mV	250.00 ml/min
10/20/2020 10:41 AM	24:00	6.79 pH	62.28 °F	627.42 µS/cm	4.72 mg/L	33.72 NTU	131.6 mV	250.00 ml/min
10/20/2020 10:44 AM	27:00	6.80 pH	62.27 °F	629.94 µS/cm	4.70 mg/L	209.32 NTU	132.6 mV	250.00 ml/min
10/20/2020 10:47 AM	30:00	6.80 pH	62.24 °F	632.89 µS/cm	4.67 mg/L	32.37 NTU	133.3 mV	250.00 ml/min
10/20/2020 10:50 AM	33:00	6.80 pH	62.27 °F	646.63 µS/cm	4.61 mg/L	234.85 NTU	134.8 mV	250.00 ml/min
10/20/2020 10:53 AM	36:00	6.78 pH	62.46 °F	649.34 µS/cm	4.57 mg/L	144.20 NTU	135.6 mV	250.00 ml/min
10/20/2020 10:56 AM	39:00	6.77 pH	62.37 °F	647.85 µS/cm	4.62 mg/L	5,663.9 NTU	148.8 mV	250.00 ml/min
10/20/2020 10:59 AM	42:00	6.77 pH	62.38 °F	664.81 µS/cm	4.48 mg/L	93.58 NTU	137.3 mV	250.00 ml/min
10/20/2020 11:02 AM	45:00	6.78 pH	62.27 °F	663.90 µS/cm	4.46 mg/L	48.21 NTU	136.9 mV	250.00 ml/min



**Samples**

Sample ID:	Description:
TMW-1	11:03

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 10:43:28 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-7</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 m</b> <b>Initial Depth to Water: 3.04 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 9750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.32

## Weather Conditions:

60 partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/20/2020 10:43 AM	00:00	7.43 pH	63.62 °F	1,261.3 µS/cm	5.85 mg/L	8.31 NTU	-18.5 mV	3.04 ft	250.00 ml/min
10/20/2020 10:46 AM	03:00	7.23 pH	64.03 °F	1,254.6 µS/cm	0.51 mg/L	1.59 NTU	-56.2 mV	3.04 ft	250.00 ml/min
10/20/2020 10:49 AM	06:00	7.22 pH	64.22 °F	1,254.5 µS/cm	0.37 mg/L	4.08 NTU	-79.1 mV	3.04 ft	250.00 ml/min
10/20/2020 10:52 AM	09:00	7.22 pH	64.25 °F	1,257.4 µS/cm	0.28 mg/L	6.29 NTU	-93.2 mV	3.04 ft	250.00 ml/min
10/20/2020 10:55 AM	12:00	7.21 pH	64.31 °F	1,257.8 µS/cm	0.23 mg/L	8.10 NTU	-103.6 mV	3.04 ft	250.00 ml/min
10/20/2020 10:58 AM	15:00	7.21 pH	64.37 °F	1,256.9 µS/cm	0.21 mg/L	6.09 NTU	-111.5 mV	3.04 ft	250.00 ml/min
10/20/2020 11:01 AM	18:00	7.20 pH	64.43 °F	1,255.8 µS/cm	0.21 mg/L	8.95 NTU	-118.3 mV	3.04 ft	250.00 ml/min
10/20/2020 11:04 AM	21:00	7.20 pH	64.45 °F	1,256.8 µS/cm	0.20 mg/L	12.66 NTU	-124.2 mV	3.04 ft	250.00 ml/min
10/20/2020 11:07 AM	24:00	7.20 pH	64.47 °F	1,260.4 µS/cm	0.21 mg/L	15.45 NTU	-130.8 mV	3.04 ft	250.00 ml/min
10/20/2020 11:10 AM	27:00	7.20 pH	64.27 °F	1,257.6 µS/cm	0.34 mg/L	31.28 NTU	-134.7 mV	3.04 ft	250.00 ml/min
10/20/2020 11:13 AM	30:00	7.19 pH	64.47 °F	1,260.8 µS/cm	0.27 mg/L	26.78 NTU	-139.2 mV	3.04 ft	250.00 ml/min
10/20/2020 11:16 AM	33:00	7.19 pH	64.48 °F	1,260.7 µS/cm	0.24 mg/L	29.20 NTU	-144.5 mV	3.04 ft	250.00 ml/min
10/20/2020 11:19 AM	36:00	7.20 pH	64.56 °F	1,264.8 µS/cm	0.24 mg/L	36.51 NTU	-149.6 mV	3.04 ft	250.00 ml/min

10/20/2020 11:22 AM	39:00	7.19 pH	64.63 °F	1,266.4 µS/cm	0.25 mg/L	36.22 NTU	-152.6 mV	3.04 ft	250.00 ml/min
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## Samples

Sample ID:	Description:
MW-7	ST 1125
DUP-1	

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 11:27:18 AM

Project: Kinder Morgan Liquid Terminals, LLC (3)

Operator Name:

<b>Location Name: MW-19</b>	<b>Estimated Total Volume Pumped: 11250 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 3.36 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/20/2020 11:27 AM	00:00	6.74 pH	62.35 °F	2,232.2 µS/cm	0.85 mg/L	126.31 NTU	-18.9 mV	250.00 ml/min
10/20/2020 11:30 AM	03:00	6.74 pH	62.83 °F	1,895.3 µS/cm	0.14 mg/L	23.96 NTU	-102.2 mV	250.00 ml/min
10/20/2020 11:33 AM	06:00	6.72 pH	63.04 °F	1,722.5 µS/cm	0.10 mg/L	14.18 NTU	-109.3 mV	250.00 ml/min
10/20/2020 11:36 AM	09:00	6.72 pH	63.27 °F	1,635.0 µS/cm	0.08 mg/L	14.05 NTU	-104.5 mV	250.00 ml/min
10/20/2020 11:39 AM	12:00	6.62 pH	63.62 °F	1,357.1 µS/cm	0.07 mg/L	75.29 NTU	-97.7 mV	250.00 ml/min
10/20/2020 11:42 AM	15:00	6.45 pH	63.85 °F	1,153.7 µS/cm	0.05 mg/L	198.79 NTU	-72.9 mV	250.00 ml/min
10/20/2020 11:45 AM	18:00	6.35 pH	63.99 °F	1,061.4 µS/cm	0.04 mg/L	174.91 NTU	-50.3 mV	250.00 ml/min
10/20/2020 11:48 AM	21:00	6.36 pH	64.06 °F	1,051.0 µS/cm	0.03 mg/L	113.98 NTU	-43.9 mV	250.00 ml/min
10/20/2020 11:51 AM	24:00	6.38 pH	64.12 °F	1,049.3 µS/cm	0.03 mg/L	103.26 NTU	-50.4 mV	250.00 ml/min
10/20/2020 11:54 AM	27:00	6.40 pH	63.96 °F	1,058.9 µS/cm	0.04 mg/L	62.28 NTU	-58.2 mV	250.00 ml/min
10/20/2020 11:57 AM	30:00	6.40 pH	64.05 °F	1,110.4 µS/cm	0.03 mg/L	34.03 NTU	-65.1 mV	250.00 ml/min
10/20/2020 12:00 PM	33:00	6.40 pH	64.17 °F	1,114.1 µS/cm	0.04 mg/L	23.67 NTU	-69.2 mV	250.00 ml/min
10/20/2020 12:03 PM	36:00	6.42 pH	64.12 °F	1,132.9 µS/cm	0.03 mg/L	17.44 NTU	-71.3 mV	250.00 ml/min
10/20/2020 12:06 PM	39:00	6.44 pH	64.29 °F	1,143.3 µS/cm	0.03 mg/L	12.47 NTU	-76.2 mV	250.00 ml/min
10/20/2020 12:09 PM	42:00	6.43 pH	64.26 °F	1,165.4 µS/cm	0.03 mg/L	12.55 NTU	-76.6 mV	250.00 ml/min
10/20/2020 12:12 PM	45:00	6.44 pH	64.36 °F	1,158.5 µS/cm	0.04 mg/L	8.82 NTU	-78.5 mV	250.00 ml/min

**Samples**

Sample ID:	Description:
MW-19	12:15

# Low-Flow Test Report:

**Test Date / Time:** 10/20/2020 12:05:10 PM

**Project:** KMLT Harbor Island

**Operator Name:** L.Selleck

<b>Location Name: TMW-3</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 3.99 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 9.5 ft</b> <b>Estimated Total Volume Pumped: 7500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.99

## Weather Conditions:

60 partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/20/2020 12:05 PM	00:00	7.36 pH	65.13 °F	1,754.0 µS/cm	6.15 mg/L	0.43 NTU	-17.6 mV	3.99 ft	250.00 ml/min
10/20/2020 12:08 PM	03:00	7.37 pH	65.24 °F	1,768.2 µS/cm	0.57 mg/L	2.36 NTU	-79.3 mV	3.99 ft	250.00 ml/min
10/20/2020 12:11 PM	06:00	7.36 pH	65.30 °F	1,775.9 µS/cm	0.35 mg/L	0.03 NTU	-98.1 mV	3.99 ft	250.00 ml/min
10/20/2020 12:14 PM	09:00	7.36 pH	65.30 °F	1,778.8 µS/cm	0.26 mg/L	0.12 NTU	-108.8 mV	3.99 ft	250.00 ml/min
10/20/2020 12:17 PM	12:00	7.37 pH	65.32 °F	1,772.5 µS/cm	0.25 mg/L	0.66 NTU	-114.7 mV	3.99 ft	250.00 ml/min
10/20/2020 12:20 PM	15:00	7.37 pH	65.33 °F	1,774.3 µS/cm	0.21 mg/L	1.16 NTU	-120.6 mV	3.99 ft	250.00 ml/min
10/20/2020 12:23 PM	18:00	7.37 pH	65.31 °F	1,763.2 µS/cm	0.19 mg/L	1.51 NTU	-124.9 mV	3.99 ft	250.00 ml/min
10/20/2020 12:26 PM	21:00	7.37 pH	65.32 °F	1,767.9 µS/cm	0.19 mg/L	2.05 NTU	-128.8 mV	3.99 ft	250.00 ml/min
10/20/2020 12:29 PM	24:00	7.37 pH	65.30 °F	1,772.4 µS/cm	0.16 mg/L	4.12 NTU	-130.9 mV	3.99 ft	250.00 ml/min
10/20/2020 12:32 PM	27:00	7.37 pH	65.35 °F	1,769.8 µS/cm	0.16 mg/L	5.43 NTU	-133.1 mV	3.99 ft	250.00 ml/min
10/20/2020 12:35 PM	30:00	7.38 pH	65.37 °F	1,773.8 µS/cm	0.16 mg/L	9.12 NTU	-133.8 mV	3.99 ft	250.00 ml/min

## Samples

Sample ID:	Description:
TMW-3	ST 1240

Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

**Test Date / Time:** 10/20/2020 1:07:12 PM

**Project:** Kinder Morgan Liquid Terminals, LLC (4)

**Operator Name:**

<b>Location Name: MW-07R</b>	<b>Estimated Total Volume Pumped: 12000 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 6.57 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/20/2020 1:07 PM	00:00	6.03 pH	65.67 °F	119.99 µS/cm	0.50 mg/L	1,862.1 NTU	69.0 mV	250.00 ml/min
10/20/2020 1:10 PM	03:00	6.00 pH	65.46 °F	125.35 µS/cm	0.34 mg/L	310.02 NTU	77.3 mV	250.00 ml/min
10/20/2020 1:13 PM	06:00	6.00 pH	65.47 °F	124.59 µS/cm	0.30 mg/L	128.93 NTU	103.9 mV	250.00 ml/min
10/20/2020 1:16 PM	09:00	6.01 pH	65.51 °F	125.38 µS/cm	0.26 mg/L	115.28 NTU	108.1 mV	250.00 ml/min
10/20/2020 1:19 PM	12:00	6.02 pH	65.36 °F	126.88 µS/cm	0.32 mg/L	3,345.4 NTU	91.3 mV	250.00 ml/min
10/20/2020 1:22 PM	15:00	6.07 pH	65.40 °F	124.79 µS/cm	0.21 mg/L	734.43 NTU	97.3 mV	250.00 ml/min
10/20/2020 1:25 PM	18:00	6.07 pH	65.50 °F	128.39 µS/cm	0.21 mg/L	250.53 NTU	103.1 mV	250.00 ml/min
10/20/2020 1:28 PM	21:00	6.11 pH	65.50 °F	130.39 µS/cm	0.24 mg/L	710.43 NTU	86.0 mV	250.00 ml/min
10/20/2020 1:31 PM	24:00	6.12 pH	65.37 °F	132.85 µS/cm	0.20 mg/L	90.06 NTU	94.6 mV	250.00 ml/min
10/20/2020 1:34 PM	27:00	6.07 pH	65.40 °F	134.32 µS/cm	0.20 mg/L	63.32 NTU	94.8 mV	250.00 ml/min
10/20/2020 1:37 PM	30:00	6.15 pH	65.49 °F	136.68 µS/cm	0.17 mg/L	57.14 NTU	85.4 mV	250.00 ml/min
10/20/2020 1:40 PM	33:00	6.16 pH	65.44 °F	132.03 µS/cm	0.16 mg/L	48.21 NTU	81.5 mV	250.00 ml/min
10/20/2020 1:43 PM	36:00	6.14 pH	65.39 °F	135.83 µS/cm	0.16 mg/L	2,577.1 NTU	79.7 mV	250.00 ml/min
10/20/2020 1:46 PM	39:00	6.17 pH	65.41 °F	136.74 µS/cm	0.17 mg/L	1,688.2 NTU	69.7 mV	250.00 ml/min
10/20/2020 1:49 PM	42:00	6.19 pH	65.48 °F	144.04 µS/cm	0.15 mg/L	297.67 NTU	59.4 mV	250.00 ml/min
10/20/2020 1:52 PM	45:00	6.12 pH	65.52 °F	139.01 µS/cm	0.16 mg/L	72.76 NTU	66.4 mV	250.00 ml/min
10/20/2020 1:55 PM	48:00	6.12 pH	65.46 °F	139.38 µS/cm	0.17 mg/L	70.39 NTU	66.2 mV	250.00 ml/min



**Samples**

Sample ID:	Description:
MW-07R	13:58

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 1:41:40 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: TMW-4</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 3.64 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 6000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.64

## Weather Conditions:

60 sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/20/2020 1:41 PM	00:00	7.53 pH	68.39 °F	2,681.1 µS/cm	5.68 mg/L	0.91 NTU	-57.3 mV	3.64 ft	250.00 ml/min
10/20/2020 1:44 PM	03:00	7.55 pH	66.91 °F	2,730.3 µS/cm	0.60 mg/L	1.37 NTU	-125.1 mV	3.64 ft	250.00 ml/min
10/20/2020 1:47 PM	06:00	7.55 pH	66.56 °F	2,731.5 µS/cm	0.33 mg/L	1.47 NTU	-144.5 mV	3.64 ft	250.00 ml/min
10/20/2020 1:50 PM	09:00	7.56 pH	66.44 °F	2,750.0 µS/cm	0.26 mg/L	1.19 NTU	-153.6 mV	3.64 ft	250.00 ml/min
10/20/2020 1:53 PM	12:00	7.57 pH	66.33 °F	2,756.2 µS/cm	0.22 mg/L	0.93 NTU	-160.1 mV	3.64 ft	250.00 ml/min
10/20/2020 1:56 PM	15:00	7.58 pH	66.23 °F	2,759.3 µS/cm	0.20 mg/L	0.95 NTU	-166.2 mV	3.64 ft	250.00 ml/min
10/20/2020 1:59 PM	18:00	7.58 pH	66.17 °F	2,761.0 µS/cm	0.17 mg/L	1.00 NTU	-171.6 mV	3.64 ft	250.00 ml/min
10/20/2020 2:02 PM	21:00	7.58 pH	66.14 °F	2,760.2 µS/cm	0.16 mg/L	1.44 NTU	-175.0 mV	3.64 ft	250.00 ml/min
10/20/2020 2:05 PM	24:00	7.59 pH	66.13 °F	2,760.2 µS/cm	0.15 mg/L	1.49 NTU	-177.6 mV	3.64 ft	250.00 ml/min

## Samples

Sample ID:	Description:
TMW-3	ST 1406



# Low-Flow Test Report:

Test Date / Time: 10/20/2020 2:26:38 PM

Project: Kinder Morgan Liquid Terminals, LLC (5)

Operator Name:

<b>Location Name: MW-4</b>	<b>Estimated Total Volume Pumped: 9000 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.57 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/20/2020 2:26 PM	00:00	6.05 pH	67.79 °F	133.91 µS/cm	3.14 mg/L	291.82 NTU	-7.6 mV	250.00 ml/min
10/20/2020 2:29 PM	03:00	6.13 pH	68.85 °F	136.30 µS/cm	0.27 mg/L	16.32 NTU	-47.6 mV	250.00 ml/min
10/20/2020 2:32 PM	06:00	6.14 pH	69.41 °F	135.72 µS/cm	0.14 mg/L	9.54 NTU	-56.9 mV	250.00 ml/min
10/20/2020 2:35 PM	09:00	6.14 pH	69.62 °F	135.70 µS/cm	0.11 mg/L	3.72 NTU	-61.6 mV	250.00 ml/min
10/20/2020 2:38 PM	12:00	6.16 pH	70.07 °F	138.34 µS/cm	0.08 mg/L	3.42 NTU	-66.3 mV	250.00 ml/min
10/20/2020 2:41 PM	15:00	6.14 pH	70.17 °F	137.62 µS/cm	0.08 mg/L	3.22 NTU	-67.0 mV	250.00 ml/min
10/20/2020 2:44 PM	18:00	6.18 pH	70.29 °F	137.77 µS/cm	0.06 mg/L	3.42 NTU	-72.0 mV	250.00 ml/min
10/20/2020 2:47 PM	21:00	6.17 pH	70.60 °F	136.33 µS/cm	0.07 mg/L	3.19 NTU	-73.2 mV	250.00 ml/min
10/20/2020 2:50 PM	24:00	6.18 pH	70.86 °F	136.82 µS/cm	0.05 mg/L	3.68 NTU	-74.7 mV	250.00 ml/min
10/20/2020 2:53 PM	27:00	6.18 pH	70.73 °F	134.81 µS/cm	0.05 mg/L	7.23 NTU	-76.8 mV	250.00 ml/min
10/20/2020 2:56 PM	30:00	6.21 pH	70.98 °F	134.70 µS/cm	0.04 mg/L	2.70 NTU	-80.2 mV	250.00 ml/min
10/20/2020 2:59 PM	33:00	6.18 pH	70.91 °F	134.46 µS/cm	0.05 mg/L	3.28 NTU	-80.2 mV	250.00 ml/min
10/20/2020 3:02 PM	36:00	6.21 pH	70.84 °F	136.63 µS/cm	0.04 mg/L	3.00 NTU	-85.8 mV	250.00 ml/min

## Samples

Sample ID:	Description:
MW-4	15:06



# Low-Flow Test Report:

Test Date / Time: 10/20/2020 2:33:41 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: 11</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Initial Depth to Water: 4.81 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 7500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 4.97

## Weather Conditions:

60 sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/20/2020 2:33 PM	00:00	7.83 pH	67.64 °F	570.91 µS/cm	8.68 mg/L	17.87 NTU	-34.5 mV	4.81 ft	250.00 ml/min
10/20/2020 2:36 PM	03:00	6.72 pH	69.92 °F	540.02 µS/cm	5.36 mg/L	3.35 NTU	2.9 mV	4.81 ft	250.00 ml/min
10/20/2020 2:39 PM	06:00	6.66 pH	70.59 °F	534.44 µS/cm	5.22 mg/L	0.57 NTU	15.5 mV	4.81 ft	250.00 ml/min
10/20/2020 2:42 PM	09:00	6.67 pH	70.86 °F	531.77 µS/cm	5.12 mg/L	2.65 NTU	11.6 mV	4.81 ft	250.00 ml/min
10/20/2020 2:45 PM	12:00	6.63 pH	70.92 °F	527.92 µS/cm	4.96 mg/L	1.50 NTU	2.1 mV	4.81 ft	250.00 ml/min
10/20/2020 2:48 PM	15:00	6.64 pH	71.06 °F	523.90 µS/cm	4.80 mg/L	0.99 NTU	0.2 mV	4.81 ft	250.00 ml/min
10/20/2020 2:51 PM	18:00	6.63 pH	70.97 °F	521.61 µS/cm	4.71 mg/L	0.36 NTU	0.3 mV	4.81 ft	250.00 ml/min
10/20/2020 2:54 PM	21:00	6.65 pH	71.03 °F	515.87 µS/cm	4.57 mg/L	1.01 NTU	-10.5 mV	4.81 ft	250.00 ml/min
10/20/2020 2:57 PM	24:00	6.65 pH	70.97 °F	513.04 µS/cm	4.34 mg/L	2.77 NTU	-16.3 mV	4.81 ft	250.00 ml/min
10/20/2020 3:00 PM	27:00	6.65 pH	70.98 °F	507.48 µS/cm	4.15 mg/L	1.04 NTU	-22.4 mV	4.81 ft	250.00 ml/min
10/20/2020 3:03 PM	30:00	6.68 pH	70.90 °F	502.53 µS/cm	4.01 mg/L	0.72 NTU	-26.0 mV	4.81 ft	250.00 ml/min

## Samples

Sample ID:	Description:
11	ST 1505

Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 3:27:16 PM

Project: Kinder Morgan Liquid Terminals, LLC (6)

Operator Name:

<b>Location Name: MW-12R</b>	<b>Estimated Total Volume Pumped: 11250 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.76 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/20/2020 3:27 PM	00:00	7.03 pH	65.52 °F	355.64 µS/cm	0.46 mg/L	23.31 NTU	-97.1 mV	250.00 ml/min
10/20/2020 3:30 PM	03:00	7.14 pH	65.02 °F	408.64 µS/cm	0.11 mg/L	2.29 NTU	-128.8 mV	250.00 ml/min
10/20/2020 3:33 PM	06:00	7.18 pH	65.09 °F	397.22 µS/cm	0.07 mg/L	1.11 NTU	-139.7 mV	250.00 ml/min
10/20/2020 3:36 PM	09:00	7.13 pH	65.03 °F	419.86 µS/cm	0.07 mg/L	1.61 NTU	-143.6 mV	250.00 ml/min
10/20/2020 3:39 PM	12:00	7.12 pH	64.99 °F	440.47 µS/cm	0.06 mg/L	0.00 NTU	-147.7 mV	250.00 ml/min
10/20/2020 3:42 PM	15:00	7.10 pH	64.82 °F	443.08 µS/cm	0.05 mg/L	0.00 NTU	-147.7 mV	250.00 ml/min
10/20/2020 3:45 PM	18:00	7.10 pH	64.83 °F	445.92 µS/cm	0.05 mg/L	0.00 NTU	-149.1 mV	250.00 ml/min
10/20/2020 3:48 PM	21:00	7.10 pH	64.88 °F	432.95 µS/cm	0.04 mg/L	0.00 NTU	-152.6 mV	250.00 ml/min
10/20/2020 3:51 PM	24:00	7.10 pH	64.73 °F	450.30 µS/cm	0.04 mg/L	0.00 NTU	-152.9 mV	250.00 ml/min
10/20/2020 3:54 PM	27:00	7.10 pH	64.73 °F	450.04 µS/cm	0.04 mg/L	0.00 NTU	-153.5 mV	250.00 ml/min
10/20/2020 3:57 PM	30:00	7.11 pH	64.70 °F	446.24 µS/cm	0.03 mg/L	0.11 NTU	-155.1 mV	250.00 ml/min
10/20/2020 4:00 PM	33:00	7.10 pH	64.72 °F	435.46 µS/cm	0.03 mg/L	0.00 NTU	-154.2 mV	250.00 ml/min
10/20/2020 4:03 PM	36:00	7.10 pH	64.92 °F	454.75 µS/cm	0.03 mg/L	0.00 NTU	-155.5 mV	250.00 ml/min
10/20/2020 4:06 PM	39:00	7.09 pH	64.79 °F	454.47 µS/cm	0.03 mg/L	2.49 NTU	-155.3 mV	250.00 ml/min
10/20/2020 4:09 PM	42:00	7.11 pH	64.66 °F	445.91 µS/cm	0.03 mg/L	0.00 NTU	-156.6 mV	250.00 ml/min
10/20/2020 4:12 PM	45:00	7.08 pH	64.66 °F	447.11 µS/cm	0.03 mg/L	0.04 NTU	-155.0 mV	250.00 ml/min



**Samples**

Sample ID:	Description:
MW-12R	16:17

# Low-Flow Test Report:

Test Date / Time: 10/20/2020 3:52:20 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: 12</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 m</b> <b>Initial Depth to Water: 2.42 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 15000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Did not sample. Well dewatered. Will check tomorrow for DTW. Final DTW 7.37

## Weather Conditions:

60 sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/20/2020 3:52 PM	00:00	6.95 pH	64.38 °F	1,895.2 µS/cm	6.62 mg/L	87.05 NTU	-183.2 mV	2.42 ft	250.00 ml/min
10/20/2020 3:55 PM	03:00	7.08 pH	64.19 °F	1,951.8 µS/cm	0.43 mg/L	67.00 NTU	-308.5 mV	2.42 ft	250.00 ml/min
10/20/2020 3:58 PM	06:00	7.11 pH	64.11 °F	1,960.9 µS/cm	0.21 mg/L	59.95 NTU	-324.3 mV	2.42 ft	250.00 ml/min
10/20/2020 4:01 PM	09:00	6.93 pH	64.12 °F	1,938.2 µS/cm	0.15 mg/L	55.67 NTU	-358.8 mV	2.42 ft	250.00 ml/min
10/20/2020 4:04 PM	12:00	6.75 pH	64.12 °F	1,910.2 µS/cm	0.07 mg/L	53.01 NTU	-396.0 mV	2.42 ft	250.00 ml/min
10/20/2020 4:07 PM	15:00	6.67 pH	64.10 °F	1,898.5 µS/cm	0.04 mg/L	46.91 NTU	-413.8 mV	2.42 ft	250.00 ml/min
10/20/2020 4:10 PM	18:00	6.53 pH	64.08 °F	1,863.8 µS/cm	0.04 mg/L	42.91 NTU	-389.8 mV	2.42 ft	250.00 ml/min
10/20/2020 4:13 PM	21:00	6.46 pH	64.09 °F	1,842.8 µS/cm	0.04 mg/L	42.06 NTU	-366.6 mV	2.42 ft	250.00 ml/min
10/20/2020 4:16 PM	24:00	6.43 pH	64.10 °F	1,833.3 µS/cm	0.04 mg/L	40.00 NTU	-339.0 mV	2.42 ft	250.00 ml/min
10/20/2020 4:19 PM	27:00	6.40 pH	64.08 °F	1,807.6 µS/cm	0.05 mg/L	41.30 NTU	-308.8 mV	2.42 ft	250.00 ml/min
10/20/2020 4:22 PM	30:00	6.43 pH	64.08 °F	1,796.9 µS/cm	0.09 mg/L	40.72 NTU	-305.7 mV	2.42 ft	250.00 ml/min
10/20/2020 4:25 PM	33:00	6.49 pH	64.02 °F	1,790.0 µS/cm	0.19 mg/L	41.22 NTU	-293.0 mV	2.42 ft	250.00 ml/min
10/20/2020 4:28 PM	36:00	6.51 pH	63.85 °F	1,767.8 µS/cm	0.42 mg/L	43.14 NTU	-245.9 mV	2.42 ft	250.00 ml/min

10/20/2020 4:31 PM	39:00	6.61 pH	63.75 °F	1,784.6 µS/cm	0.68 mg/L	47.40 NTU	-235.1 mV	2.42 ft	250.00 ml/min
10/20/2020 4:34 PM	42:00	6.65 pH	63.74 °F	1,789.8 µS/cm	0.91 mg/L	45.60 NTU	-231.1 mV	2.42 ft	250.00 ml/min
10/20/2020 4:37 PM	45:00	6.70 pH	63.70 °F	1,797.5 µS/cm	1.07 mg/L	47.62 NTU	-231.2 mV	2.42 ft	250.00 ml/min
10/20/2020 4:40 PM	48:00	6.69 pH	63.72 °F	1,796.0 µS/cm	0.94 mg/L	53.15 NTU	-244.9 mV	2.42 ft	250.00 ml/min
10/20/2020 4:43 PM	51:00	6.69 pH	63.74 °F	1,776.7 µS/cm	0.88 mg/L	58.69 NTU	-236.0 mV	2.42 ft	250.00 ml/min
10/20/2020 4:46 PM	54:00	7.12 pH	63.72 °F	1,995.3 µS/cm	7.16 mg/L	78.55 NTU	-226.1 mV	2.42 ft	250.00 ml/min
10/20/2020 4:49 PM	57:00	7.30 pH	63.87 °F	2,047.1 µS/cm	3.11 mg/L	74.47 NTU	-221.8 mV	2.42 ft	250.00 ml/min
10/20/2020 4:52 PM	01:00:00	7.41 pH	63.91 °F	1,923.1 µS/cm	0.45 mg/L	0.00 NTU	-291.1 mV	2.42 ft	250.00 ml/min

## Samples

Sample ID:	Description:
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# Low-Flow Test Report:

Test Date / Time: 10/21/2020 9:11:40 AM

Project: Kinder Morgan Liquid Terminals, LLC (7)

Operator Name:

<b>Location Name: SH-05R</b>	<b>Estimated Total Volume Pumped: 9750 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.21 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/21/2020 9:11 AM	00:00	5.53 pH	59.10 °F	231.16 µS/cm	1.63 mg/L	22.11 NTU	226.3 mV	250.00 ml/min
10/21/2020 9:14 AM	03:00	5.81 pH	60.59 °F	211.69 µS/cm	0.21 mg/L	21.07 NTU	222.9 mV	250.00 ml/min
10/21/2020 9:17 AM	06:00	5.88 pH	61.38 °F	201.39 µS/cm	0.14 mg/L	22.15 NTU	192.0 mV	250.00 ml/min
10/21/2020 9:20 AM	09:00	5.90 pH	61.95 °F	193.21 µS/cm	0.11 mg/L	22.53 NTU	178.3 mV	250.00 ml/min
10/21/2020 9:23 AM	12:00	5.93 pH	62.17 °F	189.59 µS/cm	0.09 mg/L	25.46 NTU	160.5 mV	250.00 ml/min
10/21/2020 9:26 AM	15:00	5.97 pH	62.35 °F	182.65 µS/cm	0.08 mg/L	26.09 NTU	131.8 mV	250.00 ml/min
10/21/2020 9:29 AM	18:00	6.01 pH	62.68 °F	175.74 µS/cm	0.10 mg/L	10.39 NTU	94.8 mV	250.00 ml/min
10/21/2020 9:32 AM	21:00	6.05 pH	62.95 °F	169.69 µS/cm	0.11 mg/L	5.32 NTU	62.0 mV	250.00 ml/min
10/21/2020 9:35 AM	24:00	6.11 pH	63.19 °F	163.09 µS/cm	0.13 mg/L	5.07 NTU	40.7 mV	250.00 ml/min
10/21/2020 9:38 AM	27:00	6.14 pH	63.19 °F	163.40 µS/cm	0.13 mg/L	3.85 NTU	26.3 mV	250.00 ml/min
10/21/2020 9:41 AM	30:00	6.17 pH	63.38 °F	160.50 µS/cm	0.14 mg/L	6.78 NTU	12.7 mV	250.00 ml/min
10/21/2020 9:44 AM	33:00	6.16 pH	63.47 °F	161.34 µS/cm	0.14 mg/L	3.68 NTU	6.4 mV	250.00 ml/min
10/21/2020 9:47 AM	36:00	6.17 pH	63.34 °F	160.41 µS/cm	0.14 mg/L	5.28 NTU	0.9 mV	250.00 ml/min
10/21/2020 9:50 AM	39:00	6.16 pH	63.42 °F	158.33 µS/cm	0.14 mg/L	3.73 NTU	-2.6 mV	250.00 ml/min

## Samples

Sample ID:	Description:
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SH-05R	9:53
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Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

Test Date / Time: 10/21/2020 9:44:31 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-9</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 13 m</b> <b>Initial Depth to Water: 3.11 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 3750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.17

## Weather Conditions:

60 partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/21/2020 9:44 AM	00:00	6.37 pH	59.85 °F	212.70 µS/cm	3.61 mg/L	30.41 NTU	5.0 mV	3.11 ft	250.00 ml/min
10/21/2020 9:47 AM	03:00	6.49 pH	62.59 °F	195.96 µS/cm	2.20 mg/L	2.61 NTU	-5.6 mV	3.11 ft	250.00 ml/min
10/21/2020 9:50 AM	06:00	6.52 pH	63.22 °F	194.55 µS/cm	1.89 mg/L	4.79 NTU	-12.6 mV	3.11 ft	250.00 ml/min
10/21/2020 9:53 AM	09:00	6.53 pH	63.31 °F	196.12 µS/cm	1.81 mg/L	1.61 NTU	-14.4 mV	3.11 ft	250.00 ml/min
10/21/2020 9:56 AM	12:00	6.53 pH	63.43 °F	198.30 µS/cm	1.77 mg/L	0.61 NTU	-16.2 mV	3.11 ft	250.00 ml/min
10/21/2020 9:59 AM	15:00	6.52 pH	63.57 °F	197.99 µS/cm	1.73 mg/L	1.86 NTU	-21.5 mV	3.11 ft	250.00 ml/min

## Samples

Sample ID:	Description:
MW-9	ST 1000

# Low-Flow Test Report:

Test Date / Time: 10/21/2020 10:20:37 AM

Project: Kinder Morgan Liquid Terminals, LLC (8)

Operator Name:

<b>Location Name: SH-02R</b>	<b>Estimated Total Volume Pumped: 9750 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

Stopped purging due to lightening

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/21/2020 10:20 AM	00:00	6.58 pH	67.85 °F	333.66 µS/cm	1.55 mg/L	2.09 NTU	-70.9 mV	250.00 ml/min
10/21/2020 10:23 AM	03:00	6.60 pH	68.38 °F	332.58 µS/cm	0.21 mg/L	1.16 NTU	-101.5 mV	250.00 ml/min
10/21/2020 10:26 AM	06:00	6.64 pH	68.55 °F	332.95 µS/cm	0.12 mg/L	0.05 NTU	-111.3 mV	250.00 ml/min
10/21/2020 10:29 AM	09:00	6.64 pH	68.64 °F	332.28 µS/cm	0.11 mg/L	17.17 NTU	-117.0 mV	250.00 ml/min
10/21/2020 10:32 AM	12:00	6.62 pH	68.66 °F	329.09 µS/cm	0.08 mg/L	0.44 NTU	-116.3 mV	250.00 ml/min
10/21/2020 10:35 AM	15:00	6.60 pH	68.88 °F	325.01 µS/cm	0.10 mg/L	0.00 NTU	-115.6 mV	250.00 ml/min
10/21/2020 10:38 AM	18:00	6.61 pH	68.78 °F	322.30 µS/cm	0.07 mg/L	0.43 NTU	-117.8 mV	250.00 ml/min
10/21/2020 10:41 AM	21:00	6.59 pH	68.88 °F	320.32 µS/cm	0.08 mg/L	7.68 NTU	-117.0 mV	250.00 ml/min
10/21/2020 10:44 AM	24:00	6.60 pH	68.89 °F	318.53 µS/cm	0.07 mg/L	0.95 NTU	-117.2 mV	250.00 ml/min
10/21/2020 10:47 AM	27:00	6.58 pH	69.00 °F	319.89 µS/cm	0.08 mg/L	22.22 NTU	-114.8 mV	250.00 ml/min
10/21/2020 10:50 AM	30:00	6.59 pH	69.09 °F	321.52 µS/cm	0.07 mg/L	0.00 NTU	-116.4 mV	250.00 ml/min
10/21/2020 10:53 AM	33:00	6.58 pH	68.95 °F	324.00 µS/cm	0.07 mg/L	0.71 NTU	-116.2 mV	250.00 ml/min
10/21/2020 10:56 AM	36:00	6.59 pH	68.44 °F	320.95 µS/cm	0.09 mg/L	0.00 NTU	-111.4 mV	250.00 ml/min
10/21/2020 10:59 AM	39:00	6.60 pH	68.18 °F	320.83 µS/cm	0.11 mg/L	0.00 NTU	-111.1 mV	250.00 ml/min

## Samples

Sample ID:	Description:
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# Low-Flow Test Report:

Test Date / Time: 10/21/2020 11:39:38 AM

Project: Kinder Morgan Liquid Terminals, LLC (9)

Operator Name:

<b>Location Name: SH-02R</b>	<b>Estimated Total Volume Pumped: 11250 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/21/2020 11:39 AM	00:00	6.54 pH	66.39 °F	306.41 µS/cm	0.98 mg/L	2.77 NTU	-67.9 mV	250.00 ml/min
10/21/2020 11:42 AM	03:00	6.56 pH	66.73 °F	303.39 µS/cm	0.37 mg/L	0.16 NTU	-79.3 mV	250.00 ml/min
10/21/2020 11:45 AM	06:00	6.55 pH	67.17 °F	303.01 µS/cm	0.19 mg/L	0.00 NTU	-80.1 mV	250.00 ml/min
10/21/2020 11:48 AM	09:00	6.56 pH	67.28 °F	303.21 µS/cm	0.20 mg/L	0.07 NTU	-84.6 mV	250.00 ml/min
10/21/2020 11:51 AM	12:00	6.57 pH	67.61 °F	304.21 µS/cm	0.13 mg/L	0.00 NTU	-87.6 mV	250.00 ml/min
10/21/2020 11:54 AM	15:00	6.57 pH	67.85 °F	305.33 µS/cm	0.18 mg/L	0.00 NTU	-88.8 mV	250.00 ml/min
10/21/2020 11:57 AM	18:00	6.58 pH	67.90 °F	306.10 µS/cm	0.11 mg/L	0.44 NTU	-89.6 mV	250.00 ml/min
10/21/2020 12:00 PM	21:00	6.56 pH	67.92 °F	306.73 µS/cm	0.14 mg/L	0.00 NTU	-89.1 mV	250.00 ml/min
10/21/2020 12:03 PM	24:00	6.58 pH	67.92 °F	306.94 µS/cm	0.09 mg/L	0.00 NTU	-92.3 mV	250.00 ml/min
10/21/2020 12:06 PM	27:00	6.56 pH	67.95 °F	307.68 µS/cm	0.13 mg/L	0.00 NTU	-91.4 mV	250.00 ml/min
10/21/2020 12:09 PM	30:00	6.57 pH	68.09 °F	312.18 µS/cm	0.09 mg/L	0.00 NTU	-93.3 mV	250.00 ml/min
10/21/2020 12:12 PM	33:00	6.57 pH	68.07 °F	323.13 µS/cm	0.11 mg/L	0.00 NTU	-95.3 mV	250.00 ml/min
10/21/2020 12:15 PM	36:00	6.59 pH	68.23 °F	325.98 µS/cm	0.07 mg/L	0.00 NTU	-98.3 mV	250.00 ml/min
10/21/2020 12:18 PM	39:00	6.59 pH	68.32 °F	328.79 µS/cm	0.09 mg/L	0.00 NTU	-100.0 mV	250.00 ml/min
10/21/2020 12:21 PM	42:00	6.59 pH	68.29 °F	329.75 µS/cm	0.06 mg/L	0.00 NTU	-101.9 mV	250.00 ml/min
10/21/2020 12:24 PM	45:00	6.59 pH	68.33 °F	328.07 µS/cm	0.08 mg/L	0.00 NTU	-102.0 mV	250.00 ml/min

**Samples**

Sample ID:	Description:
SH-02R	12:27

# Low-Flow Test Report:

Test Date / Time: 10/21/2020 12:01:48 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-8</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.75 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 9 ft</b> <b>Estimated Total Volume Pumped: 3862.5 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 4.09

## Weather Conditions:

Rainy, 55

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/21/2020 12:01 PM	00:00	6.32 pH	59.59 °F	86.71 µS/cm	4.17 mg/L	47.25 NTU	57.4 mV	3.75 ft	250.00 ml/min
10/21/2020 12:02 PM	00:27	6.34 pH	60.77 °F	82.15 µS/cm	3.21 mg/L	37.77 NTU	55.6 mV	3.75 ft	250.00 ml/min
10/21/2020 12:05 PM	03:27	6.28 pH	64.60 °F	78.61 µS/cm	1.44 mg/L	40.37 NTU	48.8 mV	3.75 ft	250.00 ml/min
10/21/2020 12:08 PM	06:27	6.27 pH	65.74 °F	77.45 µS/cm	1.27 mg/L	35.06 NTU	43.0 mV	3.75 ft	250.00 ml/min
10/21/2020 12:11 PM	09:27	6.27 pH	66.03 °F	77.18 µS/cm	1.22 mg/L	29.67 NTU	39.6 mV	3.75 ft	250.00 ml/min
10/21/2020 12:14 PM	12:27	6.26 pH	66.15 °F	77.25 µS/cm	1.18 mg/L	33.79 NTU	36.7 mV	3.75 ft	250.00 ml/min
10/21/2020 12:17 PM	15:27	6.25 pH	66.29 °F	77.28 µS/cm	1.14 mg/L	25.09 NTU	34.6 mV	3.75 ft	250.00 ml/min

## Samples

Sample ID:	Description:
MW-8	ST 1220

# Low-Flow Test Report:

**Test Date / Time:** 10/21/2020 12:57:30 PM

**Project:** Kinder Morgan Liquid Terminals, LLC (10)

**Operator Name:**

<b>Location Name: MW-2</b>	<b>Estimated Total Volume Pumped: 6750 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.63 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/21/2020 12:57 PM	00:00	6.26 pH	63.93 °F	51.47 µS/cm	1.91 mg/L	82.69 NTU	35.7 mV	250.00 ml/min
10/21/2020 1:00 PM	03:00	5.92 pH	63.29 °F	50.91 µS/cm	1.34 mg/L	60.22 NTU	86.3 mV	250.00 ml/min
10/21/2020 1:03 PM	06:00	6.01 pH	63.20 °F	49.52 µS/cm	1.32 mg/L	31.37 NTU	105.6 mV	250.00 ml/min
10/21/2020 1:06 PM	09:00	6.01 pH	63.53 °F	48.83 µS/cm	1.35 mg/L	16.29 NTU	111.9 mV	250.00 ml/min
10/21/2020 1:09 PM	12:00	6.00 pH	63.60 °F	48.53 µS/cm	1.24 mg/L	26.73 NTU	122.5 mV	250.00 ml/min
10/21/2020 1:12 PM	15:00	6.01 pH	63.66 °F	48.40 µS/cm	1.26 mg/L	15.70 NTU	125.1 mV	250.00 ml/min
10/21/2020 1:15 PM	18:00	6.03 pH	63.61 °F	47.18 µS/cm	1.16 mg/L	19.28 NTU	125.8 mV	250.00 ml/min
10/21/2020 1:18 PM	21:00	5.97 pH	63.66 °F	46.79 µS/cm	1.14 mg/L	9.28 NTU	134.5 mV	250.00 ml/min
10/21/2020 1:21 PM	24:00	6.04 pH	63.76 °F	46.52 µS/cm	1.13 mg/L	8.67 NTU	134.2 mV	250.00 ml/min
10/21/2020 1:24 PM	27:00	6.04 pH	63.77 °F	45.82 µS/cm	1.11 mg/L	5.94 NTU	138.0 mV	250.00 ml/min

## Samples

Sample ID:	Description:
MW-2	13:27

# Low-Flow Test Report:

Test Date / Time: 10/21/2020 1:02:29 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-21</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 11.5 ft</b> <b>Initial Depth to Water: 3.05 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 9750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.89

## Weather Conditions:

60 partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/21/2020 1:02 PM	00:00	6.02 pH	63.61 °F	41.81 µS/cm	5.91 mg/L	71.63 NTU	41.8 mV	3.05 ft	250.00 ml/min
10/21/2020 1:05 PM	03:00	5.80 pH	64.84 °F	38.01 µS/cm	1.56 mg/L	68.51 NTU	57.6 mV	3.05 ft	250.00 ml/min
10/21/2020 1:08 PM	06:00	5.80 pH	65.19 °F	37.84 µS/cm	1.24 mg/L	35.32 NTU	60.3 mV	3.05 ft	250.00 ml/min
10/21/2020 1:11 PM	09:00	5.81 pH	65.34 °F	37.24 µS/cm	1.15 mg/L	37.13 NTU	55.3 mV	3.05 ft	250.00 ml/min
10/21/2020 1:14 PM	12:00	5.86 pH	65.40 °F	37.42 µS/cm	1.05 mg/L	10.90 NTU	48.2 mV	3.05 ft	250.00 ml/min
10/21/2020 1:17 PM	15:00	5.89 pH	65.50 °F	37.92 µS/cm	0.90 mg/L	5.81 NTU	39.7 mV	3.05 ft	250.00 ml/min
10/21/2020 1:20 PM	18:00	5.90 pH	65.60 °F	38.04 µS/cm	0.75 mg/L	8.11 NTU	27.8 mV	3.05 ft	250.00 ml/min
10/21/2020 1:23 PM	21:00	5.93 pH	65.36 °F	38.30 µS/cm	0.57 mg/L	6.20 NTU	15.6 mV	3.05 ft	250.00 ml/min
10/21/2020 1:26 PM	24:00	5.93 pH	65.41 °F	38.60 µS/cm	0.49 mg/L	6.82 NTU	8.8 mV	3.05 ft	250.00 ml/min
10/21/2020 1:29 PM	27:00	5.96 pH	65.44 °F	39.14 µS/cm	0.44 mg/L	6.77 NTU	0.3 mV	3.05 ft	250.00 ml/min
10/21/2020 1:32 PM	30:00	5.96 pH	65.62 °F	39.19 µS/cm	0.42 mg/L	6.59 NTU	-9.1 mV	3.05 ft	250.00 ml/min
10/21/2020 1:35 PM	33:00	5.97 pH	65.57 °F	39.20 µS/cm	0.45 mg/L	8.08 NTU	-16.3 mV	3.05 ft	250.00 ml/min
10/21/2020 1:38 PM	36:00	5.97 pH	65.54 °F	39.36 µS/cm	0.42 mg/L	12.32 NTU	-20.7 mV	3.05 ft	250.00 ml/min

10/21/2020 1:41 PM	39:00	5.97 pH	65.51 °F	39.45 µS/cm	0.41 mg/L	15.22 NTU	-23.8 mV	3.05 ft	250.00 ml/min
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## Samples

Sample ID:	Description:
MW-21	ST 1345
DUP-2	

# Low-Flow Test Report:

Test Date / Time: 10/21/2020 2:02:43 PM

Project: Kinder Morgan Liquid Terminals, LLC (11)

Operator Name:

<b>Location Name: MW-22</b>	<b>Estimated Total Volume Pumped: 11250 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 8.64 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/21/2020 2:02 PM	00:00	6.42 pH	64.82 °F	258.69 µS/cm	1.24 mg/L	136.96 NTU	-64.4 mV	250.00 ml/min
10/21/2020 2:05 PM	03:00	6.26 pH	64.86 °F	217.51 µS/cm	0.32 mg/L	8.24 NTU	-23.7 mV	250.00 ml/min
10/21/2020 2:08 PM	06:00	6.25 pH	64.94 °F	205.79 µS/cm	0.14 mg/L	11.04 NTU	-18.2 mV	250.00 ml/min
10/21/2020 2:11 PM	09:00	6.28 pH	65.09 °F	197.57 µS/cm	0.19 mg/L	6.34 NTU	-18.5 mV	250.00 ml/min
10/21/2020 2:14 PM	12:00	6.27 pH	65.09 °F	201.90 µS/cm	0.11 mg/L	12.07 NTU	-22.7 mV	250.00 ml/min
10/21/2020 2:17 PM	15:00	6.24 pH	65.23 °F	206.14 µS/cm	0.15 mg/L	4.76 NTU	-24.1 mV	250.00 ml/min
10/21/2020 2:20 PM	18:00	6.26 pH	65.52 °F	203.15 µS/cm	0.09 mg/L	8.39 NTU	-27.8 mV	250.00 ml/min
10/21/2020 2:23 PM	21:00	6.24 pH	65.56 °F	199.94 µS/cm	0.12 mg/L	2.78 NTU	-27.0 mV	250.00 ml/min
10/21/2020 2:26 PM	24:00	6.23 pH	65.50 °F	197.48 µS/cm	0.08 mg/L	1.59 NTU	-29.8 mV	250.00 ml/min
10/21/2020 2:29 PM	27:00	6.24 pH	65.58 °F	191.65 µS/cm	0.13 mg/L	0.43 NTU	-32.1 mV	250.00 ml/min
10/21/2020 2:32 PM	30:00	6.27 pH	65.41 °F	188.48 µS/cm	0.08 mg/L	0.61 NTU	-35.8 mV	250.00 ml/min
10/21/2020 2:35 PM	33:00	6.26 pH	65.42 °F	186.04 µS/cm	0.11 mg/L	0.08 NTU	-35.8 mV	250.00 ml/min
10/21/2020 2:38 PM	36:00	6.26 pH	65.52 °F	185.46 µS/cm	0.07 mg/L	0.86 NTU	-35.8 mV	250.00 ml/min
10/21/2020 2:41 PM	39:00	6.30 pH	65.89 °F	182.22 µS/cm	0.10 mg/L	0.28 NTU	-38.2 mV	250.00 ml/min
10/21/2020 2:44 PM	42:00	6.30 pH	65.84 °F	182.75 µS/cm	0.06 mg/L	0.29 NTU	-40.2 mV	250.00 ml/min
10/21/2020 2:47 PM	45:00	6.29 pH	66.06 °F	183.03 µS/cm	0.10 mg/L	0.10 NTU	-40.5 mV	250.00 ml/min

**Samples**

Sample ID:	Description:
MW-22	14:50



# Low-Flow Test Report:

Test Date / Time: 10/21/2020 2:34:27 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: TMW-6</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 14 m</b> <b>Initial Depth to Water: 2.85 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 15000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.01

## Weather Conditions:

60 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/21/2020 2:34 PM	00:00	6.52 pH	61.73 °F	144.75 µS/cm	10.31 mg/L	416.46 NTU	29.1 mV	2.85 ft	250.00 ml/min
10/21/2020 2:37 PM	03:00	6.83 pH	62.14 °F	195.63 µS/cm	9.78 mg/L	407.05 NTU	25.0 mV	2.85 ft	250.00 ml/min
10/21/2020 2:40 PM	06:00	6.79 pH	62.53 °F	541.46 µS/cm	8.16 mg/L	277.85 NTU	15.2 mV	2.85 ft	250.00 ml/min
10/21/2020 2:43 PM	09:00	6.75 pH	62.91 °F	1,055.1 µS/cm	6.99 mg/L	177.21 NTU	-19.3 mV	2.85 ft	250.00 ml/min
10/21/2020 2:46 PM	12:00	6.75 pH	63.12 °F	1,281.1 µS/cm	4.48 mg/L	125.98 NTU	-49.9 mV	2.85 ft	250.00 ml/min
10/21/2020 2:49 PM	15:00	6.75 pH	63.51 °F	1,437.7 µS/cm	3.13 mg/L	84.03 NTU	-74.9 mV	2.85 ft	250.00 ml/min
10/21/2020 2:52 PM	18:00	6.74 pH	63.50 °F	1,509.9 µS/cm	1.99 mg/L	81.31 NTU	-92.3 mV	2.85 ft	250.00 ml/min
10/21/2020 2:55 PM	21:00	6.76 pH	63.60 °F	1,550.1 µS/cm	1.28 mg/L	62.95 NTU	-105.3 mV	2.85 ft	250.00 ml/min
10/21/2020 2:58 PM	24:00	6.74 pH	63.44 °F	1,618.5 µS/cm	1.78 mg/L	57.06 NTU	-113.1 mV	2.85 ft	250.00 ml/min
10/21/2020 3:01 PM	27:00	6.75 pH	63.38 °F	1,655.3 µS/cm	1.32 mg/L	51.35 NTU	-119.2 mV	2.85 ft	250.00 ml/min
10/21/2020 3:04 PM	30:00	6.74 pH	63.35 °F	1,657.9 µS/cm	1.47 mg/L	52.07 NTU	-125.3 mV	2.85 ft	250.00 ml/min
10/21/2020 3:07 PM	33:00	6.75 pH	63.33 °F	1,715.1 µS/cm	1.02 mg/L	52.99 NTU	-130.5 mV	2.85 ft	250.00 ml/min
10/21/2020 3:10 PM	36:00	6.75 pH	63.22 °F	1,702.4 µS/cm	0.64 mg/L	48.30 NTU	-135.9 mV	2.85 ft	250.00 ml/min

10/21/2020 3:13 PM	39:00	6.75 pH	63.13 °F	1,717.7 µS/cm	0.45 mg/L	49.08 NTU	-139.6 mV	2.85 ft	250.00 ml/min
10/21/2020 3:16 PM	42:00	6.76 pH	63.07 °F	1,725.1 µS/cm	0.35 mg/L	44.41 NTU	-142.6 mV	2.85 ft	250.00 ml/min
10/21/2020 3:19 PM	45:00	6.76 pH	63.07 °F	1,743.5 µS/cm	0.30 mg/L	45.76 NTU	-145.6 mV	2.85 ft	250.00 ml/min
10/21/2020 3:22 PM	48:00	6.76 pH	63.08 °F	1,752.2 µS/cm	0.26 mg/L	43.60 NTU	-148.1 mV	2.85 ft	250.00 ml/min
10/21/2020 3:25 PM	51:00	6.77 pH	63.01 °F	1,763.9 µS/cm	0.24 mg/L	41.11 NTU	-150.7 mV	2.85 ft	250.00 ml/min
10/21/2020 3:28 PM	54:00	6.77 pH	63.07 °F	1,772.1 µS/cm	0.22 mg/L	37.85 NTU	-153.1 mV	2.85 ft	250.00 ml/min
10/21/2020 3:31 PM	57:00	6.77 pH	63.07 °F	1,785.6 µS/cm	0.21 mg/L	38.66 NTU	-155.1 mV	2.85 ft	250.00 ml/min
10/21/2020 3:34 PM	01:00:00	6.77 pH	63.01 °F	1,782.2 µS/cm	0.20 mg/L	100.01 NTU	-155.5 mV	2.85 ft	250.00 ml/min

## Samples

Sample ID:	Description:
TMW-6	ST 1535

# Low-Flow Test Report:

Test Date / Time: 10/21/2020 3:09:51 PM

Project: Kinder Morgan Liquid Terminals, LLC (12)

Operator Name:

<b>Location Name: MW-18</b>	<b>Estimated Total Volume Pumped: 12000 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.54 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/21/2020 3:09 PM	00:00	6.80 pH	64.95 °F	157.45 µS/cm	0.65 mg/L	915.31 NTU	-81.1 mV	250.00 ml/min
10/21/2020 3:12 PM	03:00	6.67 pH	65.15 °F	153.59 µS/cm	0.21 mg/L	359.80 NTU	-70.5 mV	250.00 ml/min
10/21/2020 3:15 PM	06:00	6.79 pH	64.94 °F	147.61 µS/cm	0.14 mg/L	224.28 NTU	-83.5 mV	250.00 ml/min
10/21/2020 3:18 PM	09:00	6.77 pH	64.47 °F	146.15 µS/cm	0.18 mg/L	162.89 NTU	-82.9 mV	250.00 ml/min
10/21/2020 3:21 PM	12:00	6.69 pH	64.14 °F	138.64 µS/cm	0.13 mg/L	112.51 NTU	-71.8 mV	250.00 ml/min
10/21/2020 3:24 PM	15:00	6.74 pH	63.98 °F	140.08 µS/cm	0.15 mg/L	78.00 NTU	-78.6 mV	250.00 ml/min
10/21/2020 3:27 PM	18:00	6.66 pH	64.24 °F	139.26 µS/cm	0.13 mg/L	52.69 NTU	-70.8 mV	250.00 ml/min
10/21/2020 3:30 PM	21:00	6.71 pH	63.95 °F	140.27 µS/cm	0.21 mg/L	74.65 NTU	-73.2 mV	250.00 ml/min
10/21/2020 3:33 PM	24:00	6.73 pH	63.95 °F	139.93 µS/cm	0.11 mg/L	39.31 NTU	-74.9 mV	250.00 ml/min
10/21/2020 3:36 PM	27:00	6.66 pH	63.79 °F	138.81 µS/cm	0.15 mg/L	45.74 NTU	-69.0 mV	250.00 ml/min
10/21/2020 3:39 PM	30:00	6.70 pH	63.72 °F	142.43 µS/cm	0.10 mg/L	29.70 NTU	-70.7 mV	250.00 ml/min
10/21/2020 3:42 PM	33:00	6.69 pH	63.92 °F	138.78 µS/cm	0.14 mg/L	30.92 NTU	-73.7 mV	250.00 ml/min
10/21/2020 3:45 PM	36:00	6.74 pH	64.14 °F	139.10 µS/cm	0.10 mg/L	19.56 NTU	-75.7 mV	250.00 ml/min
10/21/2020 3:48 PM	39:00	6.74 pH	63.95 °F	137.95 µS/cm	0.19 mg/L	22.26 NTU	-75.6 mV	250.00 ml/min
10/21/2020 3:51 PM	42:00	6.79 pH	63.76 °F	138.78 µS/cm	0.09 mg/L	13.47 NTU	-82.0 mV	250.00 ml/min
10/21/2020 3:54 PM	45:00	6.74 pH	63.66 °F	138.29 µS/cm	0.11 mg/L	16.09 NTU	-78.0 mV	250.00 ml/min
10/21/2020 3:57 PM	48:00	6.78 pH	63.69 °F	140.71 µS/cm	0.09 mg/L	10.23 NTU	-79.4 mV	250.00 ml/min

**Samples**

Sample ID:	Description:
MW-18	15:58

# Low-Flow Test Report:

Test Date / Time: 10/21/2020 4:02:23 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-20</b> <b>Well Diameter: 2 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 11.5 m</b> <b>Initial Depth to Water: 3.52 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 7 ft</b> <b>Estimated Total Volume Pumped: 11250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.53

## Weather Conditions:

60 partly cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/21/2020 4:02 PM	00:00	7.13 pH	64.46 °F	202.82 µS/cm	7.90 mg/L	115.27 NTU	-58.6 mV	3.52 ft	250.00 ml/min
10/21/2020 4:05 PM	03:00	6.98 pH	67.07 °F	179.76 µS/cm	0.98 mg/L	24.72 NTU	-50.4 mV	3.52 ft	250.00 ml/min
10/21/2020 4:08 PM	06:00	6.97 pH	67.43 °F	176.70 µS/cm	0.51 mg/L	19.90 NTU	-46.0 mV	3.52 ft	250.00 ml/min
10/21/2020 4:11 PM	09:00	6.96 pH	67.85 °F	177.23 µS/cm	0.38 mg/L	14.80 NTU	-98.2 mV	3.52 ft	250.00 ml/min
10/21/2020 4:14 PM	12:00	6.95 pH	67.93 °F	177.97 µS/cm	0.33 mg/L	12.27 NTU	-103.1 mV	3.52 ft	250.00 ml/min
10/21/2020 4:17 PM	15:00	6.94 pH	68.06 °F	174.25 µS/cm	0.29 mg/L	10.18 NTU	-106.9 mV	3.52 ft	250.00 ml/min
10/21/2020 4:20 PM	18:00	6.93 pH	68.47 °F	179.80 µS/cm	0.21 mg/L	9.45 NTU	-110.9 mV	3.52 ft	250.00 ml/min
10/21/2020 4:23 PM	21:00	6.95 pH	68.80 °F	177.52 µS/cm	0.67 mg/L	10.14 NTU	-112.6 mV	3.52 ft	250.00 ml/min
10/21/2020 4:26 PM	24:00	6.95 pH	68.53 °F	178.76 µS/cm	0.56 mg/L	13.03 NTU	-112.2 mV	3.52 ft	250.00 ml/min
10/21/2020 4:29 PM	27:00	6.94 pH	68.57 °F	174.63 µS/cm	0.50 mg/L	12.03 NTU	-111.7 mV	3.52 ft	250.00 ml/min
10/21/2020 4:32 PM	30:00	6.94 pH	68.96 °F	170.83 µS/cm	0.36 mg/L	13.61 NTU	-113.8 mV	3.52 ft	250.00 ml/min
10/21/2020 4:35 PM	33:00	6.97 pH	68.56 °F	178.38 µS/cm	0.42 mg/L	7.03 NTU	-120.8 mV	3.52 ft	250.00 ml/min
10/21/2020 4:38 PM	36:00	6.96 pH	68.41 °F	172.00 µS/cm	0.23 mg/L	6.38 NTU	-124.1 mV	3.52 ft	250.00 ml/min

10/21/2020 4:41 PM	39:00	6.95 pH	68.34 °F	175.56 µS/cm	0.20 mg/L	23.61 NTU	-124.5 mV	3.52 ft	250.00 ml/min
10/21/2020 4:44 PM	42:00	6.95 pH	68.21 °F	176.75 µS/cm	0.18 mg/L	13.00 NTU	-122.3 mV	3.52 ft	250.00 ml/min
10/21/2020 4:47 PM	45:00	6.94 pH	68.20 °F	173.83 µS/cm	0.18 mg/L	14.79 NTU	-119.0 mV	3.52 ft	250.00 ml/min

## Samples

Sample ID:	Description:
MW-20	ST 1650

# Low-Flow Test Report:

Test Date / Time: 10/22/2020 9:23:03 AM

Project: Kinder Morgan Liquid Terminals, LLC (13)

Operator Name:

<b>Location Name: MW-23</b>	<b>Estimated Total Volume Pumped: 10500 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.71 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/22/2020 9:23 AM	00:00	6.31 pH	56.31 °F	1,017.5 µS/cm	1.66 mg/L	8.18 NTU	24.7 mV	250.00 ml/min
10/22/2020 9:26 AM	03:00	6.44 pH	59.11 °F	991.58 µS/cm	0.28 mg/L	8.03 NTU	-32.7 mV	250.00 ml/min
10/22/2020 9:29 AM	06:00	6.48 pH	60.11 °F	984.97 µS/cm	0.16 mg/L	10.20 NTU	-47.4 mV	250.00 ml/min
10/22/2020 9:32 AM	09:00	6.50 pH	60.62 °F	980.05 µS/cm	0.12 mg/L	13.70 NTU	-57.0 mV	250.00 ml/min
10/22/2020 9:35 AM	12:00	6.50 pH	60.91 °F	977.31 µS/cm	0.10 mg/L	20.02 NTU	-61.4 mV	250.00 ml/min
10/22/2020 9:38 AM	15:00	6.50 pH	61.22 °F	971.84 µS/cm	0.08 mg/L	19.08 NTU	-67.1 mV	250.00 ml/min
10/22/2020 9:41 AM	18:00	6.51 pH	61.44 °F	976.38 µS/cm	0.07 mg/L	23.06 NTU	-68.8 mV	250.00 ml/min
10/22/2020 9:44 AM	21:00	6.51 pH	61.52 °F	974.97 µS/cm	0.07 mg/L	26.17 NTU	-73.2 mV	250.00 ml/min
10/22/2020 9:47 AM	24:00	6.51 pH	61.68 °F	968.74 µS/cm	0.07 mg/L	12.72 NTU	-75.5 mV	250.00 ml/min
10/22/2020 9:50 AM	27:00	6.51 pH	61.72 °F	965.49 µS/cm	0.07 mg/L	39.98 NTU	-77.7 mV	250.00 ml/min
10/22/2020 9:53 AM	30:00	6.52 pH	61.87 °F	963.39 µS/cm	0.06 mg/L	42.29 NTU	-78.9 mV	250.00 ml/min
10/22/2020 9:56 AM	33:00	6.52 pH	61.92 °F	961.51 µS/cm	0.06 mg/L	53.54 NTU	-80.4 mV	250.00 ml/min
10/22/2020 9:59 AM	36:00	6.51 pH	61.98 °F	958.87 µS/cm	0.07 mg/L	28.94 NTU	-81.3 mV	250.00 ml/min
10/22/2020 10:02 AM	39:00	6.52 pH	61.99 °F	956.69 µS/cm	0.07 mg/L	38.97 NTU	-83.1 mV	250.00 ml/min
10/22/2020 10:05 AM	42:00	6.52 pH	62.05 °F	956.98 µS/cm	0.09 mg/L	33.19 NTU	-84.2 mV	250.00 ml/min

## Samples

Sample ID:	Description:
MW-23	10:08

Created using VuSitu from In-Situ, Inc.



# Low-Flow Test Report:

Test Date / Time: 10/22/2020 9:28:19 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-24</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 15 ft</b> <b>Initial Depth to Water: 7.77 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 9750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 7.77

## Weather Conditions:

55 cloudy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/22/2020 9:28 AM	00:00	6.35 pH	60.04 °F	744.49 µS/cm	2.22 mg/L	34.05 NTU	-8.8 mV	7.77 ft	250.00 ml/min
10/22/2020 9:31 AM	03:00	6.46 pH	62.30 °F	752.41 µS/cm	0.52 mg/L	122.89 NTU	-55.2 mV	7.77 ft	250.00 ml/min
10/22/2020 9:34 AM	06:00	6.48 pH	62.93 °F	748.17 µS/cm	0.30 mg/L	277.32 NTU	-66.5 mV	7.77 ft	250.00 ml/min
10/22/2020 9:37 AM	09:00	6.49 pH	63.22 °F	750.52 µS/cm	0.21 mg/L	69.65 NTU	-69.6 mV	7.77 ft	250.00 ml/min
10/22/2020 9:40 AM	12:00	6.50 pH	63.29 °F	751.83 µS/cm	0.19 mg/L	41.36 NTU	-71.8 mV	7.77 ft	250.00 ml/min
10/22/2020 9:43 AM	15:00	6.50 pH	63.38 °F	753.17 µS/cm	0.16 mg/L	160.49 NTU	-74.2 mV	7.77 ft	250.00 ml/min
10/22/2020 9:46 AM	18:00	6.50 pH	63.40 °F	753.05 µS/cm	0.15 mg/L	289.74 NTU	-76.3 mV	7.77 ft	250.00 ml/min
10/22/2020 9:49 AM	21:00	6.50 pH	63.44 °F	753.62 µS/cm	0.11 mg/L	576.24 NTU	-78.7 mV	7.77 ft	250.00 ml/min
10/22/2020 9:52 AM	24:00	6.49 pH	63.39 °F	753.83 µS/cm	0.12 mg/L	294.99 NTU	-80.0 mV	7.77 ft	250.00 ml/min
10/22/2020 9:55 AM	27:00	6.50 pH	63.49 °F	755.60 µS/cm	0.13 mg/L	174.88 NTU	-81.5 mV	7.77 ft	250.00 ml/min
10/22/2020 9:58 AM	30:00	6.50 pH	63.27 °F	744.58 µS/cm	0.17 mg/L	250.50 NTU	-83.4 mV	7.77 ft	250.00 ml/min
10/22/2020 10:01 AM	33:00	6.50 pH	63.33 °F	748.22 µS/cm	0.13 mg/L	252.88 NTU	-84.2 mV	7.77 ft	250.00 ml/min
10/22/2020 10:04 AM	36:00	6.50 pH	63.26 °F	746.81 µS/cm	0.12 mg/L	262.25 NTU	-84.8 mV	7.77 ft	250.00 ml/min

10/22/2020 10:07 AM	39:00	6.50 pH	63.18 °F	746.57 µS/cm	0.12 mg/L	257.40 NTU	-85.6 mV	7.77 ft	250.00 ml/min
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## Samples

Sample ID:	Description:
MW-24	ST 1007

# Low-Flow Test Report:

Test Date / Time: 10/22/2020 10:52:58 AM

Project: Kinder Morgan Liquid Terminals, LLC (14)

Operator Name:

<b>Location Name: A-28R</b>	<b>Estimated Total Volume Pumped: 9000 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 8.38 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/22/2020 10:52 AM	00:00	6.43 pH	60.44 °F	586.85 µS/cm	2.44 mg/L	25.86 NTU	-62.2 mV	250.00 ml/min
10/22/2020 10:55 AM	03:00	6.46 pH	61.16 °F	577.98 µS/cm	0.45 mg/L	25.02 NTU	-80.0 mV	250.00 ml/min
10/22/2020 10:58 AM	06:00	6.47 pH	60.83 °F	578.76 µS/cm	0.44 mg/L	65.11 NTU	-81.1 mV	250.00 ml/min
10/22/2020 11:01 AM	09:00	6.47 pH	61.86 °F	573.56 µS/cm	0.23 mg/L	79.32 NTU	-84.7 mV	250.00 ml/min
10/22/2020 11:04 AM	12:00	6.47 pH	62.07 °F	570.67 µS/cm	0.17 mg/L	74.58 NTU	-85.8 mV	250.00 ml/min
10/22/2020 11:07 AM	15:00	6.47 pH	62.24 °F	568.86 µS/cm	0.14 mg/L	79.88 NTU	-85.9 mV	250.00 ml/min
10/22/2020 11:10 AM	18:00	6.47 pH	62.50 °F	565.36 µS/cm	0.11 mg/L	77.79 NTU	-86.7 mV	250.00 ml/min
10/22/2020 11:13 AM	21:00	6.47 pH	62.64 °F	565.26 µS/cm	0.10 mg/L	87.24 NTU	-86.9 mV	250.00 ml/min
10/22/2020 11:16 AM	24:00	6.47 pH	62.69 °F	564.81 µS/cm	0.09 mg/L	102.34 NTU	-87.3 mV	250.00 ml/min
10/22/2020 11:19 AM	27:00	6.47 pH	62.79 °F	561.27 µS/cm	0.08 mg/L	102.60 NTU	-87.8 mV	250.00 ml/min
10/22/2020 11:22 AM	30:00	6.47 pH	62.85 °F	561.57 µS/cm	0.08 mg/L	105.56 NTU	-88.4 mV	250.00 ml/min
10/22/2020 11:25 AM	33:00	6.48 pH	62.90 °F	558.55 µS/cm	0.07 mg/L	22.03 NTU	-88.6 mV	250.00 ml/min
10/22/2020 11:28 AM	36:00	6.47 pH	62.84 °F	558.62 µS/cm	0.07 mg/L	25.43 NTU	-88.8 mV	250.00 ml/min

## Samples

Sample ID:	Description:
A-28R	11:30



# Low-Flow Test Report:

Test Date / Time: 10/22/2020 10:53:00 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: A-27</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 18 ft</b> <b>Initial Depth to Water: 10.83 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 14 ft</b> <b>Estimated Total Volume Pumped: 15000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 10.84

## Weather Conditions:

55 overcast

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/22/2020 10:53 AM	00:00	6.42 pH	59.38 °F	235.16 µS/cm	5.98 mg/L	29.38 NTU	5.2 mV	10.83 ft	250.00 ml/min
10/22/2020 10:56 AM	03:00	6.34 pH	61.31 °F	225.57 µS/cm	0.81 mg/L	26.79 NTU	-31.4 mV	10.83 ft	250.00 ml/min
10/22/2020 10:59 AM	06:00	6.34 pH	61.96 °F	223.78 µS/cm	0.73 mg/L	27.10 NTU	-43.1 mV	10.83 ft	250.00 ml/min
10/22/2020 11:02 AM	09:00	6.34 pH	62.26 °F	221.01 µS/cm	0.52 mg/L	25.63 NTU	-49.6 mV	10.83 ft	250.00 ml/min
10/22/2020 11:05 AM	12:00	6.33 pH	62.44 °F	219.53 µS/cm	0.73 mg/L	23.05 NTU	-54.1 mV	10.83 ft	250.00 ml/min
10/22/2020 11:08 AM	15:00	6.33 pH	62.72 °F	218.52 µS/cm	0.36 mg/L	22.52 NTU	-57.5 mV	10.83 ft	250.00 ml/min
10/22/2020 11:11 AM	18:00	6.33 pH	62.99 °F	216.89 µS/cm	0.31 mg/L	22.21 NTU	-60.1 mV	10.83 ft	250.00 ml/min
10/22/2020 11:14 AM	21:00	6.33 pH	63.18 °F	214.55 µS/cm	0.26 mg/L	22.03 NTU	-62.4 mV	10.83 ft	250.00 ml/min
10/22/2020 11:17 AM	24:00	6.33 pH	63.27 °F	211.81 µS/cm	0.27 mg/L	20.83 NTU	-64.3 mV	10.83 ft	250.00 ml/min
10/22/2020 11:20 AM	27:00	6.34 pH	63.32 °F	210.51 µS/cm	0.42 mg/L	47.66 NTU	-66.5 mV	10.83 ft	250.00 ml/min
10/22/2020 11:23 AM	30:00	6.34 pH	63.49 °F	209.59 µS/cm	0.51 mg/L	44.80 NTU	-67.8 mV	10.83 ft	250.00 ml/min
10/22/2020 11:26 AM	33:00	6.35 pH	63.45 °F	211.23 µS/cm	0.39 mg/L	44.37 NTU	-69.1 mV	10.83 ft	250.00 ml/min
10/22/2020 11:29 AM	36:00	6.34 pH	63.57 °F	209.77 µS/cm	0.39 mg/L	9.69 NTU	-66.9 mV	10.83 ft	250.00 ml/min

10/22/2020 11:32 AM	39:00	6.36 pH	63.61 °F	215.70 µS/cm	0.20 mg/L	7.85 NTU	-69.9 mV	10.83 ft	250.00 ml/min
10/22/2020 11:35 AM	42:00	6.36 pH	63.68 °F	218.22 µS/cm	0.16 mg/L	8.38 NTU	-71.7 mV	10.83 ft	250.00 ml/min
10/22/2020 11:38 AM	45:00	6.36 pH	63.59 °F	223.15 µS/cm	0.15 mg/L	9.52 NTU	-73.5 mV	10.83 ft	250.00 ml/min
10/22/2020 11:41 AM	48:00	6.36 pH	63.78 °F	229.16 µS/cm	0.14 mg/L	10.11 NTU	-75.6 mV	10.83 ft	250.00 ml/min
10/22/2020 11:44 AM	51:00	6.35 pH	63.95 °F	217.83 µS/cm	0.13 mg/L	10.56 NTU	-76.1 mV	10.83 ft	250.00 ml/min
10/22/2020 11:47 AM	54:00	6.38 pH	63.87 °F	230.63 µS/cm	0.14 mg/L	10.01 NTU	-77.7 mV	10.83 ft	250.00 ml/min
10/22/2020 11:50 AM	57:00	6.39 pH	63.94 °F	240.03 µS/cm	0.21 mg/L	14.58 NTU	-80.2 mV	10.83 ft	250.00 ml/min
10/22/2020 11:53 AM	01:00:00	6.41 pH	63.95 °F	258.05 µS/cm	0.34 mg/L	12.42 NTU	-82.1 mV	10.83 ft	250.00 ml/min

## Samples

Sample ID:	Description:
A-27	ST 1155

# Low-Flow Test Report:

Test Date / Time: 10/22/2020 12:21:31 PM

Project: Kinder Morgan Liquid Terminals, LLC (15)

Operator Name:

<b>Location Name: TMW-B1</b>	<b>Estimated Total Volume Pumped: 8250 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 8.28 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/22/2020 12:21 PM	00:00	6.53 pH	62.70 °F	325.16 µS/cm	4.13 mg/L	105.76 NTU	-30.9 mV	250.00 ml/min
10/22/2020 12:24 PM	03:00	6.66 pH	64.09 °F	346.30 µS/cm	0.29 mg/L	106.99 NTU	-64.5 mV	250.00 ml/min
10/22/2020 12:27 PM	06:00	6.71 pH	64.33 °F	421.27 µS/cm	0.16 mg/L	101.89 NTU	-77.3 mV	250.00 ml/min
10/22/2020 12:30 PM	09:00	6.72 pH	64.38 °F	447.61 µS/cm	0.12 mg/L	113.53 NTU	-83.9 mV	250.00 ml/min
10/22/2020 12:33 PM	12:00	6.73 pH	64.28 °F	454.14 µS/cm	0.11 mg/L	98.98 NTU	-86.6 mV	250.00 ml/min
10/22/2020 12:36 PM	15:00	6.72 pH	64.48 °F	457.09 µS/cm	0.10 mg/L	166.41 NTU	-88.2 mV	250.00 ml/min
10/22/2020 12:39 PM	18:00	6.72 pH	64.35 °F	458.78 µS/cm	0.08 mg/L	66.93 NTU	-89.0 mV	250.00 ml/min
10/22/2020 12:42 PM	21:00	6.72 pH	64.26 °F	457.66 µS/cm	0.07 mg/L	154.44 NTU	-90.2 mV	250.00 ml/min
10/22/2020 12:45 PM	24:00	6.72 pH	64.32 °F	450.67 µS/cm	0.06 mg/L	162.52 NTU	-90.9 mV	250.00 ml/min
10/22/2020 12:48 PM	27:00	6.72 pH	64.27 °F	451.96 µS/cm	0.06 mg/L	136.54 NTU	-91.7 mV	250.00 ml/min
10/22/2020 12:51 PM	30:00	6.73 pH	64.17 °F	447.17 µS/cm	0.06 mg/L	113.78 NTU	-92.4 mV	250.00 ml/min
10/22/2020 12:54 PM	33:00	6.72 pH	64.15 °F	448.63 µS/cm	0.05 mg/L	198.39 NTU	-92.5 mV	250.00 ml/min

## Samples

Sample ID:	Description:
TMW-B1	12:56





# Low-Flow Test Report:

Test Date / Time: 10/22/2020 2:41:10 PM

Project: Kinder Morgan Liquid Terminals, LLC (16)

Operator Name:

<b>Location Name: MW-1</b>	<b>Estimated Total Volume Pumped: 6000 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 5.91 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/22/2020 2:41 PM	00:00	6.28 pH	59.28 °F	327.48 µS/cm	2.70 mg/L	315.97 NTU	5.9 mV	250.00 ml/min
10/22/2020 2:44 PM	03:00	6.28 pH	60.28 °F	324.47 µS/cm	0.22 mg/L	26.78 NTU	0.3 mV	250.00 ml/min
10/22/2020 2:47 PM	06:00	6.27 pH	60.57 °F	325.94 µS/cm	0.16 mg/L	18.34 NTU	-2.2 mV	250.00 ml/min
10/22/2020 2:50 PM	09:00	6.27 pH	60.80 °F	329.71 µS/cm	0.14 mg/L	78.55 NTU	-6.3 mV	250.00 ml/min
10/22/2020 2:53 PM	12:00	6.27 pH	60.95 °F	332.38 µS/cm	0.13 mg/L	13.18 NTU	-9.0 mV	250.00 ml/min
10/22/2020 2:56 PM	15:00	6.27 pH	61.03 °F	335.75 µS/cm	0.11 mg/L	2.47 NTU	-11.7 mV	250.00 ml/min
10/22/2020 2:59 PM	18:00	6.27 pH	61.12 °F	338.50 µS/cm	0.10 mg/L	11.69 NTU	-13.5 mV	250.00 ml/min
10/22/2020 3:02 PM	21:00	6.27 pH	61.15 °F	344.04 µS/cm	0.10 mg/L	2.24 NTU	-15.8 mV	250.00 ml/min
10/22/2020 3:05 PM	24:00	6.27 pH	61.22 °F	347.40 µS/cm	0.10 mg/L	10.48 NTU	-18.3 mV	250.00 ml/min

## Samples

Sample ID:	Description:
MW-1	15:06

# Low-Flow Test Report:

Test Date / Time: 10/22/2020 2:56:14 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-3</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 3.62 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 8 ft</b> <b>Estimated Total Volume Pumped: 3000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 3.61

## Weather Conditions:

55 sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/22/2020 2:56 PM	00:00	6.98 pH	59.73 °F	187.41 µS/cm	7.60 mg/L	0.16 NTU	43.5 mV	3.62 ft	250.00 ml/min
10/22/2020 2:59 PM	03:00	7.17 pH	61.67 °F	179.90 µS/cm	5.13 mg/L	0.71 NTU	19.4 mV	3.62 ft	250.00 ml/min
10/22/2020 3:02 PM	06:00	7.22 pH	62.30 °F	178.37 µS/cm	4.93 mg/L	0.00 NTU	10.9 mV	3.62 ft	250.00 ml/min
10/22/2020 3:05 PM	09:00	7.23 pH	62.64 °F	177.91 µS/cm	4.87 mg/L	1.08 NTU	8.5 mV	3.62 ft	250.00 ml/min
10/22/2020 3:08 PM	12:00	7.24 pH	62.87 °F	177.56 µS/cm	4.84 mg/L	1.85 NTU	9.0 mV	3.62 ft	250.00 ml/min

## Samples

Sample ID:	Description:
MW-3	ST 1510

# Low-Flow Test Report:

**Test Date / Time:** 10/22/2020 3:30:11 PM

**Project:** Kinder Morgan Liquid Terminals, LLC (17)

**Operator Name:**

<b>Location Name: MW-16</b>	<b>Estimated Total Volume Pumped: 4100 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.56 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/22/2020 3:30 PM	00:00	6.32 pH	63.08 °F	345.44 µS/cm	2.69 mg/L	104.67 NTU	44.2 mV	250.00 ml/min
10/22/2020 3:33 PM	03:00	6.33 pH	64.35 °F	345.93 µS/cm	0.59 mg/L	16.62 NTU	78.8 mV	250.00 ml/min
10/22/2020 3:36 PM	06:00	6.31 pH	64.66 °F	354.26 µS/cm	0.59 mg/L	20.15 NTU	89.3 mV	250.00 ml/min
10/22/2020 3:40 PM	10:24	6.32 pH	64.88 °F	355.20 µS/cm	0.42 mg/L	19.06 NTU	95.9 mV	250.00 ml/min
10/22/2020 3:43 PM	13:24	6.32 pH	65.00 °F	355.65 µS/cm	0.39 mg/L	23.61 NTU	99.9 mV	250.00 ml/min
10/22/2020 3:46 PM	16:24	6.32 pH	65.07 °F	357.40 µS/cm	0.40 mg/L	14.59 NTU	102.4 mV	250.00 ml/min

## Samples

Sample ID:	Description:
MW-16	15:48

# Low-Flow Test Report:

Test Date / Time: 10/22/2020 3:43:25 PM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: MW-6</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 13 ft</b> <b>Initial Depth to Water: 7.56 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 10 ft</b> <b>Estimated Total Volume Pumped: 6000 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 7.56

## Weather Conditions:

60 mostly sunny

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/22/2020 3:43 PM	00:00	6.70 pH	64.11 °F	429.02 µS/cm	3.60 mg/L	37.38 NTU	39.3 mV	7.56 ft	250.00 ml/min
10/22/2020 3:46 PM	03:00	6.81 pH	65.13 °F	426.01 µS/cm	1.23 mg/L	21.99 NTU	29.4 mV	7.56 ft	250.00 ml/min
10/22/2020 3:49 PM	06:00	6.82 pH	65.51 °F	423.99 µS/cm	0.90 mg/L	11.91 NTU	27.4 mV	7.56 ft	250.00 ml/min
10/22/2020 3:52 PM	09:00	6.82 pH	65.88 °F	424.38 µS/cm	0.80 mg/L	12.48 NTU	22.5 mV	7.56 ft	250.00 ml/min
10/22/2020 3:55 PM	12:00	6.81 pH	65.98 °F	423.82 µS/cm	0.67 mg/L	11.23 NTU	17.4 mV	7.56 ft	250.00 ml/min
10/22/2020 3:58 PM	15:00	6.83 pH	66.07 °F	422.74 µS/cm	0.60 mg/L	8.27 NTU	13.6 mV	7.56 ft	250.00 ml/min
10/22/2020 4:01 PM	18:00	6.83 pH	66.10 °F	422.85 µS/cm	0.55 mg/L	5.51 NTU	10.0 mV	7.56 ft	250.00 ml/min
10/22/2020 4:04 PM	21:00	6.83 pH	66.13 °F	424.24 µS/cm	0.54 mg/L	3.63 NTU	7.5 mV	7.56 ft	250.00 ml/min
10/22/2020 4:07 PM	24:00	6.85 pH	66.15 °F	424.22 µS/cm	0.50 mg/L	3.97 NTU	3.7 mV	7.56 ft	250.00 ml/min

## Samples

Sample ID:	Description:
MW-6	ST 1610



# Low-Flow Test Report:

Test Date / Time: 10/23/2020 8:33:11 AM

Project: Kinder Morgan Liquid Terminals, LLC (18)

Operator Name:

<b>Location Name: A-14R</b>	<b>Estimated Total Volume Pumped: 9000 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.79 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/23/2020 8:33 AM	00:00	5.94 pH	56.75 °F	1,313.7 µS/cm	5.97 mg/L	86.53 NTU	101.7 mV	250.00 ml/min
10/23/2020 8:36 AM	03:00	6.52 pH	63.08 °F	1,530.1 µS/cm	0.35 mg/L	11.92 NTU	-52.2 mV	250.00 ml/min
10/23/2020 8:39 AM	06:00	6.62 pH	64.44 °F	1,705.7 µS/cm	0.19 mg/L	8.91 NTU	-71.1 mV	250.00 ml/min
10/23/2020 8:42 AM	09:00	6.68 pH	65.01 °F	1,903.8 µS/cm	0.17 mg/L	5.20 NTU	-87.7 mV	250.00 ml/min
10/23/2020 8:45 AM	12:00	6.73 pH	65.29 °F	2,092.8 µS/cm	0.13 mg/L	0.72 NTU	-104.9 mV	250.00 ml/min
10/23/2020 8:48 AM	15:00	6.75 pH	65.56 °F	2,251.4 µS/cm	0.15 mg/L	2.47 NTU	-114.9 mV	250.00 ml/min
10/23/2020 8:51 AM	18:00	6.77 pH	65.62 °F	2,277.2 µS/cm	0.12 mg/L	27.64 NTU	-123.4 mV	250.00 ml/min
10/23/2020 8:54 AM	21:00	6.78 pH	65.73 °F	2,366.3 µS/cm	0.15 mg/L	0.00 NTU	-129.5 mV	250.00 ml/min
10/23/2020 8:57 AM	24:00	6.79 pH	65.70 °F	2,352.4 µS/cm	0.10 mg/L	51.18 NTU	-133.5 mV	250.00 ml/min
10/23/2020 9:00 AM	27:00	6.79 pH	65.78 °F	2,368.0 µS/cm	0.15 mg/L	55.66 NTU	-135.3 mV	250.00 ml/min
10/23/2020 9:03 AM	30:00	6.80 pH	65.86 °F	2,415.7 µS/cm	0.12 mg/L	65.74 NTU	-135.1 mV	250.00 ml/min
10/23/2020 9:06 AM	33:00	6.80 pH	65.80 °F	2,440.8 µS/cm	0.12 mg/L	67.38 NTU	-135.4 mV	250.00 ml/min
10/23/2020 9:09 AM	36:00	6.82 pH	64.94 °F	2,446.1 µS/cm	0.11 mg/L	74.20 NTU	-131.0 mV	250.00 ml/min

## Samples

Sample ID:	Description:
A-14R	9:10



# Low-Flow Test Report:

Test Date / Time: 10/23/2020 8:39:10 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: A-21</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 14.5 ft</b> <b>Initial Depth to Water: 7.91 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 11 ft</b> <b>Estimated Total Volume Pumped: 4500 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 7.90

## Weather Conditions:

50 rainy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/23/2020 8:39 AM	00:00	7.77 pH	55.42 °F	1,139.2 µS/cm	7.58 mg/L	9.82 NTU	49.8 mV	7.91 ft	250.00 ml/min
10/23/2020 8:42 AM	03:00	7.87 pH	60.14 °F	975.32 µS/cm	0.52 mg/L	9.41 NTU	-76.7 mV	7.91 ft	250.00 ml/min
10/23/2020 8:45 AM	06:00	7.82 pH	61.27 °F	861.44 µS/cm	0.36 mg/L	8.82 NTU	-87.1 mV	7.91 ft	250.00 ml/min
10/23/2020 8:48 AM	09:00	7.74 pH	61.84 °F	798.50 µS/cm	0.28 mg/L	8.46 NTU	-86.1 mV	7.91 ft	250.00 ml/min
10/23/2020 8:51 AM	12:00	7.66 pH	62.10 °F	755.32 µS/cm	0.25 mg/L	14.78 NTU	-83.2 mV	7.91 ft	250.00 ml/min
10/23/2020 8:54 AM	15:00	7.61 pH	62.70 °F	765.42 µS/cm	0.25 mg/L	9.99 NTU	-81.7 mV	7.91 ft	250.00 ml/min
10/23/2020 8:57 AM	18:00	7.57 pH	63.04 °F	758.00 µS/cm	0.27 mg/L	9.75 NTU	-82.0 mV	7.91 ft	250.00 ml/min

## Samples

Sample ID:	Description:
A-21	ST 900



# Low-Flow Test Report:

Test Date / Time: 10/23/2020 9:32:15 AM

Project: Kinder Morgan Liquid Terminals, LLC (19)

Operator Name:

<b>Location Name: MW-25</b>	<b>Estimated Total Volume Pumped: 11250 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.49 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/23/2020 9:32 AM	00:00	6.35 pH	63.91 °F	835.59 µS/cm	0.64 mg/L	45.50 NTU	-88.2 mV	250.00 ml/min
10/23/2020 9:35 AM	03:00	6.41 pH	64.98 °F	883.36 µS/cm	0.21 mg/L	43.77 NTU	-102.8 mV	250.00 ml/min
10/23/2020 9:38 AM	06:00	6.49 pH	65.48 °F	1,028.1 µS/cm	0.13 mg/L	46.53 NTU	-110.4 mV	250.00 ml/min
10/23/2020 9:41 AM	09:00	6.52 pH	65.53 °F	1,053.8 µS/cm	0.09 mg/L	49.11 NTU	-113.8 mV	250.00 ml/min
10/23/2020 9:44 AM	12:00	6.53 pH	66.07 °F	1,090.7 µS/cm	0.07 mg/L	54.11 NTU	-114.2 mV	250.00 ml/min
10/23/2020 9:47 AM	15:00	6.55 pH	65.58 °F	1,111.9 µS/cm	0.07 mg/L	60.88 NTU	-115.9 mV	250.00 ml/min
10/23/2020 9:50 AM	18:00	6.55 pH	65.39 °F	1,142.1 µS/cm	0.08 mg/L	66.78 NTU	-113.9 mV	250.00 ml/min
10/23/2020 9:53 AM	21:00	6.54 pH	64.54 °F	1,081.4 µS/cm	0.06 mg/L	74.03 NTU	-111.0 mV	250.00 ml/min
10/23/2020 9:56 AM	24:00	6.54 pH	65.67 °F	1,135.3 µS/cm	0.06 mg/L	85.13 NTU	-110.2 mV	250.00 ml/min
10/23/2020 9:59 AM	27:00	6.52 pH	65.61 °F	1,103.4 µS/cm	0.06 mg/L	96.57 NTU	-107.9 mV	250.00 ml/min
10/23/2020 10:02 AM	30:00	6.56 pH	65.03 °F	1,175.0 µS/cm	0.06 mg/L	108.87 NTU	-106.1 mV	250.00 ml/min
10/23/2020 10:05 AM	33:00	6.55 pH	64.63 °F	1,186.0 µS/cm	0.07 mg/L	112.18 NTU	-104.1 mV	250.00 ml/min
10/23/2020 10:08 AM	36:00	6.55 pH	65.92 °F	1,228.1 µS/cm		126.47 NTU	-106.3 mV	250.00 ml/min
10/23/2020 10:11 AM	39:00	6.55 pH	65.87 °F	1,261.2 µS/cm		140.35 NTU	-105.2 mV	250.00 ml/min
10/23/2020 10:14 AM	42:00	6.56 pH	65.78 °F	1,328.4 µS/cm		155.63 NTU	-103.7 mV	250.00 ml/min
10/23/2020 10:17 AM	45:00	6.50 pH	65.87 °F	1,205.0 µS/cm		180.23 NTU	-102.1 mV	250.00 ml/min

**Samples**

Sample ID:	Description:
MW-25	10:20

# Low-Flow Test Report:

Test Date / Time: 10/23/2020 9:37:48 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: A-10</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 24 ft</b> <b>Initial Depth to Water: 7.06 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 16 ft</b> <b>Estimated Total Volume Pumped: 6750 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 7.06

## Weather Conditions:

55 rainy

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/23/2020 9:37 AM	00:00	6.67 pH	57.26 °F	19,477 µS/cm	8.93 mg/L	1,976.7 NTU	3.0 mV	7.06 ft	250.00 ml/min
10/23/2020 9:40 AM	03:00	7.10 pH	62.97 °F	19,991 µS/cm	2.17 mg/L	55.13 NTU	-102.4 mV	7.06 ft	250.00 ml/min
10/23/2020 9:43 AM	06:00	7.12 pH	64.29 °F	19,793 µS/cm	1.43 mg/L	52.89 NTU	-110.2 mV	7.06 ft	250.00 ml/min
10/23/2020 9:46 AM	09:00	7.14 pH	64.73 °F	19,693 µS/cm	0.99 mg/L	35.73 NTU	-113.1 mV	7.06 ft	250.00 ml/min
10/23/2020 9:49 AM	12:00	7.15 pH	65.28 °F	19,488 µS/cm	0.85 mg/L	70.36 NTU	-115.1 mV	7.06 ft	250.00 ml/min
10/23/2020 9:52 AM	15:00	7.15 pH	65.39 °F	19,548 µS/cm	0.61 mg/L	59.64 NTU	-118.4 mV	7.06 ft	250.00 ml/min
10/23/2020 9:55 AM	18:00	7.14 pH	65.67 °F	19,484 µS/cm	0.21 mg/L	37.33 NTU	-119.5 mV	7.06 ft	250.00 ml/min
10/23/2020 9:58 AM	21:00	7.14 pH	65.94 °F	19,390 µS/cm	0.17 mg/L	23.40 NTU	-119.3 mV	7.06 ft	250.00 ml/min
10/23/2020 10:01 AM	24:00	7.14 pH	66.05 °F	19,292 µS/cm	0.16 mg/L	40.85 NTU	-119.2 mV	7.06 ft	250.00 ml/min
10/23/2020 10:04 AM	27:00	7.13 pH	66.26 °F	19,205 µS/cm	0.16 mg/L	16.93 NTU	-119.2 mV	7.06 ft	250.00 ml/min

## Samples

Sample ID:	Description:
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A-10	ST 1005
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Created using VuSitu from In-Situ, Inc.

# Low-Flow Test Report:

**Test Date / Time:** 10/23/2020 10:36:09 AM

**Project:** Kinder Morgan Liquid Terminals, LLC (20)

**Operator Name:**

<b>Location Name: A-5</b>	<b>Estimated Total Volume Pumped: 3000 ml Flow Cell Volume: 130 ml Final Flow Rate: 250 ml/min Final Draw Down: 7.91 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented Serial Number: 469079</b>
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## Test Notes:

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10	
10/23/2020 10:36 AM	00:00	6.69 pH	62.31 °F	789.45 µS/cm		30.19 NTU	-67.1 mV	250.00 ml/min
10/23/2020 10:39 AM	03:00	6.75 pH	64.51 °F	804.63 µS/cm		51.89 NTU	-95.9 mV	250.00 ml/min
10/23/2020 10:42 AM	06:00	6.76 pH	65.07 °F	799.77 µS/cm		57.59 NTU	-101.1 mV	250.00 ml/min
10/23/2020 10:45 AM	09:00	6.78 pH	64.29 °F	799.22 µS/cm		59.26 NTU	-100.4 mV	250.00 ml/min
10/23/2020 10:48 AM	12:00	6.76 pH	64.44 °F	797.40 µS/cm		63.54 NTU	-102.0 mV	250.00 ml/min

## Samples

Sample ID:	Description:
A-5	10:50

# Low-Flow Test Report:

Test Date / Time: 10/23/2020 10:37:36 AM

Project: KMLT Harbor Island

Operator Name: L.Selleck

<b>Location Name: A-8</b> <b>Well Diameter: 4 in</b> <b>Casing Type: PVC</b> <b>Total Depth: 25 ft</b> <b>Initial Depth to Water: 8.02 ft</b>	<b>Pump Type: Peristaltic</b> <b>Tubing Type: Poly</b> <b>Pump Intake From TOC: 16 ft</b> <b>Estimated Total Volume Pumped: 8250 ml</b> <b>Flow Cell Volume: 130 ml</b> <b>Final Flow Rate: 250 ml/min</b> <b>Final Draw Down: 0 ft</b>	<b>Instrument Used: Aqua TROLL 600 Vented</b> <b>Serial Number: 467764</b>
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## Test Notes:

Final DTW 8.0

## Weather Conditions:

Rainy 55

## Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10	+/- 10		
10/23/2020 10:37 AM	00:00	7.43 pH	59.78 °F	791.74 µS/cm	8.63 mg/L	45.12 NTU	-49.8 mV	8.02 ft	250.00 ml/min
10/23/2020 10:40 AM	03:00	7.27 pH	63.39 °F	594.89 µS/cm	0.68 mg/L	35.35 NTU	-113.5 mV	8.02 ft	250.00 ml/min
10/23/2020 10:43 AM	06:00	7.23 pH	63.80 °F	574.74 µS/cm	0.32 mg/L	46.21 NTU	-117.2 mV	8.02 ft	250.00 ml/min
10/23/2020 10:46 AM	09:00	7.20 pH	63.66 °F	568.94 µS/cm	0.23 mg/L	52.73 NTU	-118.6 mV	8.02 ft	250.00 ml/min
10/23/2020 10:49 AM	12:00	7.18 pH	63.94 °F	569.95 µS/cm	0.21 mg/L	61.14 NTU	-120.5 mV	8.02 ft	250.00 ml/min
10/23/2020 10:52 AM	15:00	7.15 pH	64.22 °F	578.34 µS/cm	0.18 mg/L	71.14 NTU	-121.0 mV	8.02 ft	250.00 ml/min
10/23/2020 10:55 AM	18:00	7.14 pH	64.38 °F	576.40 µS/cm	0.14 mg/L	102.48 NTU	-121.4 mV	8.02 ft	250.00 ml/min
10/23/2020 10:58 AM	21:00	7.13 pH	64.54 °F	575.85 µS/cm	0.17 mg/L	108.46 NTU	-121.9 mV	8.02 ft	250.00 ml/min
10/23/2020 11:01 AM	24:00	7.12 pH	64.59 °F	577.63 µS/cm	0.15 mg/L	113.77 NTU	-121.6 mV	8.02 ft	250.00 ml/min
10/23/2020 11:04 AM	27:00	7.11 pH	64.75 °F	577.66 µS/cm	0.13 mg/L	241.55 NTU	-121.6 mV	8.02 ft	250.00 ml/min
10/23/2020 11:07 AM	30:00	7.11 pH	64.73 °F	576.99 µS/cm	0.13 mg/L	313.07 NTU	-121.8 mV	8.02 ft	250.00 ml/min
10/23/2020 11:10 AM	33:00	7.10 pH	64.66 °F	574.97 µS/cm	0.14 mg/L	701.21 NTU	-121.7 mV	8.02 ft	250.00 ml/min

**Samples**

Sample ID:	Description:
A-8	ST 1115

Well ID: MW-19

Date: 3/25/20 1550

Elapsed Time	NTU	Elapsed Time	NTU
0	15.22	24	0.78
3	8.67	27	0.02
6	5.25	30	0.02
9	2.97	33	0.02
12	0.95	36	0.54
15	1.40	39	0.02
18	1.77	42	0.02
21	0.02	45	0.02

Well ID: TMW-5

Date: 3/26/20 1030

Elapsed Time	NTU	Elapsed Time	NTU
0	2.57	24	0.02
3	1.68	27	0.02
6	0.02	30	0.02
9	0.02	33	
12	0.02	36	
15	0.02	39	
18	0.02	42	
21	0.02	45	

Well ID: MW-7

Date: 3/26/20 1150

Elapsed Time	NTU	Elapsed Time	NTU
0	0.02	24	0.02
3	0.02	27	0.02
6	0.02	30	0.02
9	0.02	33	0.02
12	0.02	36	0.02
15	0.02	39	0.02
18	0.02	42	0.02
21	0.02	45	0.02

Well ID: TMW-3

Date: 3/26/20 1330

Elapsed Time	NTU	Elapsed Time	NTU
0	29.9	24	2.75
3	16.1	27	2.62
6	15.6	30	0.52
9	6.14	33	1.19
12	5.74	36	2.11
15	4.92	39	1.54
18	4.36	42	
21	2.72	45	

Well ID: MW-21 (Dup 2)

Date: 3/26/20 1525

Elapsed Time	NTU	Elapsed Time	NTU
0	2.54	24	3.25
3	7.63	27	2.63
6	9.39	30	2.75
9	3.03	33	3.39
12	3.34	36	2.77
15	4.02	39	3.11
18	3.31	42	
21	2.66	45	

Well ID: MW-9

Date: 3/26/20 1625

Elapsed Time	NTU	Elapsed Time	NTU
0	6.38	24	0.02
3	3.47	27	
6	1.22	30	
9	0.09	33	
12	0.65	36	
15	0.78	39	
18	0.61	42	
21	0.02	45	



Well ID: TMW-2 1515

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0	2.14	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18	0.02	42	
21		45	

Well ID: TMW-1

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0	333	24	
3	38.7	27	
6	5.20	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18	0.02	42	
21		45	

Well ID: 12 final DTW 3.80

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0	12.0	24	1.37
3	4.67	27	1.55
6	1.86	30	1.19
9	1.29	33	2.05
12	4.21	36	0.05
15	2.87	39	2.34
18	2.17	42	0.43
21	2.24	45	0.40

1055

Well ID: TMW-4

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0	0.02	24	—
3	1.09	27	0.02
6	0.02	30	0.02
9	0.02	33	0.02
12	0.02	36	0.02
15	0.02	39	
18	0.02	42	
21	—	45	

1210

Well ID: 11 1305

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0	8.69	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	<del>0.02</del> 0.22	36	
15	0.02	39	
18	0.02	42	
21		45	

Well ID: TMW-6

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0	4.50	24	8.87
3	3.33	27	8.96
6	12.6	30	
9	14.7	33	
12	12.8	36	
15	9.56	39	
18	4.41	42	
21	9.09	45	

↑ battery issues

Well ID: A-5  
Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0	4.60	24	0.02
3	0.02	27	0.02
6	0.02	30	0.02
9	0.02	33	0.02
12	0.02	36	0.02
15	0.02	39	0.02
18	0.02	42	0.02
21	0.02	45	0.02

Well ID: A-21  
Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0	6.95	24	0.02
3	0.99	27	0.48
6	0.02	30	0.02
9	0.02	33	0.02
12	0.02	36	0.02
15	0.02	39	0.02
18	0.02	42	0.02
21	0.38	45	0.02

Well ID: MW-23  
Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0	0.02	24	0.02
3	0.02	27	0.02
6	0.02	30	0.02
9	0.02	33	0.02
12	0.02	36	0.02
15	0.02	39	0.02
18	0.02	42	0.02
21	0.02	45	0.02

Well ID: \_\_\_\_\_  
Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: \_\_\_\_\_  
Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: \_\_\_\_\_  
Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

DLP-1

MW-23 3.27.20

Well ID: MW-18

Date: 3-27-20 1005

Elapsed Time	NTU	Elapsed Time	NTU
0	231	24	0.12
3	36.3	27	0.02
6	55.0	30	0.33
9	17.1	33	
12	9.27	36	
15	5.83	39	
18	2.85	42	
21	1.40	45	

Well ID: A-27

Date: 3-27-20 1105

Elapsed Time	NTU	Elapsed Time	NTU
0	4.90	24	0.99
3	0.34	27	0.03
6	0.02	30	0.02
9	0.02	33	0.04
12	0.02	36	0.26
15	0.02	39	
18	0.02	42	
21	0.02	45	

Well ID: MW-24

Date: 3-27-20 1225

Elapsed Time	NTU	Elapsed Time	NTU
0	10.5	24	0.02
3	9.62	27	0.02
6	8.34	30	0.02
9	0.91	33	0.02
12	0.08	36	0.02
15	0.02	39	0.02
18	1.34	42	0.02
21	0.02	45	0.02

Well ID: \_\_\_\_\_

Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: \_\_\_\_\_

Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: \_\_\_\_\_

Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: A-23R  
Date: 10/19/20

Elapsed Time	NTU	Elapsed Time	NTU
0	24.9	25:14-24	1.00
3	4.39	27	1.14
6	1.62	30	
9	1.01	33	
12	0.02	36	
15	0.96	39	
18	0.02	42	
21	0.06	45	

*Dump off for 24 min at 24 min*

Well ID: MW-14  
Date: 10/19/20

Elapsed Time	NTU	Elapsed Time	NTU
0	10.5	24	6.72
3	7.89	27	5.69
6	6.89	30	5.18
9	7.62	33	5.93
12	7.28	36	5.43
15	6.56	39	6.32
18	7.33	42	6.23
21	6.37	45	

Well ID: TMW-5  
Date: 10/20/20

Elapsed Time	NTU	Elapsed Time	NTU
0	1.05	24	
3	0.55	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18	0.02	42	
21	0.02	45	

Well ID: MW-7 / DUP-1  
Date: 10/20/20

Elapsed Time	NTU	Elapsed Time	NTU
0	0.96	24	0.02
3	0.02	27	0.02
6	0.02	30	0.02
9	0.02	33	0.02
12	0.24	36	0.02
15	0.02	39	0.02
18	0.17	42	
21	0.02	45	

*pump stopped temporarily 21:00*

Well ID: TMW-3  
Date: 10/20/20

Elapsed Time	NTU	Elapsed Time	NTU
0	0.02	24	0.02
3	0.02	27	0.02
6	0.02	30	0.02
9	0.02	33	wa
12	0.02	36	
15	0.02	39	
18	0.02	42	
21	0.02	45	

Well ID: TMW-4  
Date: 10/20/20

Elapsed Time	NTU	Elapsed Time	NTU
0	0.14	24	1.55
3	0.02	27	
6	0.32	30	
9	0.02	33	
12	0.58	36	
15	0.37	39	
18	0.71	42	
21	0.20	45	

Well ID: TMW-2

Date: 10/20/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	<del>1.13</del>	24	
3	0.16	27	
6	<del>0.58</del>	30	
9	0.02	33	
12		36	1.13
15		39	0.16
18		42	0.58
21		45	0.02

Well ID: TMW-1

Date: 10/20/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	737	24	25.9
3	360	27	105
6	127	30	35.3
9	504	33	107
12	309	36	75.7
15	198	39	1100
18	61.3	42	133
21	32.1	45	48.7

Well ID: MW-19

Date: 10/20/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	52.4	24	42.5
3	12.3	27	39.9
6	42.2	30	21.1
9	15.4	33	14.0
12	57.2	36	11.7
15	119	39	12.3
18	98.3	42	6.48
21	68.1	45	5.27

Well ID: MW-07R

Date: 10/20/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	<del>51.1</del>	24	62.7
3	<del>1.13</del>	27	47.2
6		30	39.1
9	24.9	33	32.7
12	613	36	26.4
15	321	39	722
18	132	42	63.7
21	449	45	23.8

Well ID: MW-4

Date: 10/20/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	75.8	24	1.83
3	16.0	27	2.19
6	6.65	30	
9	3.80	33	
12	2.44	36	
15	2.80	39	
18	2.11	42	
21	2.52	45	

Well ID: MW-12R

Date: 10/20/2020

Elapsed Time	NTU	Elapsed Time	NTU
0		24	1.26
3		27	1.99
6		30	0.02
9	2.98	33	0.02
12	0.40	36	0.02
15	2.11	39	0.20
18	1.15	42	0.02
21	1.17	45	0.02

7.37

MW2

well tubing mm and  
 turned in pump  
 ~54 min

Well ID: 11

Date: 10.20.20

Elapsed Time	NTU	Elapsed Time	NTU
0	8.37	24	0.53
3	3.13	27	0.02
6	5.73	30	0.85
9	2.79	33	
12	3.33	36	
15	1.85	39	
18	0.87	42	
21	1.38	45	

Well ID: 12  
 Date: 10.20.20

Elapsed Time	NTU	Elapsed Time	NTU
0	<del>5.02</del>	<del>24</del>	
3	1.66	27	
6	1.41	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18	0.02	42	
21	—	45	

readings  
 were weird  
 water very  
 dark grey  
 w/ many  
 particles.  
 using AT  
 readings

Well ID: MW-9

Date: 10.21.20

Elapsed Time	NTU	Elapsed Time	NTU
0	24.4	24	
3	4.25	27	
6	8.14	30	
9	6.13	33	
12	5.81	36	
15	5.54	39	
18		42	
21		45	

Well ID: TMW-6

Date: 10.21.20

Elapsed Time	NTU	Elapsed Time	NTU
0	151	24	27.3
3	134	27	22.0
6	85.5	30	23.3
9	60.1	33	22.9
12	45.0	36	22.5
15	37.5	39	21.1
18	33.7	42	18.8
21	33.0	45	20.7

min NTU  
 48 20.1  
 51 18.4  
 54 15.2  
 57 18.1  
 60 20.5

Well ID: MW-8

Date: 10.21.20

Elapsed Time	NTU	Elapsed Time	NTU
0	26.2	24	
3	16.1	27	
6	<del>15.8</del>	30	
9	14.4	33	
12	17.4	36	
15	10.0	39	
18		42	
21		45	

15.8

Well ID: MWF-21/DUP-2

Date: 10.21.20

Elapsed Time	NTU	Elapsed Time	NTU
0	29.4	24	7.04
3	25.7	27	7.55
6	24.0	30	10.5
9	14.0	33	11.3
12	9.08	36	13.9
15	9.34	39	18.3
18	7.21	42	
21	6.01	45	

303

Well ID: SH-05R

Date: 10/21/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	26.4	24	3.46
3	6.37	27	2.11
6	4.60	30	2.37
9	2.98	33	1.54
12	3.80	36	1.43
15	4.33	39	4.19
18	3.48	42	
21	3.47	45	

Flow rate:  
500ml/  
2.33  
minutes

Flow rate:  
500ml  
/2.4  
min

Well ID: SH-02R

Date: 10/21/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	1.76	24	0.02
3	0.05	27	0.02
6	0.02	30	0.02
9	0.43	33	
12	0.02	36	
15	0.02	39	
18	0.26	42	
21	0.02	45	

stopped work

Well ID: SH-02R

Date: 10/21/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	1.67	24	0.02
3	0.16	27	0.02
6	0.02	30	0.02
9	0.05	33	0.02
12	0.95	36	0.02
15	0.82	39	0.02
18	0.02	42	0.33
21	0.02	45	0.02

Flow:  
500ml  
/3.5  
minutes

Flow:  
500ml  
/2.5  
mins

Final dropdown:  
5.71 Ft

Well ID: MW-2

Date: 10/21/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	83.3	24	7.11
3	40.6	27	6.07
6	30.9	30	
9	19.5	33	
12	14.6	36	
15	12.7	39	
18	10.6	42	
21	9.03	45	

Well ID: MW-22

Date: 10/21/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	29.6	24	2.32
3		27	0.53
6		30	0.76
9		33	0.93
12	6.27	36	0.24
15	5.34	39	0.34
18	2.81	42	0.52
21	2.91	45	0.02

Flow:  
500ml/  
2.75  
mins

Flow:  
500ml  
/2.6  
mins

Well ID: MW-18

Date: 10/21/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	574	24	42.8
3	193	27	29.9
6	73.7	30	24.8
9	80.4	33	20.8
12	81.0	36	20.8
15	52.7	39	14.0
18	42.3	42	13.3
21	55.0	45	14.3

Well ID: MW-20  
Date: 10.21.20

Elapsed Time	NTU	Elapsed Time	NTU
0	42.2	24	6.31
3	18.7	27	4.60
6	12.4	30	6.95
9	14.5	33	7.35
12	13.7	36	6.54
15	8.38	39	13.8
18	9.80	42	11.8
21	9.97	45	10.7

Well ID: MW-24  
Date: 10.22.20

Elapsed Time	NTU	Elapsed Time	NTU
0	22.4	24	11.8
3	14.4	27	11.6
6	13.9	30	4.90
9	13.0	33	8.31
12	12.1	36	8.93
15	11.4	39	9.28
18	11.6	42	
21	11.4	45	

Well ID: A-27  
Date: 10.22.20

Elapsed Time	NTU	Elapsed Time	NTU
0	9.65	24	7.14
3	8.24	27	8.81
6	8.32	30	4.21
9	9.54	33	9.57
12	7.12	36	9.81
15	8.08	39	9.23
18	7.46	42	8.60
21	7.22	45	7.62

mm NTU  
48 7.38  
51 7.20  
54 5.92  
57 6.09  
60 7.87

Well ID: MW-3  
Date: 10.22.20

Elapsed Time	NTU	Elapsed Time	NTU
0	7.24	24	
3	8.10	27	
6	6.34	30	
9	7.28	33	
12	6.32	36	
15		39	
18		42	
21		45	

Well ID: MW-6  
Date: 10.22.20

Elapsed Time	NTU	Elapsed Time	NTU
0	19.0	24	4.09
3	12.4	27	
6	7.80	30	
9	3.86	33	
12	5.41	36	
15	3.93	39	
18	4.984	42	
21	4.82	45	

Well ID: A-21  
Date: 10.23.20

Elapsed Time	NTU	Elapsed Time	NTU
0	10.4	24	
3	6.95	27	
6	7.10	30	
9	6.86	33	
12	6.92	36	
15	6.06	39	
18	6.20	42	
21		45	



Well ID: MW-23

Date: 10/22/2020

Flow:  
500ml/  
3mins

Elapsed Time	NTU	Elapsed Time	NTU
0	7.11	24	3.38
3	1.92	27	2.83
6	1.60	30	2.94
9	1.93	33	2.07
12	2.80	36	2.84
15	3.06	39	2.05
18	2.65	42	
21	2.56	45	

Well ID: A-28R

Date: 10/22/2020

Flow:  
500ml/  
3mins

Elapsed Time	NTU	Elapsed Time	NTU
0		24	1.32
3	4.75	27	1.15
6	4.75	30	2.43
9	2.27	33	1.15
12	2.36	36	0.72
15	1.88	39	
18	2.40	42	
21	1.70	45	

Well ID: IMW-B1

Date: 10/22/2020

Flow:  
500ml/  
2.75 mins

Elapsed Time	NTU	Elapsed Time	NTU
0	2.90	24	2.49
3	2.04	27	
6	1.63	30	1.73
9	1.79	33	2.20
12	1.11	36	
15	1.91	39	
18	2.19	42	
21	3.59	45	

Flow:  
500ml/  
2.7 mins

Well ID: MW-1

Date: 10/22/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	65.9	24	4.76
3	18.4	27	
6	16.9	30	
9	11.8	33	
12	12.4	36	
15	11.4	39	
18	10.3	42	
21	10.7	45	

Well ID: MW-1W

Date: 10/22/2020

Flow:  
500ml/  
2.15 mins

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3	8.31	27	
6	5.20	30	
9	5.01	33	
12	3.11	36	
15	3.91	39	
18		42	
21		45	

Flow:  
500ml/  
2.5 mins

Well ID: A-14R

Date: 10/23/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	20.6	24	4.91
3	16.9	27	5.00
6	9.86	30	4.29
9	12.5	33	3.08
12	12.6	36	
15	6.43	39	
18	6.40	42	
21	7.33	45	

Well ID: A-10  
 Date: 10.23.20

Elapsed Time	NTU	Elapsed Time	NTU
0	37.7	24	8.86
3	14.4	27	8.29
6	11.3	30	
9	10.7	33	
12	19.6	36	
15	12.2	39	
18	11.3	42	
21	8.49	45	

Well ID: A-8  
 Date: 10.23.20

Elapsed Time	NTU	Elapsed Time	NTU
0	8.26	24	4.70
3	3.27	27	3.71
6	4.12	30	4.31
9	4.72	33	2.53
12	5.09	36	
15	6.07	39	
18	4.30	42	
21	2.20	45	

Well ID: \_\_\_\_\_  
 Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: \_\_\_\_\_  
 Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: \_\_\_\_\_  
 Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: \_\_\_\_\_  
 Date: \_\_\_\_\_

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID: MW-25

Date: 10/23/2020

Flow:  
500ml  
2.4  
mins

Elapsed Time	NTU	Elapsed Time	NTU
0	27.0	24	16.1
3	13.7	27	8.75
6	9.5	30	-
9	10.1	33	14.2
12	16.0	36	16.6
15	7.67	39	15.7
18	12.9	42	4.38
21	12.9	45	4.30

Flow:  
500ml  
1/2  
mins

Well ID: A-5

Date: 10/23/2020

Elapsed Time	NTU	Elapsed Time	NTU
0	4.38	24	
3	2.07	27	
6	0.32	30	
9	1.06	33	
12	0.54	36	
15		39	
18		42	
21		45	

Well ID:

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID:

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID:

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Well ID:

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15		39	
18		42	
21		45	

Site ID: KMLT Harbor Island Terminal  
Site Address: 2720 13th Ave SW, Seattle, WA

Project #: WA000804.2017.00002  
Date:

Well ID	Time	Sheen/ Odor	LNAPL Depth (ft btoc)	LNAPL Thickness (feet)	DTW (feet btoc)	TD (feet btoc)	Notes
A-4	1124	odor	—	—	6.71		
A-5	1133	odor	—	—	7.52		
A-6	1126	odor	—	—	6.44		
A-8	1138	odor	—	—	7.63		
A-10	1138	—	—	—	6.69		
A-11	1148	—	—	—	7.51		
A-12	1134	—	—	—	6.31		
A-14R	1132	—	—	—	7.43		
A-16	1123	odor	—	—	7.69		
A-18	1127	—	—	—	7.85		
A-19	1249	—	—	—	7.79		
A-20	1245	—	—	—	7.42		
A-21	1247	—	—	—	7.53		
A-22R	1301	—	—	—	7.29		
A-23R							
A-25	1118	odor	—	—	7.13		
A-26R	1305	—	—	—	7.35		
A-27	1304	—	—	—	10.23		
A-28R	1304	—	—	—	7.70		
11	1103	—	3.85	0.01	3.80		
12	1057	sheen	—	—	1.50		
MW-07R	1216	—	—	—	5.82		
MW-1	1045	—	—	—	5.07		
MW-2	1233	—	—	—	6.43		
MW-3	1040	—	—	—	2.44		

Site ID: **KMLT Harbor Island Terminal**  
 Site Address: **2720 13th Ave SW, Seattle, WA**

 Project #: **WA000804.2017.00002**  
 Date:

Well ID	Time	Sheen/ Odor	LNAPL Depth (ft btoc)	LNAPL Thickness (feet)	DTW (feet btoc)	TD (feet btoc)	Notes
MW-4	1212	odor	—	—	6.02		
MW-5	1031	—	—	—	2.21		
MW-6	1241	—	6.33	0.01	6.34		
MW-7	1058	—	—	—	2.03		
MW-8	1110	—	—	—	3.18		
MW-9	1113	—	—	—	2.36		
MW-12R	1219	—	7.07	0.01	7.08		
MW-14	1024	—	—	—	2.56		
MW-16	1239	—	6.21	0.01	6.22		
MW-18	1230	—	—	—	6.33		
MW-19	1025	Odor	—	—	2.11		
MW-20	1038	—	—	—	2.75		
MW-21	1107	—	—	—	2.55		
MW-22	1235	—	7.40	0.01	7.41		
MW-23	1255	odor	—	—	7.29		
MW-24	1258	—	—	—	7.29		
MW-25	1148	—	—	—	7.11		
SH-02R	1208	—	—	—	4.90		
SH-05R	1212	—	—	—	6.70		
TMW-B1	1246	odor	—	—	7.12		
TMW-1	1029	—	—	—	2.53		
TMW-2	1031	—	—	—	2.74		Biofilm
TMW-3	1100	—	—	—	2.88		
TMW-4	1100	—	—	—	2.66		
TMW-5	1055	—	—	—	2.55		
TMW-6	1110	—	—	—	2.01		

Site ID: KMLT Harbor Island Terminal

Project #: 30050809

Site Address: 2720 13th Ave SW, Seattle, WA

Date: 10/19/2020

Well ID	Time	Sheen/ Odor	LNAPL Depth (ft btoc)	LNAPL Thickness (feet)	DTW (feet btoc)	TD (feet btoc)	Notes
A-4	1116	—	—	—	7.10		
A-5	1204	—	—	—	7.89		
A-6	1205	—	—	—	6.81		38 ppm VOC
A-8	1200	—	—	—	7.97		48% LEL methan., 13 ppm VOC 10.7% oxygen, 2 ppm H <sub>2</sub> S
A-10	1140	—	—	—	7.02		
A-11	1136	—	—	—	7.87		
A-12	1142	—	—	—	6.65		
A-14R	1139	—	—	—	7.76		
A-16	1206		8.02	0.01	8.03		
A-18	1148	—	—	—	8.21		
A-19	1108	—	—	—	8.14		
A-20	1111	—	—	—	7.78		
A-21	1113	—	—	—	7.89		
A-22R	1105	—	—	—	7.05		
A-23R	1335	—	—	—	9.13	15.8	
A-25	1159	—	—	—	7.56		
A-26R	1115	—	—	—	7.75		
A-27	1120	—	—	—	10.74		
A-28R	1050	—	—	—	8.33		
11	1044	—	—	—	4.79		
12	1048	—	—	—	2.35		
MW-07R	944	—	—	—	6.54		
MW-1	1015	—	—	—	5.89		
MW-2	1037	—	—	—	7.63		
MW-3	1002	—	—	—	3.57		

Site ID: KMLT Harbor Island Terminal  
Site Address: 2720 13th Ave SW, Seattle, WA

Project #: 30050809  
Date: 10/19/2020

Well ID	Time	Sheen/ Odor	LNAPL Depth (ft btoc)	LNAPL Thickness (feet)	DTW (feet btoc)	TD (feet btoc)	Notes
MW-4	953	-	-	-	6.79		
MW-5	934	-	-	-	3.25		
MW-6	1130	-	-	-	7.57		7.051
MW-7	1032	-	-	-	3.05		6.051
MW-8	1100	-	-	-	3.71		broken / offset casing paper / sheet in well?
MW-9	1055	-	-	-	3.02		
MW-12R	1003	-	-	-	7.74		
MW-14	930	-	-	-	3.65		
MW-16	1045	-	-	-	7.56		
MW-18	1039	-	-	-	7.52		
MW-19	954	slight odor	-	-	3.32		
MW-20	1014	-	-	-	3.50		
MW-21	1108	-	-	-	2.99		
MW-22	1033	-	-	-	8.68		
MW-23	1101	-	-	-	7.66		
MW-24	1058	-	-	-	7.66		
MW-25	1142	-	-	-	7.47		
SH-02R	956	-	-	-	5.69		
SH-05R	948	-	-	-	7.18		
TMW-B1	1128	-	-	-	8.24		
TMW-1	944	-	-	-	3.77		
TMW-2	938	-	-	-	3.80		
TMW-3	1035	-	-	-	3.96		
TMW-4	1038	-	-	-	3.64		
TMW-5	1028	-	-	-	3.65		
TMW-6	1052	-	-	-	2.71		

# APPENDIX C

Laboratory Reports and Chain-of-Custody Documentation





April 06, 2020

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

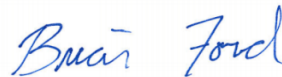
8 Al

9 Sc

## Kinder Morgan- Houston, TX(Scott Martin)

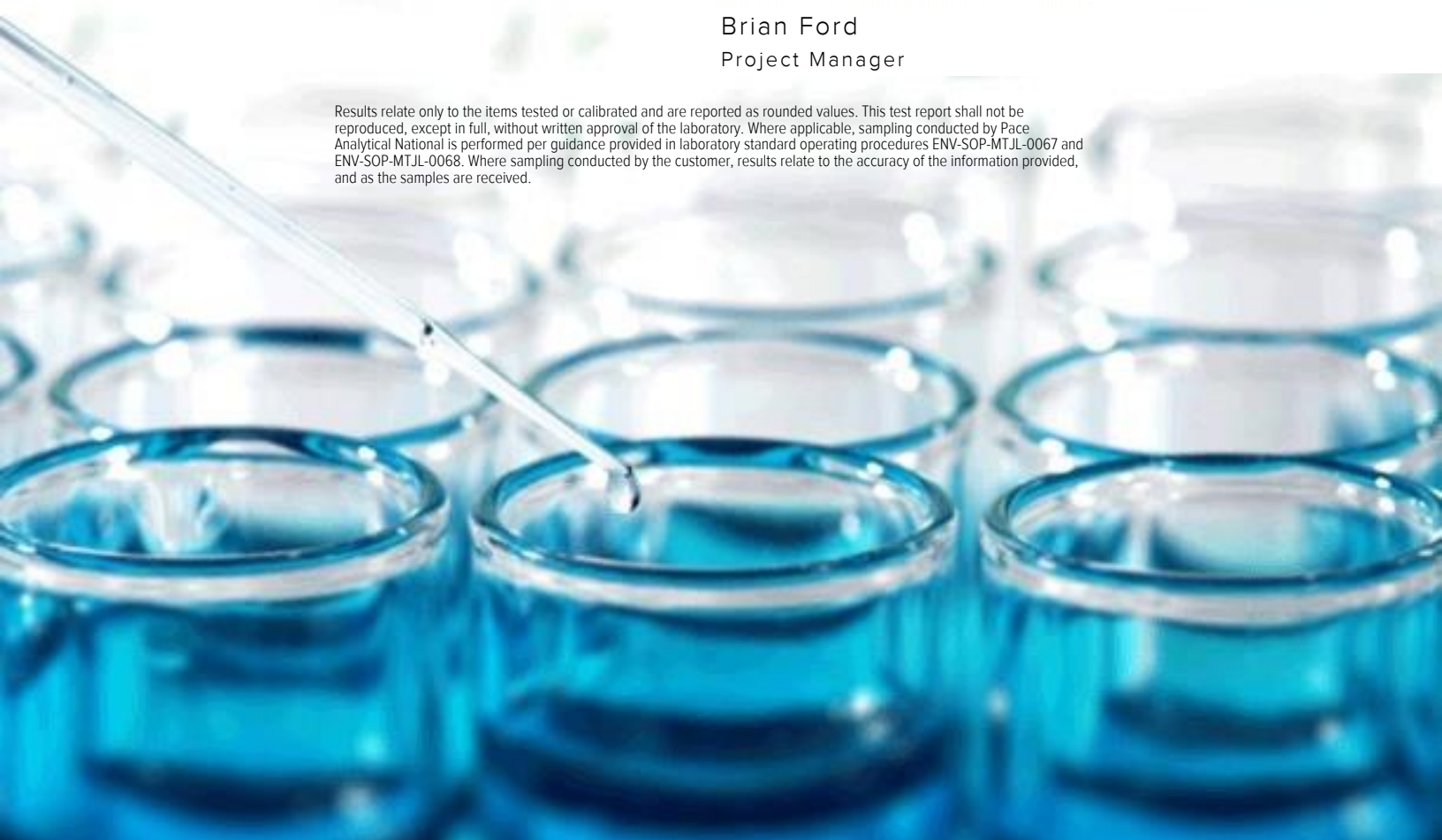
Sample Delivery Group: L1203707  
Samples Received: 03/28/2020  
Project Number: 30018857  
Description: KMEP Harbor Island  
Site: 2720 13TH AVENUE SW SEATTLE,WA  
Report To: Kyle Haslam  
1100 Olive Way, Suite 800  
Seattle, WA 98101

Entire Report Reviewed By:



Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	<b>2</b> Tc
<b>Ss: Sample Summary</b>	<b>3</b>	<b>3</b> Ss
<b>Cn: Case Narrative</b>	<b>7</b>	<b>7</b> Cn
<b>Sr: Sample Results</b>	<b>8</b>	<b>8</b> Sr
MW-21 L1203707-01	8	
A-27 L1203707-02	9	
11 L1203707-03	10	
12 L1203707-04	11	
MW-7 L1203707-05	12	
MW-9 L1203707-06	13	
MW-19 L1203707-07	14	
TMW-1 L1203707-08	15	
TMW-2 L1203707-09	16	
TMW-3 L1203707-10	17	
TMW-4 L1203707-11	18	
TMW-5 L1203707-12	19	
TMW-6 L1203707-13	20	
A-5 L1203707-14	21	
A-21 L1203707-15	22	
A-28R L1203707-16	23	
MW-18 L1203707-17	24	
MW-23 L1203707-18	25	
MW-24 L1203707-19	26	
DUP-1 L1203707-20	27	
DUP-2 L1203707-21	28	
DRUM-1 L1203707-22	29	
TRIP BLANK L1203707-23	30	
<b>Qc: Quality Control Summary</b>	<b>31</b>	<b>6</b> Qc
Wet Chemistry by Method 9056A	31	
Mercury by Method 7470A	32	
Metals (ICPMS) by Method 6020B	33	
Volatile Organic Compounds (GC) by Method NWTPHGX	35	
Volatile Organic Compounds (GC/MS) by Method 8260D	38	
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	41	
<b>Gl: Glossary of Terms</b>	<b>42</b>	<b>7</b> Gl
<b>Al: Accreditations &amp; Locations</b>	<b>43</b>	<b>8</b> Al
<b>Sc: Sample Chain of Custody</b>	<b>44</b>	<b>9</b> Sc

# SAMPLE SUMMARY



## MW-21 L1203707-01 GW

Collected by: KF/LS  
 Collected date/time: 03/26/20 15:25  
 Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452141	5	03/29/20 01:54	03/29/20 01:54	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 21:18	03/28/20 21:18	TJJ	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1453546	1	03/31/20 21:38	04/02/20 08:07	JN	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## A-27 L1203707-02 GW

Collected by: KF/LS  
 Collected date/time: 03/27/20 11:05  
 Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	1	03/30/20 15:24	03/30/20 15:24	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452141	5	03/29/20 02:16	03/29/20 02:16	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 21:38	03/28/20 21:38	TJJ	Mt. Juliet, TN

## 11 L1203707-03 GW

Collected by: KF/LS  
 Collected date/time: 03/26/20 13:05  
 Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	5	03/30/20 15:52	03/30/20 15:52	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 14:03	03/30/20 14:03	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 21:58	03/28/20 21:58	TJJ	Mt. Juliet, TN

## 12 L1203707-04 GW

Collected by: KF/LS  
 Collected date/time: 03/26/20 10:55  
 Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	20	03/30/20 23:48	03/30/20 23:48	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 14:23	03/30/20 14:23	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 22:18	03/28/20 22:18	TJJ	Mt. Juliet, TN

## MW-7 L1203707-05 GW

Collected by: KF/LS  
 Collected date/time: 03/26/20 11:50  
 Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	50	03/31/20 00:02	03/31/20 00:02	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 14:44	03/30/20 14:44	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 22:37	03/28/20 22:37	TJJ	Mt. Juliet, TN

## MW-9 L1203707-06 GW

Collected by: KF/LS  
 Collected date/time: 03/26/20 16:25  
 Received date/time: 03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	1	03/30/20 16:35	03/30/20 16:35	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 15:05	03/30/20 15:05	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 22:57	03/28/20 22:57	TJJ	Mt. Juliet, TN

# SAMPLE SUMMARY



## MW-19 L1203707-07 GW

Collected by  
KF/LS      Collected date/time  
03/25/20 15:50      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	50	03/31/20 02:59	03/31/20 02:59	MCG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 15:25	03/30/20 15:25	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 23:17	03/28/20 23:17	TJJ	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## TMW-1 L1203707-08 GW

Collected by  
KF/LS      Collected date/time  
03/25/20 16:00      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	10	03/30/20 18:02	03/30/20 18:02	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 15:46	03/30/20 15:46	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 23:37	03/28/20 23:37	TJJ	Mt. Juliet, TN

## TMW-2 L1203707-09 GW

Collected by  
KF/LS      Collected date/time  
03/25/20 15:15      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	50	03/30/20 18:16	03/30/20 18:16	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 16:06	03/30/20 16:06	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/28/20 23:57	03/28/20 23:57	TJJ	Mt. Juliet, TN

## TMW-3 L1203707-10 GW

Collected by  
KF/LS      Collected date/time  
03/26/20 13:30      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	20	03/30/20 18:31	03/30/20 18:31	ST	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 16:27	03/30/20 16:27	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/29/20 00:17	03/29/20 00:17	TJJ	Mt. Juliet, TN

## TMW-4 L1203707-11 GW

Collected by  
KF/LS      Collected date/time  
03/26/20 12:10      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	50	03/31/20 03:13	03/31/20 03:13	MCG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	5	03/30/20 16:47	03/30/20 16:47	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/29/20 00:37	03/29/20 00:37	TJJ	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1455334	5	04/03/20 21:06	04/03/20 21:06	ADM	Mt. Juliet, TN

## TMW-5 L1203707-12 GW

Collected by  
KF/LS      Collected date/time  
03/26/20 10:30      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	50	03/31/20 03:27	03/31/20 03:27	MCG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 17:08	03/30/20 17:08	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/29/20 00:57	03/29/20 00:57	TJJ	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1455334	1	04/03/20 21:26	04/03/20 21:26	ADM	Mt. Juliet, TN

# SAMPLE SUMMARY



## TMW-6 L1203707-13 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1452360	100	03/31/20 03:41	03/31/20 03:41	MCG	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 17:29	03/30/20 17:29	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1455334	1	04/03/20 21:46	04/03/20 21:46	ADM	Mt. Juliet, TN

Collected by KF/LS      Collected date/time 03/26/20 15:00      Received date/time 03/28/20 08:30

1 Cp

2 Tc

3 Ss

## A-5 L1203707-14 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	5	03/30/20 17:49	03/30/20 17:49	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/29/20 01:36	03/29/20 01:36	TJJ	Mt. Juliet, TN

Collected by KF/LS      Collected date/time 03/27/20 10:15      Received date/time 03/28/20 08:30

4 Cn

5 Sr

6 Qc

## A-21 L1203707-15 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	5	03/30/20 18:10	03/30/20 18:10	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/29/20 01:56	03/29/20 01:56	TJJ	Mt. Juliet, TN

Collected by KF/LS      Collected date/time 03/27/20 11:20      Received date/time 03/28/20 08:30

7 Gl

8 Al

9 Sc

## A-28R L1203707-16 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 18:30	03/30/20 18:30	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1455334	1	04/03/20 22:07	04/03/20 22:07	ADM	Mt. Juliet, TN

Collected by KF/LS      Collected date/time 03/26/20 16:30      Received date/time 03/28/20 08:30

## MW-18 L1203707-17 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 18:51	03/30/20 18:51	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/29/20 02:36	03/29/20 02:36	TJJ	Mt. Juliet, TN

Collected by KF/LS      Collected date/time 03/27/20 10:05      Received date/time 03/28/20 08:30

## MW-23 L1203707-18 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	5	03/30/20 19:11	03/30/20 19:11	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	5	03/29/20 02:56	03/29/20 02:56	TJJ	Mt. Juliet, TN

Collected by KF/LS      Collected date/time 03/27/20 12:25      Received date/time 03/28/20 08:30

## MW-24 L1203707-19 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 19:32	03/30/20 19:32	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	10	03/29/20 03:16	03/29/20 03:16	TJJ	Mt. Juliet, TN

Collected by KF/LS      Collected date/time 03/27/20 12:25      Received date/time 03/28/20 08:30

# SAMPLE SUMMARY



## DUP-1 L1203707-20 GW

Collected by  
KF/LS      Collected date/time  
03/27/20 00:00      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 19:52	03/30/20 19:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1452173	1	03/29/20 03:36	03/29/20 03:36	TJJ	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1455334	10	04/03/20 22:27	04/03/20 22:27	ADM	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## DUP-2 L1203707-21 GW

Collected by  
KF/LS      Collected date/time  
03/26/20 00:00      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 20:13	03/30/20 20:13	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1453028	1	03/31/20 06:26	03/31/20 06:26	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1453546	1	03/31/20 21:38	04/02/20 08:31	JN	Mt. Juliet, TN

## DRUM-1 L1203707-22 GW

Collected by  
KF/LS      Collected date/time  
03/27/20 13:00      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1452406	1	03/30/20 09:25	03/30/20 17:12	TCT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1452100	1	03/29/20 17:46	03/30/20 00:49	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452149	1	03/30/20 20:34	03/30/20 20:34	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1453028	1	03/31/20 06:45	03/31/20 06:45	JCP	Mt. Juliet, TN

## TRIP BLANK L1203707-23 GW

Collected by  
KF/LS      Collected date/time  
03/26/20 00:00      Received date/time  
03/28/20 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1452195	1	03/29/20 05:29	03/29/20 05:29	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1453028	1	03/31/20 05:28	03/31/20 05:28	JCP	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		500	5	03/29/2020 01:54	<a href="#">WG1452141</a>
(S) a,a,a-Trifluorotoluene(FID)	96.0		78.0-120		03/29/2020 01:54	<a href="#">WG1452141</a>

Sample Narrative:

L1203707-01 WG1452141: Lowest possible dilution due to sample foaming.

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/28/2020 21:18	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 21:18	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/28/2020 21:18	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/28/2020 21:18	<a href="#">WG1452173</a>
(S) Toluene-d8	110		80.0-120		03/28/2020 21:18	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	106		77.0-126		03/28/2020 21:18	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/28/2020 21:18	<a href="#">WG1452173</a>

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	04/02/2020 08:07	<a href="#">WG1453546</a>
Residual Range Organics (RRO)	ND		250	1	04/02/2020 08:07	<a href="#">WG1453546</a>
(S) o-Terphenyl	76.0		52.0-156		04/02/2020 08:07	<a href="#">WG1453546</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc





## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	ND		5000	1	03/30/2020 15:24	<a href="#">WG1452360</a>

1 Cp

2 Tc

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	950	<u>B</u>	500	5	03/29/2020 02:16	<a href="#">WG1452141</a>
(S) a,a,a-Trifluorotoluene(FID)	96.1		78.0-120		03/29/2020 02:16	<a href="#">WG1452141</a>

3 Ss

4 Cn

5 Sr

## Sample Narrative:

L1203707-02 WG1452141: Lowest possible dilution due to sample foaming.

6 Qc

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	13.5		1.00	1	03/28/2020 21:38	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 21:38	<a href="#">WG1452173</a>
Ethylbenzene	27.7		1.00	1	03/28/2020 21:38	<a href="#">WG1452173</a>
Total Xylenes	3.57		3.00	1	03/28/2020 21:38	<a href="#">WG1452173</a>
(S) Toluene-d8	102		80.0-120		03/28/2020 21:38	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	96.6		77.0-126		03/28/2020 21:38	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/28/2020 21:38	<a href="#">WG1452173</a>

7 Gl

8 Al

9 Sc



## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	408000		25000	5	03/30/2020 15:52	<a href="#">WG1452360</a>

1 Cp

2 Tc

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/30/2020 14:03	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	97.6		78.0-120		03/30/2020 14:03	<a href="#">WG1452149</a>

3 Ss

4 Cn

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/28/2020 21:58	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 21:58	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/28/2020 21:58	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/28/2020 21:58	<a href="#">WG1452173</a>
(S) Toluene-d8	108		80.0-120		03/28/2020 21:58	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	103		77.0-126		03/28/2020 21:58	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	101		70.0-130		03/28/2020 21:58	<a href="#">WG1452173</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1050000		100000	20	03/30/2020 23:48	<a href="#">WG1452360</a>

1 Cp

2 Tc

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	520		100	1	03/30/2020 14:23	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	89.9		78.0-120		03/30/2020 14:23	<a href="#">WG1452149</a>

3 Ss

4 Cn

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	2.13		1.00	1	03/28/2020 22:18	<a href="#">WG1452173</a>
Toluene	1.32		1.00	1	03/28/2020 22:18	<a href="#">WG1452173</a>
Ethylbenzene	8.08		1.00	1	03/28/2020 22:18	<a href="#">WG1452173</a>
Total Xylenes	14.1		3.00	1	03/28/2020 22:18	<a href="#">WG1452173</a>
(S) Toluene-d8	101		80.0-120		03/28/2020 22:18	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	101		77.0-126		03/28/2020 22:18	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	99.2		70.0-130		03/28/2020 22:18	<a href="#">WG1452173</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	2270000		250000	50	03/31/2020 00:02	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	394		100	1	03/30/2020 14:44	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	91.5		78.0-120		03/30/2020 14:44	<a href="#">WG1452149</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/28/2020 22:37	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 22:37	<a href="#">WG1452173</a>
Ethylbenzene	8.53		1.00	1	03/28/2020 22:37	<a href="#">WG1452173</a>
Total Xylenes	7.01		3.00	1	03/28/2020 22:37	<a href="#">WG1452173</a>
(S) Toluene-d8	101		80.0-120		03/28/2020 22:37	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	98.3		77.0-126		03/28/2020 22:37	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	99.1		70.0-130		03/28/2020 22:37	<a href="#">WG1452173</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	47100		5000	1	03/30/2020 16:35	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/30/2020 15:05	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	98.5		78.0-120		03/30/2020 15:05	<a href="#">WG1452149</a>

3 Ss

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/28/2020 22:57	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 22:57	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/28/2020 22:57	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/28/2020 22:57	<a href="#">WG1452173</a>
(S) Toluene-d8	109		80.0-120		03/28/2020 22:57	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	106		77.0-126		03/28/2020 22:57	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	98.1		70.0-130		03/28/2020 22:57	<a href="#">WG1452173</a>

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1690000		250000	50	03/31/2020 02:59	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	276		100	1	03/30/2020 15:25	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	85.1		78.0-120		03/30/2020 15:25	<a href="#">WG1452149</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	1.07		1.00	1	03/28/2020 23:17	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 23:17	<a href="#">WG1452173</a>
Ethylbenzene	8.63		1.00	1	03/28/2020 23:17	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/28/2020 23:17	<a href="#">WG1452173</a>
(S) Toluene-d8	101		80.0-120		03/28/2020 23:17	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	101		77.0-126		03/28/2020 23:17	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		03/28/2020 23:17	<a href="#">WG1452173</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 03/25/20 16:00

L1203707

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	669000		50000	10	03/30/2020 18:02	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/30/2020 15:46	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	98.6		78.0-120		03/30/2020 15:46	<a href="#">WG1452149</a>

3 Ss

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/28/2020 23:37	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 23:37	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/28/2020 23:37	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/28/2020 23:37	<a href="#">WG1452173</a>
(S) Toluene-d8	108		80.0-120		03/28/2020 23:37	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	104		77.0-126		03/28/2020 23:37	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	99.2		70.0-130		03/28/2020 23:37	<a href="#">WG1452173</a>

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1390000		250000	50	03/30/2020 18:16	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/30/2020 16:06	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	98.1		78.0-120		03/30/2020 16:06	<a href="#">WG1452149</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/28/2020 23:57	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/28/2020 23:57	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/28/2020 23:57	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/28/2020 23:57	<a href="#">WG1452173</a>
(S) Toluene-d8	108		80.0-120		03/28/2020 23:57	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	105		77.0-126		03/28/2020 23:57	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	100		70.0-130		03/28/2020 23:57	<a href="#">WG1452173</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1100000		100000	20	03/30/2020 18:31	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/30/2020 16:27	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	98.1		78.0-120		03/30/2020 16:27	<a href="#">WG1452149</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/29/2020 00:17	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/29/2020 00:17	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/29/2020 00:17	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/29/2020 00:17	<a href="#">WG1452173</a>
(S) Toluene-d8	103		80.0-120		03/29/2020 00:17	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	99.6		77.0-126		03/29/2020 00:17	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	95.8		70.0-130		03/29/2020 00:17	<a href="#">WG1452173</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1520000		250000	50	03/31/2020 03:13	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1350		500	5	03/30/2020 16:47	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	97.5		78.0-120		03/30/2020 16:47	<a href="#">WG1452149</a>

3 Ss

4 Cn

Sample Narrative:

L1203707-11 WG1452149: Lowest possible dilution due to sample foaming.

5 Sr

6 Qc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	1.32		1.00	1	03/29/2020 00:37	<a href="#">WG1452173</a>
Toluene	3.24		1.00	1	03/29/2020 00:37	<a href="#">WG1452173</a>
Ethylbenzene	275		5.00	5	04/03/2020 21:06	<a href="#">WG1455334</a>
Total Xylenes	5.76		3.00	1	03/29/2020 00:37	<a href="#">WG1452173</a>
(S) Toluene-d8	74.9	<u>J2</u>	80.0-120		03/29/2020 00:37	<a href="#">WG1452173</a>
(S) Toluene-d8	108		80.0-120		04/03/2020 21:06	<a href="#">WG1455334</a>
(S) 4-Bromofluorobenzene	77.2		77.0-126		03/29/2020 00:37	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	103		77.0-126		04/03/2020 21:06	<a href="#">WG1455334</a>
(S) 1,2-Dichloroethane-d4	96.9		70.0-130		03/29/2020 00:37	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	99.8		70.0-130		04/03/2020 21:06	<a href="#">WG1455334</a>

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1940000		250000	50	03/31/2020 03:27	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	316		100	1	03/30/2020 17:08	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	97.2		78.0-120		03/30/2020 17:08	<a href="#">WG1452149</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/29/2020 00:57	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/29/2020 00:57	<a href="#">WG1452173</a>
Ethylbenzene	5.06		1.00	1	04/03/2020 21:26	<a href="#">WG1455334</a>
Total Xylenes	ND		3.00	1	03/29/2020 00:57	<a href="#">WG1452173</a>
(S) Toluene-d8	99.7		80.0-120		03/29/2020 00:57	<a href="#">WG1452173</a>
(S) Toluene-d8	103		80.0-120		04/03/2020 21:26	<a href="#">WG1455334</a>
(S) 4-Bromofluorobenzene	98.9		77.0-126		03/29/2020 00:57	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	109		77.0-126		04/03/2020 21:26	<a href="#">WG1455334</a>
(S) 1,2-Dichloroethane-d4	97.5		70.0-130		03/29/2020 00:57	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	98.8		70.0-130		04/03/2020 21:26	<a href="#">WG1455334</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	3720000		500000	100	03/31/2020 03:41	<a href="#">WG1452360</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2160		100	1	03/30/2020 17:29	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	97.2		78.0-120		03/30/2020 17:29	<a href="#">WG1452149</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	04/03/2020 21:46	<a href="#">WG1455334</a>
Toluene	ND		1.00	1	04/03/2020 21:46	<a href="#">WG1455334</a>
Ethylbenzene	145		1.00	1	04/03/2020 21:46	<a href="#">WG1455334</a>
Total Xylenes	81.2		3.00	1	04/03/2020 21:46	<a href="#">WG1455334</a>
(S) Toluene-d8	98.8		80.0-120		04/03/2020 21:46	<a href="#">WG1455334</a>
(S) 4-Bromofluorobenzene	103		77.0-126		04/03/2020 21:46	<a href="#">WG1455334</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		04/03/2020 21:46	<a href="#">WG1455334</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 03/27/20 10:15

L1203707

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		500	5	03/30/2020 17:49	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	96.7		78.0-120		03/30/2020 17:49	<a href="#">WG1452149</a>

Sample Narrative:

L1203707-14 WG1452149: Lowest possible dilution due to sample foaming.

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	1.95		1.00	1	03/29/2020 01:36	<a href="#">WG1452173</a>
Toluene	1.46		1.00	1	03/29/2020 01:36	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/29/2020 01:36	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/29/2020 01:36	<a href="#">WG1452173</a>
(S) Toluene-d8	106		80.0-120		03/29/2020 01:36	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	105		77.0-126		03/29/2020 01:36	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	98.8		70.0-130		03/29/2020 01:36	<a href="#">WG1452173</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		500	5	03/30/2020 18:10	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	99.7		78.0-120		03/30/2020 18:10	<a href="#">WG1452149</a>

Sample Narrative:

L1203707-15 WG1452149: Lowest possible dilution due to sample foaming.

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/29/2020 01:56	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/29/2020 01:56	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/29/2020 01:56	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/29/2020 01:56	<a href="#">WG1452173</a>
(S) Toluene-d8	108		80.0-120		03/29/2020 01:56	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	105		77.0-126		03/29/2020 01:56	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	99.2		70.0-130		03/29/2020 01:56	<a href="#">WG1452173</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1960		100	1	03/30/2020 18:30	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	106		78.0-120		03/30/2020 18:30	<a href="#">WG1452149</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	5.93		1.00	1	04/03/2020 22:07	<a href="#">WG1455334</a>
Toluene	ND		1.00	1	04/03/2020 22:07	<a href="#">WG1455334</a>
Ethylbenzene	74.0		1.00	1	04/03/2020 22:07	<a href="#">WG1455334</a>
Total Xylenes	6.77		3.00	1	04/03/2020 22:07	<a href="#">WG1455334</a>
(S) Toluene-d8	101		80.0-120		04/03/2020 22:07	<a href="#">WG1455334</a>
(S) 4-Bromofluorobenzene	103		77.0-126		04/03/2020 22:07	<a href="#">WG1455334</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		04/03/2020 22:07	<a href="#">WG1455334</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/30/2020 18:51	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	97.2		78.0-120		03/30/2020 18:51	<a href="#">WG1452149</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/29/2020 02:36	<a href="#">WG1452173</a>
Toluene	ND		1.00	1	03/29/2020 02:36	<a href="#">WG1452173</a>
Ethylbenzene	ND		1.00	1	03/29/2020 02:36	<a href="#">WG1452173</a>
Total Xylenes	ND		3.00	1	03/29/2020 02:36	<a href="#">WG1452173</a>
(S) Toluene-d8	109		80.0-120		03/29/2020 02:36	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	105		77.0-126		03/29/2020 02:36	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	98.9		70.0-130		03/29/2020 02:36	<a href="#">WG1452173</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1660		500	5	03/30/2020 19:11	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	93.3		78.0-120		03/30/2020 19:11	<a href="#">WG1452149</a>

Sample Narrative:

L1203707-18 WG1452149: Lowest possible dilution due to sample foaming.

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	258		5.00	5	03/29/2020 02:56	<a href="#">WG1452173</a>
Toluene	5.39		5.00	5	03/29/2020 02:56	<a href="#">WG1452173</a>
Ethylbenzene	5.55		5.00	5	03/29/2020 02:56	<a href="#">WG1452173</a>
Total Xylenes	ND		15.0	5	03/29/2020 02:56	<a href="#">WG1452173</a>
(S) Toluene-d8	105		80.0-120		03/29/2020 02:56	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	105		77.0-126		03/29/2020 02:56	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	96.6		70.0-130		03/29/2020 02:56	<a href="#">WG1452173</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2150		100	1	03/30/2020 19:32	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	112		78.0-120		03/30/2020 19:32	<a href="#">WG1452149</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	222		10.0	10	03/29/2020 03:16	<a href="#">WG1452173</a>
Toluene	ND		10.0	10	03/29/2020 03:16	<a href="#">WG1452173</a>
Ethylbenzene	144		10.0	10	03/29/2020 03:16	<a href="#">WG1452173</a>
Total Xylenes	41.2		30.0	10	03/29/2020 03:16	<a href="#">WG1452173</a>
(S) Toluene-d8	104		80.0-120		03/29/2020 03:16	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	104		77.0-126		03/29/2020 03:16	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	98.7		70.0-130		03/29/2020 03:16	<a href="#">WG1452173</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1600		100	1	03/30/2020 19:52	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	106		78.0-120		03/30/2020 19:52	<a href="#">WG1452149</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	305		10.0	10	04/03/2020 22:27	<a href="#">WG1455334</a>
Toluene	5.62		1.00	1	03/29/2020 03:36	<a href="#">WG1452173</a>
Ethylbenzene	6.35		1.00	1	03/29/2020 03:36	<a href="#">WG1452173</a>
Total Xylenes	6.62		3.00	1	03/29/2020 03:36	<a href="#">WG1452173</a>
(S) Toluene-d8	86.7		80.0-120		03/29/2020 03:36	<a href="#">WG1452173</a>
(S) Toluene-d8	117		80.0-120		04/03/2020 22:27	<a href="#">WG1455334</a>
(S) 4-Bromofluorobenzene	94.8		77.0-126		03/29/2020 03:36	<a href="#">WG1452173</a>
(S) 4-Bromofluorobenzene	114		77.0-126		04/03/2020 22:27	<a href="#">WG1455334</a>
(S) 1,2-Dichloroethane-d4	113		70.0-130		03/29/2020 03:36	<a href="#">WG1452173</a>
(S) 1,2-Dichloroethane-d4	95.5		70.0-130		04/03/2020 22:27	<a href="#">WG1455334</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/30/2020 20:13	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	97.1		78.0-120		03/30/2020 20:13	<a href="#">WG1452149</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/31/2020 06:26	<a href="#">WG1453028</a>
Toluene	ND		1.00	1	03/31/2020 06:26	<a href="#">WG1453028</a>
Ethylbenzene	ND		1.00	1	03/31/2020 06:26	<a href="#">WG1453028</a>
Total Xylenes	ND		3.00	1	03/31/2020 06:26	<a href="#">WG1453028</a>
(S) Toluene-d8	105		80.0-120		03/31/2020 06:26	<a href="#">WG1453028</a>
(S) 4-Bromofluorobenzene	96.7		77.0-126		03/31/2020 06:26	<a href="#">WG1453028</a>
(S) 1,2-Dichloroethane-d4	99.6		70.0-130		03/31/2020 06:26	<a href="#">WG1453028</a>

4 Cn

5 Sr

6 Qc

7 Gl

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	04/02/2020 08:31	<a href="#">WG1453546</a>
Residual Range Organics (RRO)	ND		250	1	04/02/2020 08:31	<a href="#">WG1453546</a>
(S) o-Terphenyl	78.0		52.0-156		04/02/2020 08:31	<a href="#">WG1453546</a>

8 Al

9 Sc



Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.200	1	03/30/2020 17:12	<a href="#">WG1452406</a>

1 Cp

2 Tc

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Antimony	3.04		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Arsenic	6.77		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Barium	11.5		5.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Beryllium	ND		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Cadmium	ND		1.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Chromium	ND		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Copper	ND		5.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Cobalt	ND		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Lead	4.92		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Molybdenum	ND		5.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Nickel	ND		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Selenium	ND		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Silver	ND		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Thallium	ND		2.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Vanadium	ND		5.00	1	03/30/2020 00:49	<a href="#">WG1452100</a>
Zinc	25.2		25.0	1	03/30/2020 00:49	<a href="#">WG1452100</a>

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	327		100	1	03/30/2020 20:34	<a href="#">WG1452149</a>
(S) a,a,a-Trifluorotoluene(FID)	92.9		78.0-120		03/30/2020 20:34	<a href="#">WG1452149</a>

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	29.3		1.00	1	03/31/2020 06:45	<a href="#">WG1453028</a>
Toluene	1.05		1.00	1	03/31/2020 06:45	<a href="#">WG1453028</a>
Ethylbenzene	20.9		1.00	1	03/31/2020 06:45	<a href="#">WG1453028</a>
Total Xylenes	6.98		3.00	1	03/31/2020 06:45	<a href="#">WG1453028</a>
(S) Toluene-d8	100		80.0-120		03/31/2020 06:45	<a href="#">WG1453028</a>
(S) 4-Bromofluorobenzene	95.9		77.0-126		03/31/2020 06:45	<a href="#">WG1453028</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		03/31/2020 06:45	<a href="#">WG1453028</a>



Collected date/time: 03/26/20 00:00

L1203707

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/29/2020 05:29	<a href="#">WG1452195</a>
(S) a,a,a-Trifluorotoluene(FID)	96.3		78.0-120		03/29/2020 05:29	<a href="#">WG1452195</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	03/31/2020 05:28	<a href="#">WG1453028</a>
Toluene	ND		1.00	1	03/31/2020 05:28	<a href="#">WG1453028</a>
Ethylbenzene	ND		1.00	1	03/31/2020 05:28	<a href="#">WG1453028</a>
Total Xylenes	ND		3.00	1	03/31/2020 05:28	<a href="#">WG1453028</a>
(S) Toluene-d8	104		80.0-120		03/31/2020 05:28	<a href="#">WG1453028</a>
(S) 4-Bromofluorobenzene	98.1		77.0-126		03/31/2020 05:28	<a href="#">WG1453028</a>
(S) 1,2-Dichloroethane-d4	111		70.0-130		03/31/2020 05:28	<a href="#">WG1453028</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3514120-1 03/30/20 13:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		77.4	5000

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1203707-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1203707-02 03/30/20 15:24 • (DUP) R3514120-3 03/30/20 15:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	ND	1360	1	2.78	↓	15

L1203707-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1203707-13 03/31/20 03:41 • (DUP) R3514120-8 03/31/20 03:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	3720000	3870000	100	4.13		15

Laboratory Control Sample (LCS)

(LCS) R3514120-2 03/30/20 14:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	40100	100	80.0-120	

L1203707-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1203707-06 03/30/20 16:35 • (MS) R3514120-4 03/30/20 16:50 • (MSD) R3514120-5 03/30/20 17:04

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	47100	94600	94600	94.8	94.9	1	80.0-120			0.0467	15

L1203793-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1203793-05 03/30/20 21:38 • (MS) R3514120-7 03/30/20 21:52

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	1700000	1690000	0.000	1	80.0-120	EV



Method Blank (MB)

(MB) R3514048-1 03/30/20 16:41

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.0490	0.200

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

Laboratory Control Sample (LCS)

(LCS) R3514048-2 03/30/20 16:43

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	3.00	2.91	96.9	80.0-120	

L1203578-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1203578-01 03/30/20 16:45 • (MS) R3514048-3 03/30/20 16:46 • (MSD) R3514048-4 03/30/20 16:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	ND	3.21	3.26	107	109	1	75.0-125			1.79	20

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc





Method Blank (MB)

(MB) R3513777-1 03/29/20 23:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Barium	U		0.360	5.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Chromium	1.50	U	0.540	2.00
Copper	U		0.520	5.00
Cobalt	U		0.260	2.00
Lead	0.277	U	0.240	2.00
Molybdenum	0.176	U	0.140	5.00
Nickel	0.389	U	0.350	2.00
Selenium	U		0.380	2.00
Silver	U		0.310	2.00
Thallium	U		0.190	2.00
Vanadium	0.267	U	0.180	5.00
Zinc	U		2.56	25.0

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Laboratory Control Sample (LCS)

(LCS) R3513777-2 03/29/20 23:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Antimony	50.0	52.4	105	80.0-120	
Arsenic	50.0	49.5	99.0	80.0-120	
Barium	50.0	49.5	98.9	80.0-120	
Beryllium	50.0	43.3	86.6	80.0-120	
Cadmium	50.0	49.3	98.6	80.0-120	
Chromium	50.0	50.7	101	80.0-120	
Copper	50.0	45.9	91.8	80.0-120	
Cobalt	50.0	50.4	101	80.0-120	
Lead	50.0	49.3	98.6	80.0-120	
Molybdenum	50.0	48.7	97.3	80.0-120	
Nickel	50.0	51.1	102	80.0-120	
Selenium	50.0	49.8	99.6	80.0-120	
Silver	50.0	47.6	95.3	80.0-120	
Thallium	50.0	49.5	99.0	80.0-120	
Vanadium	50.0	50.1	100	80.0-120	
Zinc	50.0	50.7	101	80.0-120	



[L1203707-22](#)

L1203586-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1203586-01 03/29/20 23:23 • (MS) R3513777-4 03/29/20 23:29 • (MSD) R3513777-5 03/29/20 23:33

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	50.0	ND	55.9	57.0	112	114	1	75.0-125			1.97	20
Arsenic	50.0	ND	50.2	51.0	98.8	100	1	75.0-125			1.54	20
Barium	50.0	46.5	95.9	95.7	98.8	98.5	1	75.0-125			0.164	20
Beryllium	50.0	ND	42.5	42.5	85.0	84.9	1	75.0-125			0.105	20
Cadmium	50.0	ND	49.5	50.1	99.1	100	1	75.0-125			1.09	20
Chromium	50.0	ND	49.5	49.7	97.2	97.7	1	75.0-125			0.506	20
Copper	50.0	ND	51.9	52.3	96.1	97.1	1	75.0-125			0.921	20
Cobalt	50.0	ND	49.5	49.6	97.8	98.0	1	75.0-125			0.196	20
Lead	50.0	ND	50.1	48.8	99.1	96.5	1	75.0-125			2.55	20
Molybdenum	50.0	ND	55.3	55.6	101	102	1	75.0-125			0.629	20
Nickel	50.0	ND	50.2	51.2	96.2	98.2	1	75.0-125			1.95	20
Selenium	50.0	ND	48.7	49.8	96.6	98.8	1	75.0-125			2.21	20
Silver	50.0	ND	49.5	49.2	99.1	98.4	1	75.0-125			0.656	20
Thallium	50.0	ND	48.0	48.8	96.0	97.6	1	75.0-125			1.66	20
Vanadium	50.0	ND	49.9	50.1	99.4	99.8	1	75.0-125			0.416	20
Zinc	50.0	ND	70.6	72.2	96.1	99.3	1	75.0-125			2.24	20

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Method Blank (MB)

(MB) R3514869-2 03/28/20 19:04

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	36.6	↓	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	96.1			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R3514869-1 03/28/20 18:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5280	96.0	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			103	78.0-120	

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3515661-2 03/30/20 13:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	99.3			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R3515661-1 03/30/20 11:53

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	4920	89.5	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			113	78.0-120	

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3515198-3 03/29/20 05:08

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	43.0	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	96.1			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3515198-1 03/29/20 04:03 • (LCSD) R3515198-2 03/29/20 04:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	4930	4850	89.6	88.2	70.0-124			1.64	20
(S) a,a,a-Trifluorotoluene(FID)				102	102	78.0-120				

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3515395-4 03/28/20 20:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.331	1.00
Ethylbenzene	U		0.384	1.00
Toluene	U		0.412	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	109			80.0-120
(S) 4-Bromofluorobenzene	103			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3515395-1 03/28/20 19:10 • (LCSD) R3515395-2 03/28/20 19:30

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Benzene	5.00	4.09	4.54	81.8	90.8	70.0-123			10.4	20
Ethylbenzene	5.00	4.29	4.72	85.8	94.4	79.0-123			9.54	20
Toluene	5.00	4.21	4.69	84.2	93.8	79.0-120			10.8	20
Xylenes, Total	15.0	12.7	14.2	84.7	94.7	79.0-123			11.2	20
(S) Toluene-d8				106	106	80.0-120				
(S) 4-Bromofluorobenzene				105	102	77.0-126				
(S) 1,2-Dichloroethane-d4				102	104	70.0-130				

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Method Blank (MB)

(MB) R3514373-4 03/31/20 04:16

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.331	1.00
Ethylbenzene	U		0.384	1.00
Toluene	U		0.412	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	107			80.0-120
(S) 4-Bromofluorobenzene	96.3			77.0-126
(S) 1,2-Dichloroethane-d4	106			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3514373-1 03/31/20 02:59 • (LCSD) R3514373-2 03/31/20 03:18

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Benzene	5.00	4.55	4.32	91.0	86.4	70.0-123			5.19	20
Ethylbenzene	5.00	4.79	4.71	95.8	94.2	79.0-123			1.68	20
Toluene	5.00	5.21	4.89	104	97.8	79.0-120			6.34	20
Xylenes, Total	15.0	14.4	13.9	96.0	92.7	79.0-123			3.53	20
(S) Toluene-d8				102	104	80.0-120				
(S) 4-Bromofluorobenzene				95.9	97.1	77.0-126				
(S) 1,2-Dichloroethane-d4				110	109	70.0-130				

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3515495-2 04/03/20 18:58

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.331	1.00
Ethylbenzene	U		0.384	1.00
Toluene	U		0.412	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	116			80.0-120
(S) 4-Bromofluorobenzene	108			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3515495-1 04/03/20 17:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Benzene	5.00	4.78	95.6	70.0-123	
Ethylbenzene	5.00	4.74	94.8	79.0-123	
Toluene	5.00	4.96	99.2	79.0-120	
Xylenes, Total	15.0	14.6	97.3	79.0-123	
(S) Toluene-d8			111	80.0-120	
(S) 4-Bromofluorobenzene			105	77.0-126	
(S) 1,2-Dichloroethane-d4			101	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3514884-1 04/02/20 07:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
<i>(S) o-Terphenyl</i>	76.5			52.0-156

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3514884-2 04/02/20 07:24 • (LCSD) R3514884-3 04/02/20 07:44

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Diesel Range Organics (DRO)	1500	1510	1510	101	101	50.0-150			0.000	20
<i>(S) o-Terphenyl</i>				91.0	91.0	52.0-156				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
V	The sample concentration is too high to evaluate accurate spike recoveries.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

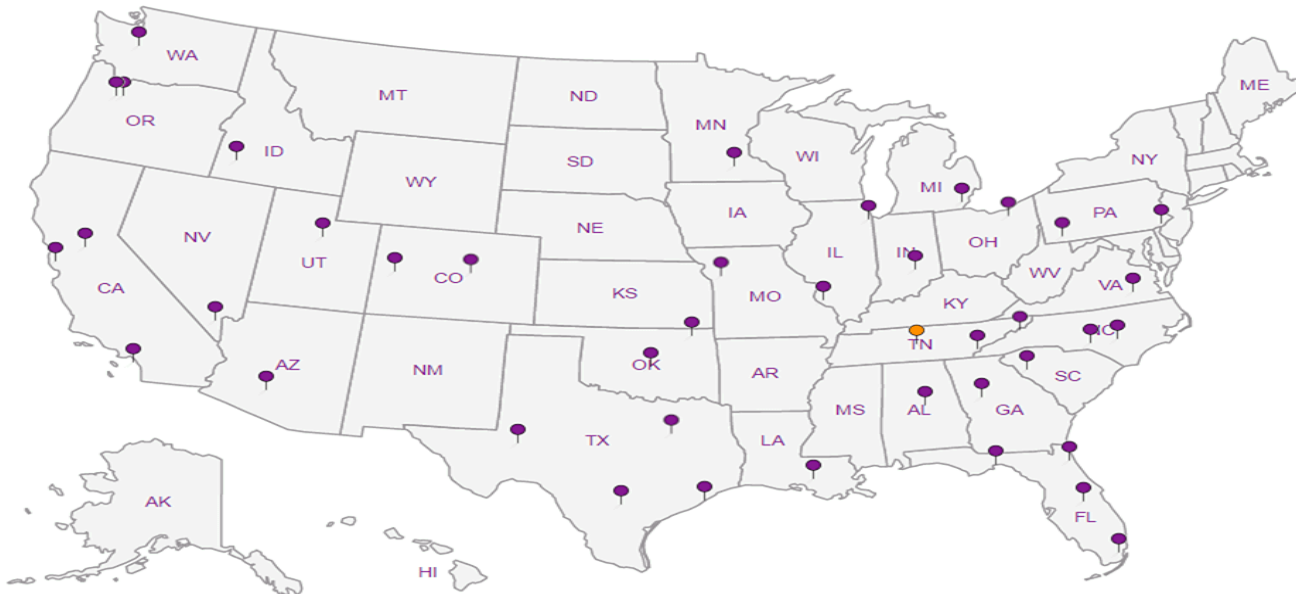
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# Kinder Morgan- Orange, CA

1100 Olive Way, Suite 800  
Seattle, WA 98101

### Billing Information:

Accounts Payable-Scott Martin  
1001 Louisiana St.  
Houston, TX 77002

Pres  
Chk

### Analysis / Container / Preservative



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



Report to:  
**Kyle Haslam**

Email To:  
Kyle.Haslam@arcadis.com; Scott.Wenning@arcadis.com

Project  
Description: **KMEP Harbor Island**

City/State  
Collected: **Seattle WA**

Please Circle:  
 MT  CT  ET

Phone: **206-726-4713**  
Fax:

Client Project #  
**30018857**

Lab Project #  
**KINMOROCA-HARBORISLA**

Collected by (print):  
*Kelsy Franz*  
*Lauren Schleck*

Site/Facility ID #  
**2720 13TH AVENUE SW**

P.O. #

Collected by (signature):  
*Kelsy Franz*

Rush? (Lab MUST Be Notified)

Quote #

Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day

Date Results Needed

**STAT**

No.  
of  
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	BTEX 8260D 40mlAmb-HCl	FF Diss CAM17 6020 250mlHDPE-HNO3	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Total CAM17 6020 250mlHDPE-HNO3						
MW-21	G	GW	—	3-26-20	1525	8	X		X	X								-01
A-27	G	GW	—	3-27-20	1105	7	X			X	X							-02
11	G	GW	—	3-26-20	1305	7	X			X	X							-03
12	G	GW	—	3-26-20	1655	7	X			X	X							-04
MW-7	G	GW	—	3-26-20	1150	7	X			X	X							-05
MW-9	G	GW	—	3-26-20	1625	7	X			X	X							-06
MW-19	G	GW	—	3-25-20	1550	7	X			X	X							-07
TMW-1	G	GW	—	3-25-20	1600	7	X			X	X							-08
TMW-2	G	GW	—	3-25-20	1515	7	X			X	X							-09
TMW-3	G	GW	—	3-26-20	1330	7	X			X	X							-10

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

### Remarks:

Samples returned via:  
 UPS  FedEx  Courier

Tracking # **11415 2235 3916 / 11415 2234**

Sample Receipt Checklist	
COC Seal Present/Intact:	NP <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VQA Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No HCl / MeOH TBR	Temp: <i>4.5</i> °C Date: <i>3/27/20</i> Time: <i>8:30</i>	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)			
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)			Hold: Condition: NCF / OK

# Kinder Morgan- Orange, CA

1100 Olive Way, Suite 800  
Seattle, WA 98101

Report to:  
Kyle Haslam

Project Description: **KMEP Harbor Island**

Phone: **206-726-4713**  
Fax:

Collected by (print):  
*Kelsey Franz  
Lauren Senek*

Collected by (signature):  
*[Signature]*

Immediately Packed on Ice N  Y

Billing Information:  
Accounts Payable-Scott Martin  
1001 Louisiana St.  
Houston, TX 77002

Email To:  
Kyle.Haslam@arcadis.com; Scott.Wenning@arcadis

City/State Collected: **Seattle WA**  
Please Circle:  MT  CT  ET

Client Project # **30018857**  
Lab Project # **KINMOROCA-HARBORISLA**

Site/Facility ID # **2720 13TH AVENUE SW**  
P.O. #

**Rush?** (Lab MUST Be Notified)  
 Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day  
 Date Results Needed: **STAT**

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	Analysis / Container / Preservative					Remarks	Sample # (lab only)	
							BTEX 8260D 40mlAmb-HCl	FF Diss CAM17 6020 250mlHDPE HNO3	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres			Total CAM17 6020 250mlHDPE-HNO3
TMW-4	G	GW	—	3-26-20	1210	7	X			X	X			-11
TMW-5	G	GW	—	3-26-20	1030	7	X			X	X			-12
TMW-6	G	GW	—	3-26-20	1500	7	X			X	X			-13
A-5	G	GW	—	3-27-20	1015	6	X			X				-14
A-21	G	GW	—	3-27-20	1120	6	X			X				-15
A-28R	G	GW	—	3-26-20	1630	6	X			X				-16
MW-18	G	GW	—	3-27-20	1005	6	X			X				-17
MW-23	G	GW	—	3-27-20	1225	6	X			X				-18
MW-24	G	GW	—	3-27-20	1225	6	X			X				-19
DUP-1	G	GW	—	3-27-20	—	6	X			X				-20

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:  
 pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_  
 Samples returned via:  UPS  FedEx  Courier  
 Tracking # **9145 2236 39 16 / 1145 2227 4040**

**Sample Receipt Checklist**  
 COC Seal Present/Intact:  NP  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 If Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N  
 RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeOH TBR	Bottles Received: <b>320</b>	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <b>NA 2°C</b> <b>SE 0 = .5</b>		
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: <b>3/29/20</b>	Time: <b>8:30</b>	Hold: _____ Condition: <b>NCF OK</b>

Chain of Custody Page **1** of **1**



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



SDG # **L1203707**  
 Table # **B159**  
 Acctnum: **KINMOROCA**  
 Template: **T164473**  
 Prelogin: **P761223**  
 PM: **110 - Brian Ford**  
 PB:  
 Shipped Via:  
 Remarks: \_\_\_\_\_  
 Sample # (lab only): \_\_\_\_\_

# Kinder Morgan- Orange, CA

1100 Olive Way, Suite 800  
Seattle, WA 98101

Billing Information:  
Accounts Payable-Scott Martin  
1001 Louisiana St.  
Houston, TX 77002

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page 3 of 3



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



Report to:  
Kyle Haslam

Email To:  
Kyle.Haslam@arcadis.com; Scott.Wenning@arcadis.com

Project  
Description: KMEP Harbor Island

City/State  
Collected: Seattle WA

Please Circle:  
PT MT CT ET

Phone: 206-726-4713  
Fax:

Client Project #  
30018857

Lab Project #  
KINMOROCA-HARBORISLA

Collected by (print):  
Kelsey Franz  
Lauren Seiler

Site/Facility ID #  
2720 13TH AVENUE SW

P.O. #

Collected by (signature):  
*[Signature]*

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Date Results Needed

STAT

Immediately  
Packed on Ice N  Y

No.  
of  
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX 8260D 40mlAmb-HCl	FF Diss CAM17 6020 250mlHDPE-HNO3	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Total CAM17 6020 250mlHDPE-HNO3	Remarks	Sample # (lab only)
DUP-2	G	GW	—	3-26-20	—	8	X		X	X				-21
DRUM-1	G	GW	—	3-27-20	1300	78	X			X		X		-22
Trip Blank	G	GW	—	—	—	2	X			X				-23

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks: Total CAM17 for Drum-1

pH Temp

Flow Other

Sample Receipt Checklist	
COC Seal Present/Intact:	NP <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
Vol. Zero Headspace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Samples returned via:  
 UPS  FedEx  Courier

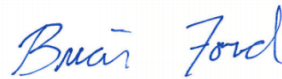
Tracking # 1145 2235 3916 4019

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes/No HCL / MeOH TBR	Bottles Received: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.1 12°C 5.50=5	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/27/20	Time: 8:30	Hold: Condition: NCF / OK

## Kinder Morgan- Houston, TX(Scott Martin)

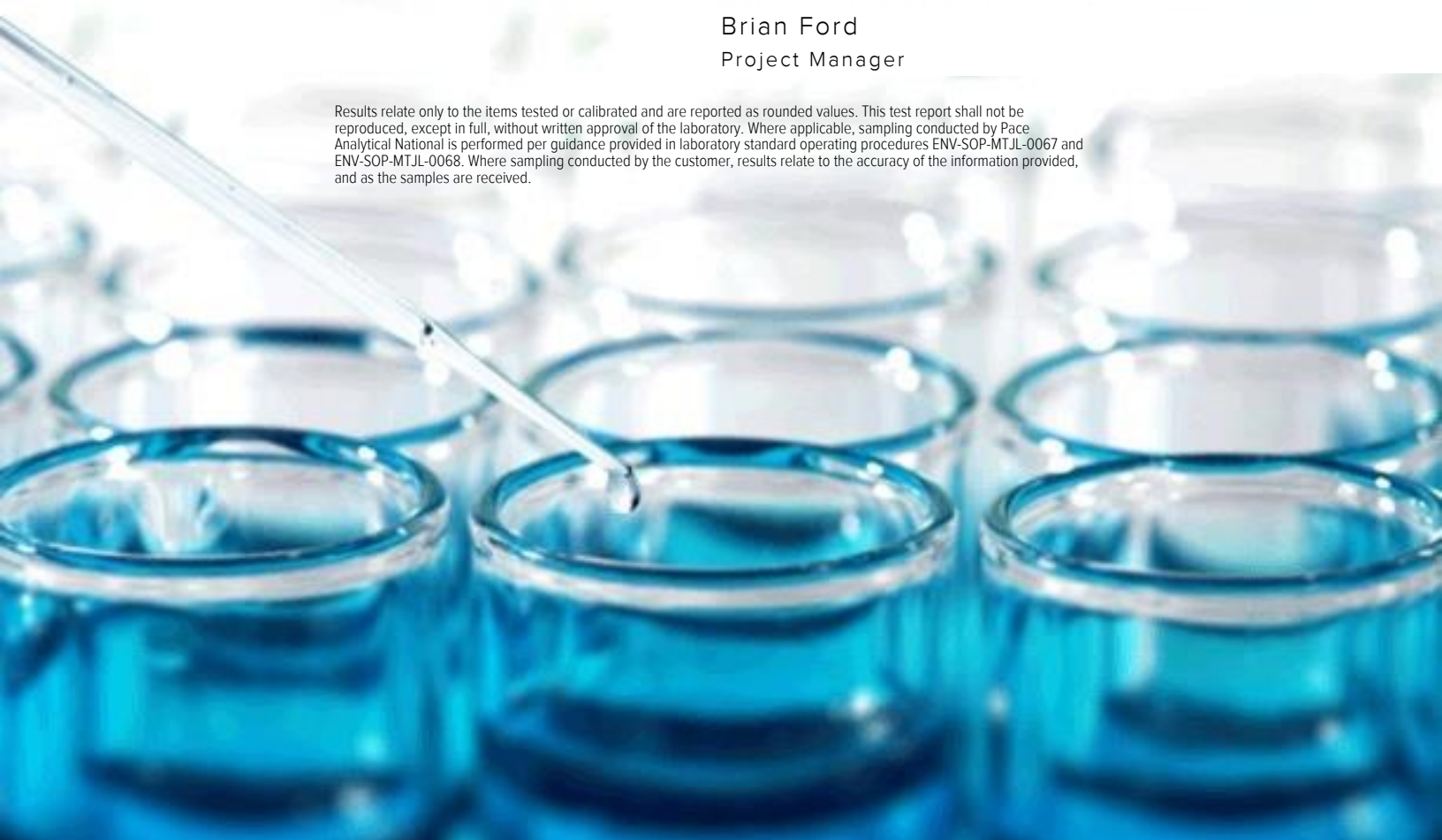
Sample Delivery Group: L1276973  
Samples Received: 10/23/2020  
Project Number: 30050809.00002000  
Description: KMEP Harbor Island  
Site: 2720 13TH AVENUE SW SEATTLE,WA  
Report To: Kyle Haslam  
1100 Olive Way, Suite 800  
Seattle, WA 98101

Entire Report Reviewed By:



Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	
<b>Ss: Sample Summary</b>	<b>3</b>	<b>2</b> Tc
<b>Cn: Case Narrative</b>	<b>4</b>	
<b>Sr: Sample Results</b>	<b>5</b>	<b>3</b> Ss
<b>MW-23 L1276973-01</b>	<b>5</b>	
<b>MW-24 L1276973-02</b>	<b>6</b>	<b>4</b> Cn
<b>A-27 L1276973-03</b>	<b>7</b>	<b>5</b> Sr
<b>TMW-B1 L1276973-04</b>	<b>8</b>	
<b>Qc: Quality Control Summary</b>	<b>9</b>	<b>6</b> Qc
<b>Wet Chemistry by Method 3500Fe B-2011</b>	<b>9</b>	
<b>Wet Chemistry by Method 353.2</b>	<b>10</b>	<b>7</b> Gl
<b>Wet Chemistry by Method 4500S2 D-2011</b>	<b>11</b>	<b>8</b> Al
<b>Wet Chemistry by Method 9056A</b>	<b>12</b>	
<b>Metals (ICPMS) by Method 6020B</b>	<b>13</b>	<b>9</b> Sc
<b>Volatile Organic Compounds (GC) by Method NWTPHGX</b>	<b>15</b>	
<b>Volatile Organic Compounds (GC) by Method RSK175</b>	<b>16</b>	
<b>Volatile Organic Compounds (GC/MS) by Method 8260D</b>	<b>18</b>	
<b>Gl: Glossary of Terms</b>	<b>19</b>	
<b>Al: Accreditations &amp; Locations</b>	<b>20</b>	
<b>Sc: Sample Chain of Custody</b>	<b>21</b>	



# SAMPLE SUMMARY

## MW-23 L1276973-01 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 10:08  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG1564765	10	10/27/20 16:04	10/27/20 16:04	KLS	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1567379	1	10/29/20 05:40	10/29/20 05:40	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1566602	1	10/28/20 20:29	10/28/20 20:29	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1566861	1	10/31/20 10:03	10/31/20 10:03	MSP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565115	1	10/26/20 00:50	10/26/20 13:45	TM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 22:37	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566905	5	10/28/20 19:03	10/28/20 19:03	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1568489	10	10/30/20 15:25	10/30/20 15:25	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	5	10/31/20 08:56	10/31/20 08:56	ADM	Mt. Juliet, TN

- 1  
Cp
- 2  
Tc
- 3  
Ss
- 4  
Cn
- 5  
Sr
- 6  
Qc
- 7  
Gl
- 8  
Al
- 9  
Sc

## MW-24 L1276973-02 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 10:07  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG1564765	50	10/27/20 16:05	10/27/20 16:05	KLS	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1567379	1	10/29/20 05:30	10/29/20 05:30	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1566602	1	10/28/20 20:29	10/28/20 20:29	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1566861	1	10/31/20 10:14	10/31/20 10:14	MSP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565115	1	10/26/20 00:50	10/26/20 14:00	TM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 22:40	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566905	1	10/28/20 19:24	10/28/20 19:24	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1568489	10	10/30/20 15:27	10/30/20 15:27	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	10	10/31/20 09:17	10/31/20 09:17	ADM	Mt. Juliet, TN

## A-27 L1276973-03 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 11:55  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG1564765	25	10/27/20 16:05	10/27/20 16:05	KLS	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1567379	1	10/29/20 05:31	10/29/20 05:31	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1566602	1	10/28/20 21:02	10/28/20 21:02	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1566861	5	10/30/20 11:35	10/30/20 11:35	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566905	5	10/28/20 19:44	10/28/20 19:44	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1567224	1	10/29/20 15:01	10/29/20 15:01	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 06:12	10/31/20 06:12	ADM	Mt. Juliet, TN

## TMW-B1 L1276973-04 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 12:56  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG1564765	25	10/27/20 16:06	10/27/20 16:06	KLS	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1567379	1	10/29/20 05:32	10/29/20 05:32	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1566602	1	10/28/20 21:03	10/28/20 21:03	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1566861	1	10/31/20 10:25	10/31/20 10:25	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566905	1	10/28/20 20:05	10/28/20 20:05	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1568489	10	10/30/20 15:29	10/30/20 15:29	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 06:33	10/31/20 06:33	ADM	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc



Wet Chemistry by Method 3500Fe B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ferrous Iron	13000	T8	500	10	10/27/2020 16:04	<a href="#">WG1564765</a>

1 Cp

2 Tc

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	105		100	1	10/29/2020 05:40	<a href="#">WG1567379</a>

3 Ss

4 Cn

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	10/28/2020 20:29	<a href="#">WG1566602</a>

5 Sr

6 Qc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	ND		5000	1	10/31/2020 10:03	<a href="#">WG1566861</a>

7 Gl

8 Al

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/26/2020 13:45	<a href="#">WG1565115</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 22:37	<a href="#">WG1565899</a>

9 Sc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	3770		500	5	10/28/2020 19:03	<a href="#">WG1566905</a>
(S) a,a,a-Trifluorotoluene(FID)	86.4		78.0-120		10/28/2020 19:03	<a href="#">WG1566905</a>

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Methane	17700		100	10	10/30/2020 15:25	<a href="#">WG1568489</a>

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	309		5.00	5	10/31/2020 08:56	<a href="#">WG1568471</a>
Toluene	8.59		5.00	5	10/31/2020 08:56	<a href="#">WG1568471</a>
Ethylbenzene	9.68		5.00	5	10/31/2020 08:56	<a href="#">WG1568471</a>
Total Xylenes	ND		15.0	5	10/31/2020 08:56	<a href="#">WG1568471</a>
(S) Toluene-d8	105		80.0-120		10/31/2020 08:56	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	107		77.0-126		10/31/2020 08:56	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		10/31/2020 08:56	<a href="#">WG1568471</a>



Wet Chemistry by Method 3500Fe B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ferrous Iron	55200	T8	2500	50	10/27/2020 16:05	<a href="#">WG1564765</a>

1 Cp

2 Tc

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		100	1	10/29/2020 05:30	<a href="#">WG1567379</a>

3 Ss

4 Cn

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND	J6	50.0	1	10/28/2020 20:29	<a href="#">WG1566602</a>

5 Sr

6 Qc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	ND		5000	1	10/31/2020 10:14	<a href="#">WG1566861</a>

7 Gl

8 Al

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/26/2020 14:00	<a href="#">WG1565115</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 22:40	<a href="#">WG1565899</a>

9 Sc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	9000		100	1	10/28/2020 19:24	<a href="#">WG1566905</a>
(S) a,a,a-Trifluorotoluene(FID)	140	J1	78.0-120		10/28/2020 19:24	<a href="#">WG1566905</a>

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Methane	18700		100	10	10/30/2020 15:27	<a href="#">WG1568489</a>

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	859		10.0	10	10/31/2020 09:17	<a href="#">WG1568471</a>
Toluene	37.1		10.0	10	10/31/2020 09:17	<a href="#">WG1568471</a>
Ethylbenzene	708		10.0	10	10/31/2020 09:17	<a href="#">WG1568471</a>
Total Xylenes	244		30.0	10	10/31/2020 09:17	<a href="#">WG1568471</a>
(S) Toluene-d8	105		80.0-120		10/31/2020 09:17	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	108		77.0-126		10/31/2020 09:17	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		10/31/2020 09:17	<a href="#">WG1568471</a>



## Wet Chemistry by Method 3500Fe B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ferrous Iron	14200	T8	1250	25	10/27/2020 16:05	<a href="#">WG1564765</a>

1 Cp

2 Tc

## Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		100	1	10/29/2020 05:31	<a href="#">WG1567379</a>

3 Ss

4 Cn

## Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	10/28/2020 21:02	<a href="#">WG1566602</a>

5 Sr

6 Qc

## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	46200		25000	5	10/30/2020 11:35	<a href="#">WG1566861</a>

7 Gl

8 Al

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1730	B	500	5	10/28/2020 19:44	<a href="#">WG1566905</a>
(S) a, a, a-Trifluorotoluene(FID)	91.8		78.0-120		10/28/2020 19:44	<a href="#">WG1566905</a>

9 Sc

## Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Methane	5140		10.0	1	10/29/2020 15:01	<a href="#">WG1567224</a>

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	18.5		1.00	1	10/31/2020 06:12	<a href="#">WG1568471</a>
Toluene	1.23		1.00	1	10/31/2020 06:12	<a href="#">WG1568471</a>
Ethylbenzene	ND		1.00	1	10/31/2020 06:12	<a href="#">WG1568471</a>
Total Xylenes	3.15		3.00	1	10/31/2020 06:12	<a href="#">WG1568471</a>
(S) Toluene-d8	104		80.0-120		10/31/2020 06:12	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	109		77.0-126		10/31/2020 06:12	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	105		70.0-130		10/31/2020 06:12	<a href="#">WG1568471</a>



Wet Chemistry by Method 3500Fe B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ferrous Iron	12100	T8	1250	25	10/27/2020 16:06	<a href="#">WG1564765</a>

1 Cp

2 Tc

Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		100	1	10/29/2020 05:32	<a href="#">WG1567379</a>

3 Ss

4 Cn

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	10/28/2020 21:03	<a href="#">WG1566602</a>

5 Sr

6 Qc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	ND		5000	1	10/31/2020 10:25	<a href="#">WG1566861</a>

7 Gl

8 Al

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	6000		100	1	10/28/2020 20:05	<a href="#">WG1566905</a>
(S) a,a,a-Trifluorotoluene(FID)	114		78.0-120		10/28/2020 20:05	<a href="#">WG1566905</a>

9 Sc

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Methane	10800		100	10	10/30/2020 15:29	<a href="#">WG1568489</a>

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	79.6		1.00	1	10/31/2020 06:33	<a href="#">WG1568471</a>
Toluene	8.69		1.00	1	10/31/2020 06:33	<a href="#">WG1568471</a>
Ethylbenzene	29.3		1.00	1	10/31/2020 06:33	<a href="#">WG1568471</a>
Total Xylenes	12.4		3.00	1	10/31/2020 06:33	<a href="#">WG1568471</a>
(S) Toluene-d8	104		80.0-120		10/31/2020 06:33	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	107		77.0-126		10/31/2020 06:33	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	128		70.0-130		10/31/2020 06:33	<a href="#">WG1568471</a>



Method Blank (MB)

(MB) R3586195-1 10/27/20 14:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Ferrous Iron	U		15.0	50.0

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1276345-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1276345-02 10/27/20 15:36 • (DUP) R3586195-3 10/27/20 15:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Ferrous Iron	ND	ND	1	0.000		20

L1276367-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1276367-02 10/27/20 15:53 • (DUP) R3586195-4 10/27/20 15:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Ferrous Iron	67.0	64.0	1	4.58		20

Laboratory Control Sample (LCS)

(LCS) R3586195-2 10/27/20 14:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Ferrous Iron	1000	955	95.5	85.0-115	

L1276345-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276345-03 10/27/20 15:38 • (MS) R3586195-5 10/27/20 16:31 • (MSD) R3586195-6 10/27/20 16:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Ferrous Iron	1000	1310	2170	2240	85.6	92.7	1	80.0-120			3.23	20



Method Blank (MB)

(MB) R3586876-1 10/29/20 02:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Nitrate-Nitrite	U		50.0	100

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1276784-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1276784-01 10/29/20 02:16 • (DUP) R3586876-3 10/29/20 02:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	ND	ND	1	0.000		20

L1276973-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1276973-04 10/29/20 05:32 • (DUP) R3586876-5 10/29/20 05:34

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3586876-2 10/29/20 02:15

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Nitrate-Nitrite	2500	2470	98.8	90.0-110	

L1276840-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1276840-05 10/29/20 02:30 • (MS) R3586876-4 10/29/20 02:31

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Nitrate-Nitrite	2500	1310	3780	98.8	1	90.0-110	

L1276999-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276999-01 10/29/20 05:35 • (MS) R3586876-6 10/29/20 05:36 • (MSD) R3586876-7 10/29/20 05:37

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Nitrate-Nitrite	2500	2170	4370	4410	88.0	89.6	1	90.0-110	<u>J6</u>	<u>J6</u>	0.911	20





Method Blank (MB)

(MB) R3586774-1 10/28/20 20:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfide	U		25.0	50.0

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1276973-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1276973-01 10/28/20 20:29 • (DUP) R3586774-3 10/28/20 20:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfide	ND	ND	1	0.000		20

L1277599-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1277599-01 10/28/20 21:14 • (DUP) R3586774-6 10/28/20 21:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3586774-2 10/28/20 20:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfide	500	536	107	85.0-115	

L1276973-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276973-02 10/28/20 20:29 • (MS) R3586774-4 10/28/20 21:01 • (MSD) R3586774-5 10/28/20 21:01

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfide	1000	ND	413	414	41.3	41.4	1	80.0-120	J6	J6	0.242	20



Method Blank (MB)

(MB) R3587944-1 10/30/20 10:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1277121-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1277121-10 10/30/20 14:07 • (DUP) R3587944-4 10/30/20 14:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	ND	ND	1	0.000		15

L1276973-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1276973-04 10/31/20 10:25 • (DUP) R3587944-8 10/31/20 10:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	ND	ND	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3587944-2 10/30/20 10:20

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	39200	98.0	80.0-120	

Original Sample (OS) • Matrix Spike (MS)

(OS) • (MS) R3587944-5 10/30/20 15:34

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000		126000	96.6	1	80.0-120	E

L1277430-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277430-17 10/30/20 16:28 • (MS) R3587944-6 10/30/20 16:39 • (MSD) R3587944-7 10/30/20 16:50

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	ND	53400	53400	99.8	99.8	1	80.0-120			0.0358	15



Method Blank (MB)

(MB) R3585688-1 10/26/20 12:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		2.49	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3585688-2 10/26/20 12:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	49.2	98.4	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1276991-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276991-01 10/26/20 12:35 • (MS) R3585688-4 10/26/20 12:42 • (MSD) R3585688-5 10/26/20 12:45

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	50.0	ND	51.2	49.3	102	98.6	1	75.0-125			3.73	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3586301-1 10/27/20 21:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead,Dissolved	U		0.849	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3586301-2 10/27/20 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	50.0	44.5	89.1	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1277171-43 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277171-43 10/27/20 22:00 • (MS) R3586301-4 10/27/20 22:07 • (MSD) R3586301-5 10/27/20 22:10

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead,Dissolved	50.0	ND	45.5	47.7	91.0	95.3	1	75.0-125			4.68	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3586977-3 10/28/20 13:35

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	40.4	↓	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	92.6			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3586977-1 10/28/20 11:58 • (LCSD) R3586977-2 10/28/20 12:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	6520	6190	119	113	70.0-124			5.19	20
(S) a,a,a-Trifluorotoluene(FID)				114	112	78.0-120				

5 Sr

6 Qc

7 Gl

L1276973-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276973-03 10/28/20 19:44 • (MS) R3586977-4 10/28/20 21:27 • (MSD) R3586977-5 10/28/20 21:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	27500	1730	31200	31600	107	109	5	10.0-155			1.27	21
(S) a,a,a-Trifluorotoluene(FID)					108	115		78.0-120				

8 Al

9 Sc



Method Blank (MB)

(MB) R3587168-2 10/29/20 13:19

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Methane	U		2.91	10.0

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3587168-1 10/29/20 13:15 • (LCSD) R3587168-5 10/29/20 15:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methane	67.8	67.8	68.6	100	101	85.0-115			1.17	20

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Method Blank (MB)

(MB) R3587681-2 10/30/20 15:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Methane	U		2.91	10.0

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1277259-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1277259-05 10/30/20 15:40 • (DUP) R3587681-3 10/30/20 15:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Methane	718	731	1	1.79		20

L1277259-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1277259-10 10/30/20 16:23 • (DUP) R3587681-4 10/30/20 16:26

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Methane	6780	7270	1	6.98	E	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3587681-1 10/30/20 15:13 • (LCSD) R3587681-5 10/30/20 16:30

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Methane	67.8	64.4	58.0	95.0	85.5	85.0-115			10.5	20



Method Blank (MB)

(MB) R3587862-2 10/30/20 23:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
<i>(S) Toluene-d8</i>	106			80.0-120
<i>(S) 4-Bromofluorobenzene</i>	105			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	105			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS)

(LCS) R3587862-1 10/30/20 23:02

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Benzene	5.00	5.52	110	70.0-123	
Ethylbenzene	5.00	5.32	106	79.0-123	
Toluene	5.00	5.36	107	79.0-120	
Xylenes, Total	15.0	15.5	103	79.0-123	
<i>(S) Toluene-d8</i>			106	80.0-120	
<i>(S) 4-Bromofluorobenzene</i>			107	77.0-126	
<i>(S) 1,2-Dichloroethane-d4</i>			108	70.0-130	

6 Qc

7 Gl

8 Al

9 Sc





## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

## Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Qualifier Description

B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

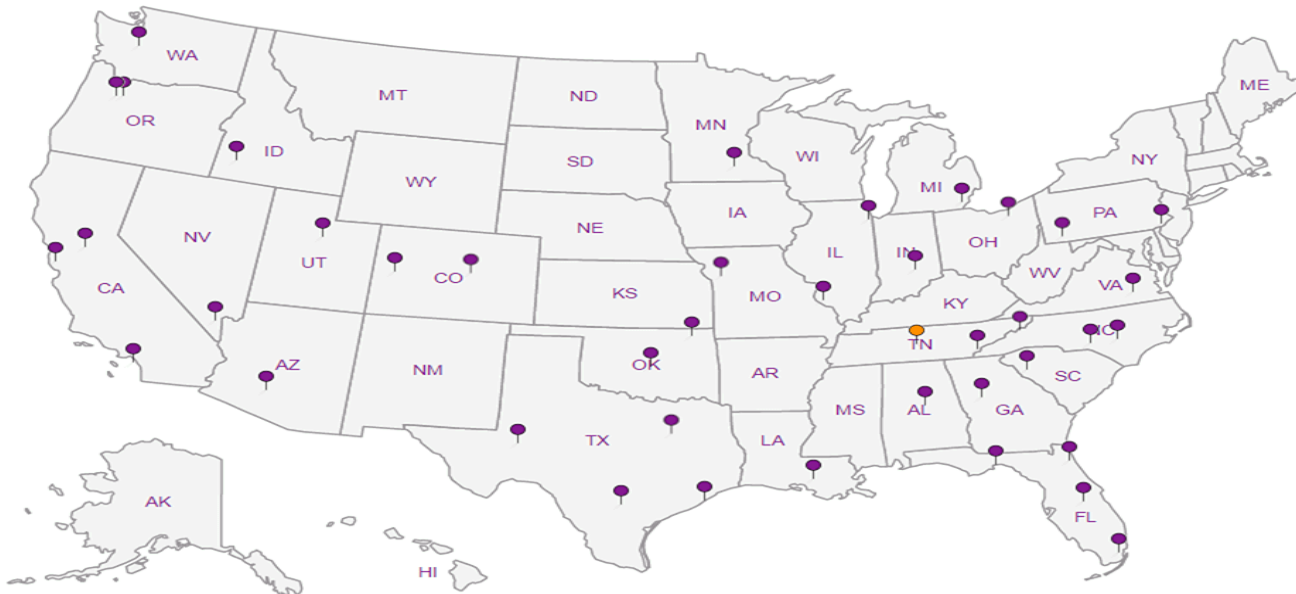
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**Kinder Morgan- Houston, TX (Scott Martin)**

1100 Olive Way, Suite 800

Billing Information:

Accounts Payable-Scott Martin  
1001 Louisiana St.  
Houston, TX 77002

Pres  
Chk

Analysis / Container / Preservative

Chain of Custody Page \_\_\_ of \_\_\_



Report to:  
**Kyle Haslam**

Email To:  
Kyle.Haslam@arcadis.com; Scott.Wenning@arca

Project Description:  
KMEP Harbor Island

City/State  
Collected:

Seattle, WA

Release Circle:  
PT MT CT ET

Phone: 206-726-4713

Client Project #  
30050809.00002000

Lab Project #  
KINMOROCA-HARBORISLA

Collected by (print):  
**Lauren Selleck**

Site/Facility ID #  
2720 13TH AVENUE SW

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day  
Next Day 5 Day (Rad Only)  
Two Day 10 Day (Rad Only)  
Three Day

Date Results Needed

Immediately  
Packed on Ice N Y

No.  
of  
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	BTEX 8260D 40mlAmb-HCl	Diss Pb 6020 250mlHDPE-NoPres	Ferrous Fe 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NO2NO3 250mlHDPE-H2SO4	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Sulfide 250mlAmb-S-NaOH+ZnAc	Total Pb 6020 250mlHDPE-HNO3
A-28R		GW				14	X	X	X	X	X	X	X	X	X
MW-23	grab	GW		10.22.20	1008	14	X	X	X	X	X	X	X	X	X
MW-24	grab	GW		10.22.20	1007	14	X	X	X	X	X	X	X	X	X
A-27	grab	GW		10.22.20	1155	12	X		X	X	X	X	X	X	
TMW-B1	grab	GW		10.22.20	1256	12	X		X	X	X	X	X	X	
		GW				14	X	X	X	X	X	X	X	X	X
		GW				14	X	X	X	X	X	X	X	X	X
		GW				5			X	X	X			X	
		GW				5			X	X	X			X	
		GW				5			X	X	X			X	

SDG # **U276973**  
**D112**

Acctnum: KINMOROCA  
Template: T175760  
Prelogin: P802907  
PM: 110 - Brian Ford  
PB: **TN 10-9-20**

Shipped Via:  
Remarks | Sample # (lab only)

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:  
pH \_\_\_\_\_ Temp \_\_\_\_\_  
Flow \_\_\_\_\_ Other \_\_\_\_\_

Sample Receipt Checklist  
COC Seal Present/Intact:  NP  N  
COC Signed/Accurate:  Y  N  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  N  
Sufficient volume sent:  Y  N  
If Applicable  
VOA Zero Headspace:  Y  N  
Preservation Correct/Checked:  Y  N  
RAD Screen <0.5 mR/hr:  Y  N

Samples returned via:  
UPS FedEx Courier  
Tracking # **9186 2514 0921**

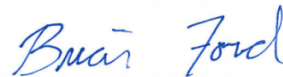
Relinquished by: (Signature)	Date: 10.22.20	Time: 1400	Received by: (Signature)	Trip Blank Received: Yes/No HCL/MeOH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 52
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 10/23 Time: 0900

Condition:  
NCF / **OK**

## Kinder Morgan- Houston, TX(Scott Martin)

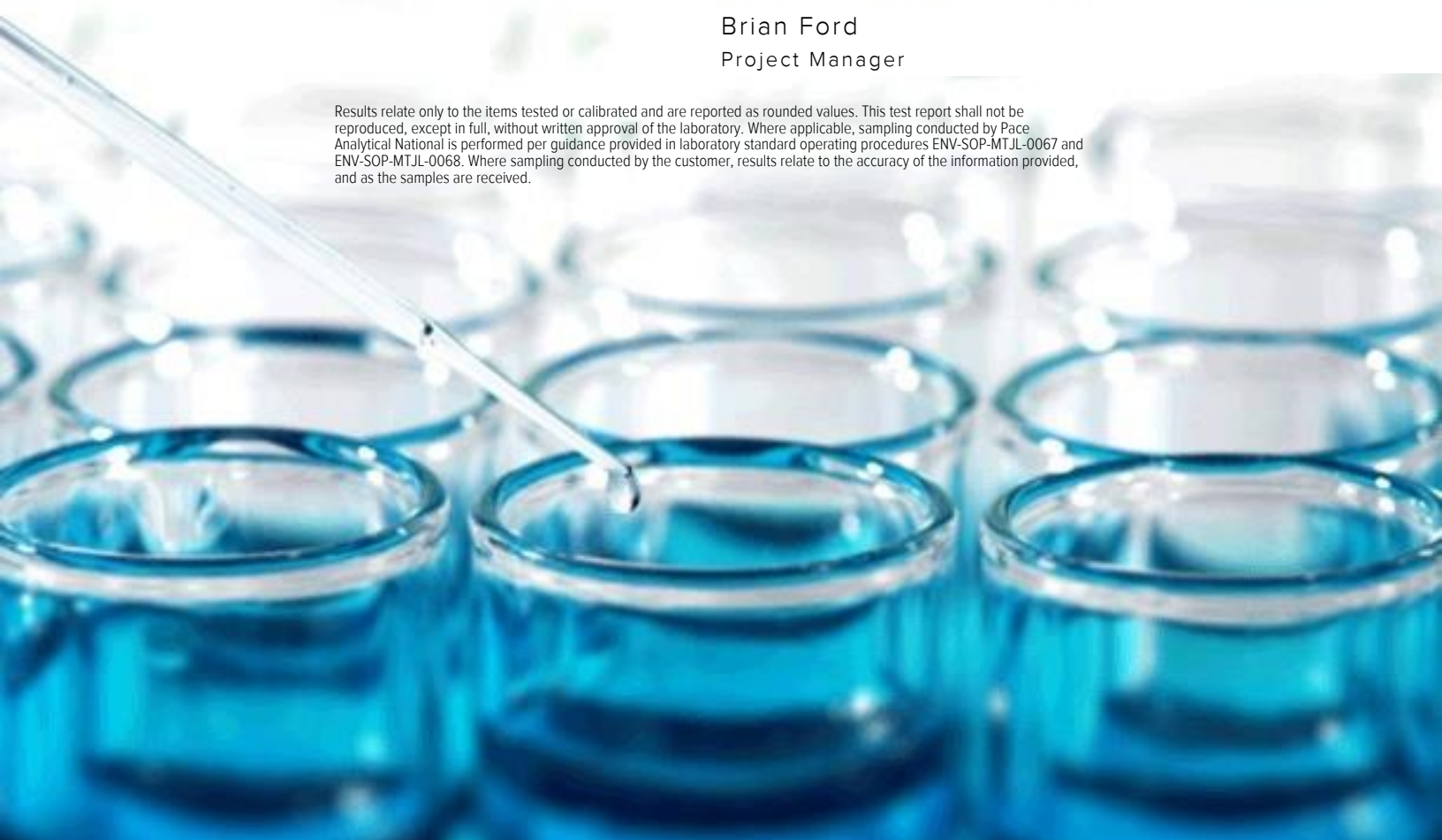
Sample Delivery Group: L1276975  
Samples Received: 10/23/2020  
Project Number: 30050809.00002000  
Description: KMEP Harbor Island  
Site: 2720 13TH AVENUE SW SEATTLE,WA  
Report To: Kyle Haslam  
1100 Olive Way, Suite 800  
Seattle, WA 98101

Entire Report Reviewed By:



Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

# SAMPLE SUMMARY



## A-28R L1276975-01 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 11:30  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG1564765	50	10/27/20 16:06	10/27/20 16:06	KLS	Mt. Juliet, TN
Wet Chemistry by Method 353.2	WG1565769	1	10/29/20 01:15	10/29/20 01:15	SDL	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG1566602	1	10/28/20 21:04	10/28/20 21:04	SAC	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1567620	1	10/30/20 00:41	10/30/20 00:41	MSP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565115	1	10/26/20 00:50	10/26/20 14:03	TM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 22:43	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566905	1	10/28/20 20:26	10/28/20 20:26	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG1567225	1	10/29/20 15:37	10/29/20 15:37	DAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 06:54	10/31/20 06:54	ADM	Mt. Juliet, TN

1  
Cp

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Tc

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Ss

4  
Cn

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Sr

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Qc

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Gl

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Al

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Sc

## 11 L1276975-02 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/20/20 15:05  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1567620	5	10/30/20 00:54	10/30/20 00:54	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566905	1	10/28/20 20:46	10/28/20 20:46	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 07:14	10/31/20 07:14	ADM	Mt. Juliet, TN

## 12 L1276975-03 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/21/20 09:10  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1567620	20	10/30/20 01:07	10/30/20 01:07	MSP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565115	1	10/26/20 00:50	10/26/20 14:07	TM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 22:46	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566905	1	10/28/20 21:07	10/28/20 21:07	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 07:35	10/31/20 07:35	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 16:23	AEG	Mt. Juliet, TN

## A-23R L1276975-04 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/19/20 14:25  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 01:40	10/29/20 01:40	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568128	1	10/30/20 07:25	10/30/20 07:25	ACG	Mt. Juliet, TN

## MW-14 L1276975-05 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/19/20 16:20  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 02:03	10/29/20 02:03	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568128	1	10/30/20 07:46	10/30/20 07:46	ACG	Mt. Juliet, TN

## MW-18 L1276975-06 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/21/20 15:58  
Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 02:26	10/29/20 02:26	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 07:55	10/31/20 07:55	ADM	Mt. Juliet, TN

# SAMPLE SUMMARY



## MW-4 L1276975-07 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 15:06

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 02:49	10/29/20 02:49	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 08:15	10/31/20 08:15	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 16:49	AEG	Mt. Juliet, TN

1  
Cp

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Tc

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Ss

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Cn

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Sr

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Qc

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Gl

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Al

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Sc

## DUP-1 L1276975-08 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 00:00

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1567620	20	10/30/20 01:20	10/30/20 01:20	MSP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565115	1	10/26/20 00:50	10/26/20 14:10	TM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 22:50	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 03:13	10/29/20 03:13	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568471	1	10/31/20 08:36	10/31/20 08:36	ADM	Mt. Juliet, TN

## DUP-2 L1276975-09 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 00:00

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 03:36	10/29/20 03:36	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568708	1	10/31/20 01:31	10/31/20 01:31	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 17:14	AEG	Mt. Juliet, TN

## TB-102220 L1276975-10 GW

Collected by  
Lauren Selleck

Collected date/time  
10/22/20 00:00

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 00:54	10/29/20 00:54	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568928	1	10/31/20 15:46	10/31/20 15:46	JAH	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc





## Wet Chemistry by Method 3500Fe B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ferrous Iron	34800	T8	2500	50	10/27/2020 16:06	<a href="#">WG1564765</a>

1 Cp

2 Tc

## Wet Chemistry by Method 353.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Nitrate-Nitrite	ND		100	1	10/29/2020 01:15	<a href="#">WG1565769</a>

3 Ss

4 Cn

## Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	10/28/2020 21:04	<a href="#">WG1566602</a>

5 Sr

6 Qc

## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	ND		5000	1	10/30/2020 00:41	<a href="#">WG1567620</a>

7 Gl

8 Al

## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/26/2020 14:03	<a href="#">WG1565115</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 22:43	<a href="#">WG1565899</a>

9 Sc

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	3720		100	1	10/28/2020 20:26	<a href="#">WG1566905</a>
(S) a,a,a-Trifluorotoluene(FID)	113		78.0-120		10/28/2020 20:26	<a href="#">WG1566905</a>

## Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Methane	4460		10.0	1	10/29/2020 15:37	<a href="#">WG1567225</a>

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	39.8		1.00	1	10/31/2020 06:54	<a href="#">WG1568471</a>
Toluene	3.34		1.00	1	10/31/2020 06:54	<a href="#">WG1568471</a>
Ethylbenzene	53.8		1.00	1	10/31/2020 06:54	<a href="#">WG1568471</a>
Total Xylenes	8.76		3.00	1	10/31/2020 06:54	<a href="#">WG1568471</a>
(S) Toluene-d8	101		80.0-120		10/31/2020 06:54	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	104		77.0-126		10/31/2020 06:54	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	107		70.0-130		10/31/2020 06:54	<a href="#">WG1568471</a>



## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	247000		25000	5	10/30/2020 00:54	<a href="#">WG1567620</a>

1 Cp

2 Tc

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/28/2020 20:46	<a href="#">WG1566905</a>
(S) a,a,a-Trifluorotoluene(FID)	95.6		78.0-120		10/28/2020 20:46	<a href="#">WG1566905</a>

3 Ss

4 Cn

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 07:14	<a href="#">WG1568471</a>
Toluene	ND		1.00	1	10/31/2020 07:14	<a href="#">WG1568471</a>
Ethylbenzene	ND		1.00	1	10/31/2020 07:14	<a href="#">WG1568471</a>
Total Xylenes	ND		3.00	1	10/31/2020 07:14	<a href="#">WG1568471</a>
(S) Toluene-d8	107		80.0-120		10/31/2020 07:14	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	107		77.0-126		10/31/2020 07:14	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		10/31/2020 07:14	<a href="#">WG1568471</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1270000		100000	20	10/30/2020 01:07	<a href="#">WG1567620</a>

## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	23.9		5.00	1	10/26/2020 14:07	<a href="#">WG1565115</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 22:46	<a href="#">WG1565899</a>

## Volatile Organic Compounds (GC) by Method NWTPHGX

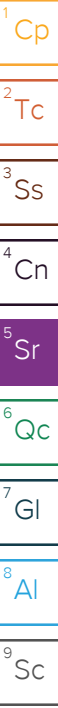
Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2730		100	1	10/28/2020 21:07	<a href="#">WG1566905</a>
(S) a,a,a-Trifluorotoluene(FID)	94.7		78.0-120		10/28/2020 21:07	<a href="#">WG1566905</a>

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	116		1.00	1	10/31/2020 07:35	<a href="#">WG1568471</a>
Toluene	9.18		1.00	1	10/31/2020 07:35	<a href="#">WG1568471</a>
Ethylbenzene	91.3		1.00	1	10/31/2020 07:35	<a href="#">WG1568471</a>
Total Xylenes	49.0		3.00	1	10/31/2020 07:35	<a href="#">WG1568471</a>
(S) Toluene-d8	103		80.0-120		10/31/2020 07:35	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	106		77.0-126		10/31/2020 07:35	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		10/31/2020 07:35	<a href="#">WG1568471</a>

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	1570		200	1	11/01/2020 16:23	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 16:23	<a href="#">WG1567409</a>
(S) o-Terphenyl	75.8		52.0-156		11/01/2020 16:23	<a href="#">WG1567409</a>





Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 01:40	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	98.0		78.0-120		10/29/2020 01:40	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/30/2020 07:25	<a href="#">WG1568128</a>
Toluene	ND		1.00	1	10/30/2020 07:25	<a href="#">WG1568128</a>
Ethylbenzene	ND		1.00	1	10/30/2020 07:25	<a href="#">WG1568128</a>
Total Xylenes	ND		3.00	1	10/30/2020 07:25	<a href="#">WG1568128</a>
(S) Toluene-d8	101		80.0-120		10/30/2020 07:25	<a href="#">WG1568128</a>
(S) 4-Bromofluorobenzene	97.7		77.0-126		10/30/2020 07:25	<a href="#">WG1568128</a>
(S) 1,2-Dichloroethane-d4	85.1		70.0-130		10/30/2020 07:25	<a href="#">WG1568128</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 02:03	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	99.4		78.0-120		10/29/2020 02:03	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/30/2020 07:46	<a href="#">WG1568128</a>
Toluene	ND		1.00	1	10/30/2020 07:46	<a href="#">WG1568128</a>
Ethylbenzene	ND		1.00	1	10/30/2020 07:46	<a href="#">WG1568128</a>
Total Xylenes	ND		3.00	1	10/30/2020 07:46	<a href="#">WG1568128</a>
(S) Toluene-d8	102		80.0-120		10/30/2020 07:46	<a href="#">WG1568128</a>
(S) 4-Bromofluorobenzene	99.6		77.0-126		10/30/2020 07:46	<a href="#">WG1568128</a>
(S) 1,2-Dichloroethane-d4	83.9		70.0-130		10/30/2020 07:46	<a href="#">WG1568128</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 02:26	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	98.6		78.0-120		10/29/2020 02:26	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 07:55	<a href="#">WG1568471</a>
Toluene	ND		1.00	1	10/31/2020 07:55	<a href="#">WG1568471</a>
Ethylbenzene	ND		1.00	1	10/31/2020 07:55	<a href="#">WG1568471</a>
Total Xylenes	ND		3.00	1	10/31/2020 07:55	<a href="#">WG1568471</a>
(S) Toluene-d8	108		80.0-120		10/31/2020 07:55	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	108		77.0-126		10/31/2020 07:55	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		10/31/2020 07:55	<a href="#">WG1568471</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	217	<u>B</u>	100	1	10/29/2020 02:49	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	99.0		78.0-120		10/29/2020 02:49	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 08:15	<a href="#">WG1568471</a>
Toluene	ND		1.00	1	10/31/2020 08:15	<a href="#">WG1568471</a>
Ethylbenzene	ND		1.00	1	10/31/2020 08:15	<a href="#">WG1568471</a>
Total Xylenes	ND		3.00	1	10/31/2020 08:15	<a href="#">WG1568471</a>
(S) Toluene-d8	106		80.0-120		10/31/2020 08:15	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	106		77.0-126		10/31/2020 08:15	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	102		70.0-130		10/31/2020 08:15	<a href="#">WG1568471</a>

4 Cn

5 Sr

6 Qc

7 Gl

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	929		200	1	11/01/2020 16:49	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 16:49	<a href="#">WG1567409</a>
(S) o-Terphenyl	85.8		52.0-156		11/01/2020 16:49	<a href="#">WG1567409</a>

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	755000		100000	20	10/30/2020 01:20	<a href="#">WG1567620</a>

1 Cp

2 Tc

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/26/2020 14:10	<a href="#">WG1565115</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 22:50	<a href="#">WG1565899</a>

3 Ss

4 Cn

5 Sr

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	119	<u>B</u>	100	1	10/29/2020 03:13	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	98.6		78.0-120		10/29/2020 03:13	<a href="#">WG1566990</a>

6 Qc

7 Gl

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 08:36	<a href="#">WG1568471</a>
Toluene	ND		1.00	1	10/31/2020 08:36	<a href="#">WG1568471</a>
Ethylbenzene	ND		1.00	1	10/31/2020 08:36	<a href="#">WG1568471</a>
Total Xylenes	ND		3.00	1	10/31/2020 08:36	<a href="#">WG1568471</a>
(S) Toluene-d8	107		80.0-120		10/31/2020 08:36	<a href="#">WG1568471</a>
(S) 4-Bromofluorobenzene	108		77.0-126		10/31/2020 08:36	<a href="#">WG1568471</a>
(S) 1,2-Dichloroethane-d4	103		70.0-130		10/31/2020 08:36	<a href="#">WG1568471</a>

8 Al

9 Sc





Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	281	B	100	1	10/29/2020 03:36	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	99.1		78.0-120		10/29/2020 03:36	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 01:31	<a href="#">WG1568708</a>
Toluene	ND		1.00	1	10/31/2020 01:31	<a href="#">WG1568708</a>
Ethylbenzene	ND		1.00	1	10/31/2020 01:31	<a href="#">WG1568708</a>
Total Xylenes	ND		3.00	1	10/31/2020 01:31	<a href="#">WG1568708</a>
(S) Toluene-d8	116		80.0-120		10/31/2020 01:31	<a href="#">WG1568708</a>
(S) 4-Bromofluorobenzene	86.6		77.0-126		10/31/2020 01:31	<a href="#">WG1568708</a>
(S) 1,2-Dichloroethane-d4	85.7		70.0-130		10/31/2020 01:31	<a href="#">WG1568708</a>

4 Cn

5 Sr

6 Qc

7 Gl

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	2210		200	1	11/01/2020 17:14	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 17:14	<a href="#">WG1567409</a>
(S) o-Terphenyl	83.2		52.0-156		11/01/2020 17:14	<a href="#">WG1567409</a>

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 00:54	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	99.2		78.0-120		10/29/2020 00:54	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 15:46	<a href="#">WG1568928</a>
Toluene	ND		1.00	1	10/31/2020 15:46	<a href="#">WG1568928</a>
Ethylbenzene	ND		1.00	1	10/31/2020 15:46	<a href="#">WG1568928</a>
Total Xylenes	ND		3.00	1	10/31/2020 15:46	<a href="#">WG1568928</a>
(S) Toluene-d8	102		80.0-120		10/31/2020 15:46	<a href="#">WG1568928</a>
(S) 4-Bromofluorobenzene	98.1		77.0-126		10/31/2020 15:46	<a href="#">WG1568928</a>
(S) 1,2-Dichloroethane-d4	109		70.0-130		10/31/2020 15:46	<a href="#">WG1568928</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3586195-1 10/27/20 14:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Ferrous Iron	U		15.0	50.0

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1276345-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1276345-02 10/27/20 15:36 • (DUP) R3586195-3 10/27/20 15:37

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Ferrous Iron	ND	ND	1	0.000		20

L1276367-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1276367-02 10/27/20 15:53 • (DUP) R3586195-4 10/27/20 15:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Ferrous Iron	67.0	64.0	1	4.58		20

Laboratory Control Sample (LCS)

(LCS) R3586195-2 10/27/20 14:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Ferrous Iron	1000	955	95.5	85.0-115	

L1276345-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276345-03 10/27/20 15:38 • (MS) R3586195-5 10/27/20 16:31 • (MSD) R3586195-6 10/27/20 16:31

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Ferrous Iron	1000	1310	2170	2240	85.6	92.7	1	80.0-120			3.23	20



Method Blank (MB)

(MB) R3586848-1 10/29/20 00:34

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Nitrate-Nitrite	U		50.0	100

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1275685-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1275685-02 10/29/20 00:41 • (DUP) R3586848-5 10/29/20 00:42

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	19400	19600	5	1.03		20

L1276060-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1276060-01 10/29/20 01:09 • (DUP) R3586848-7 10/29/20 01:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Nitrate-Nitrite	6800	7000	5	2.90		20

Laboratory Control Sample (LCS)

(LCS) R3586848-2 10/29/20 00:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Nitrate-Nitrite	2500	2510	100	90.0-110	

L1275622-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1275622-01 10/29/20 00:37 • (MS) R3586848-3 10/29/20 00:38 • (MSD) R3586848-4 10/29/20 00:40

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Nitrate-Nitrite	2500	611	3700	3280	124	107	1	90.0-110	J5		12.0	20

L1276059-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1276059-02 10/29/20 01:06 • (MS) R3586848-6 10/29/20 01:08

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Nitrate-Nitrite	2500	161	2460	92.0	1	90.0-110	



Method Blank (MB)

(MB) R3586774-1 10/28/20 20:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfide	U		25.0	50.0

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1276973-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1276973-01 10/28/20 20:29 • (DUP) R3586774-3 10/28/20 20:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfide	ND	ND	1	0.000		20

L1277599-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1277599-01 10/28/20 21:14 • (DUP) R3586774-6 10/28/20 21:14

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3586774-2 10/28/20 20:21

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfide	500	536	107	85.0-115	

L1276973-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276973-02 10/28/20 20:29 • (MS) R3586774-4 10/28/20 21:01 • (MSD) R3586774-5 10/28/20 21:01

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfide	1000	ND	413	414	41.3	41.4	1	80.0-120	<u>J6</u>	<u>J6</u>	0.242	20



Method Blank (MB)

(MB) R3587462-1 10/30/20 00:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1277124-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1277124-02 10/30/20 01:33 • (DUP) R3587462-3 10/30/20 01:46

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	42400	41000	1	3.39		15

L1277259-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1277259-09 10/30/20 05:55 • (DUP) R3587462-6 10/30/20 06:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	ND	ND	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3587462-2 10/30/20 00:28

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	42200	105	80.0-120	

L1277124-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277124-02 10/30/20 01:33 • (MS) R3587462-4 10/30/20 02:00 • (MSD) R3587462-5 10/30/20 02:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	42400	89100	89700	93.3	94.6	1	80.0-120			0.708	15

L1277259-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L1277259-09 10/30/20 05:55 • (MS) R3587462-7 10/30/20 06:21

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	ND	50800	99.7	1	80.0-120	



Method Blank (MB)

(MB) R3585688-1 10/26/20 12:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		2.49	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3585688-2 10/26/20 12:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	49.2	98.4	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1276991-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276991-01 10/26/20 12:35 • (MS) R3585688-4 10/26/20 12:42 • (MSD) R3585688-5 10/26/20 12:45

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	50.0	ND	51.2	49.3	102	98.6	1	75.0-125			3.73	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3586301-1 10/27/20 21:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead,Dissolved	U		0.849	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3586301-2 10/27/20 21:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Lead,Dissolved	50.0	44.5	89.1	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1277171-43 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277171-43 10/27/20 22:00 • (MS) R3586301-4 10/27/20 22:07 • (MSD) R3586301-5 10/27/20 22:10

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead,Dissolved	50.0	ND	45.5	47.7	91.0	95.3	1	75.0-125			4.68	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc





Method Blank (MB)

(MB) R3586977-3 10/28/20 13:35

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	40.4	↓	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	92.6			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3586977-1 10/28/20 11:58 • (LCSD) R3586977-2 10/28/20 12:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	6520	6190	119	113	70.0-124			5.19	20
(S) a,a,a-Trifluorotoluene(FID)				114	112	78.0-120				

L1276973-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276973-03 10/28/20 19:44 • (MS) R3586977-4 10/28/20 21:27 • (MSD) R3586977-5 10/28/20 21:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	27500	1730	31200	31600	107	109	5	10.0-155			1.27	21
(S) a,a,a-Trifluorotoluene(FID)					108	115		78.0-120				



Method Blank (MB)

(MB) R3588016-2 10/29/20 00:06

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	52.9	↓	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	99.2			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R3588016-1 10/28/20 23:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5210	94.7	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			107	78.0-120	

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3587231-2 10/29/20 15:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Methane	U		2.91	10.0

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1276975-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1276975-01 10/29/20 15:37 • (DUP) R3587231-3 10/29/20 15:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Methane	4460	4450	1	0.224		20

L1276991-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1276991-05 10/29/20 16:09 • (DUP) R3587231-4 10/29/20 16:36

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Methane	44.0	45.1	1	2.47		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3587231-1 10/29/20 15:24 • (LCSD) R3587231-7 10/29/20 16:43

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Methane	67.8	68.6	73.3	101	108	85.0-115			6.62	20

L1277430-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277430-17 10/29/20 16:33 • (MS) R3587231-5 10/29/20 16:39 • (MSD) R3587231-6 10/29/20 16:41

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Methane	67.8	ND	58.6	70.0	86.4	103	1	85.0-115			17.7	20



Method Blank (MB)

(MB) R3588206-2 10/30/20 05:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
<i>(S) Toluene-d8</i>	100			80.0-120
<i>(S) 4-Bromofluorobenzene</i>	97.4			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	82.4			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3588206-1 10/30/20 05:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	5.09	102	70.0-123	
Ethylbenzene	5.00	5.26	105	79.0-123	
Toluene	5.00	4.84	96.8	79.0-120	
Xylenes, Total	15.0	15.6	104	79.0-123	
<i>(S) Toluene-d8</i>			99.3	80.0-120	
<i>(S) 4-Bromofluorobenzene</i>			98.4	77.0-126	
<i>(S) 1,2-Dichloroethane-d4</i>			88.0	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3587862-2 10/30/20 23:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
<i>(S) Toluene-d8</i>	106			80.0-120
<i>(S) 4-Bromofluorobenzene</i>	105			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	105			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3587862-1 10/30/20 23:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	5.52	110	70.0-123	
Ethylbenzene	5.00	5.32	106	79.0-123	
Toluene	5.00	5.36	107	79.0-120	
Xylenes, Total	15.0	15.5	103	79.0-123	
<i>(S) Toluene-d8</i>			106	80.0-120	
<i>(S) 4-Bromofluorobenzene</i>			107	77.0-126	
<i>(S) 1,2-Dichloroethane-d4</i>			108	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588047-3 10/30/20 20:46

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	0.166	↓	0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	112			80.0-120
(S) 4-Bromofluorobenzene	82.6			77.0-126
(S) 1,2-Dichloroethane-d4	87.9			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3588047-1 10/30/20 19:49 • (LCSD) R3588047-2 10/30/20 20:08

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Benzene	5.00	4.39	4.62	87.8	92.4	70.0-123			5.11	20
Ethylbenzene	5.00	4.59	4.91	91.8	98.2	79.0-123			6.74	20
Toluene	5.00	4.99	5.35	99.8	107	79.0-120			6.96	20
Xylenes, Total	15.0	13.3	14.0	88.7	93.3	79.0-123			5.13	20
(S) Toluene-d8				114	116	80.0-120				
(S) 4-Bromofluorobenzene				86.1	87.6	77.0-126				
(S) 1,2-Dichloroethane-d4				87.4	87.4	70.0-130				

6 Qc

7 Gl

8 Al

9 Sc

L1278514-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1278514-01 10/31/20 00:34 • (MS) R3588047-4 10/31/20 09:52 • (MSD) R3588047-5 10/31/20 10:11

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Benzene	5.00	ND	6.86	6.49	126	119	1	17.0-158			5.54	27
Ethylbenzene	5.00	ND	6.52	6.48	130	130	1	30.0-155			0.615	27
Toluene	5.00	ND	7.19	6.76	144	135	1	26.0-154			6.16	28
Xylenes, Total	15.0	ND	18.9	18.5	126	123	1	29.0-154			2.14	28
(S) Toluene-d8					114	109		80.0-120				
(S) 4-Bromofluorobenzene					86.4	92.6		77.0-126				
(S) 1,2-Dichloroethane-d4					86.1	88.8		70.0-130				



L1278514-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1278514-02 10/31/20 00:53 • (MS) R3588047-6 10/31/20 10:30 • (MSD) R3588047-7 10/31/20 10:49

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	ND	6.53	6.54	119	119	1	17.0-158			0.153	27
Ethylbenzene	5.00	ND	6.43	6.42	129	128	1	30.0-155			0.156	27
Toluene	5.00	ND	7.05	6.92	141	138	1	26.0-154			1.86	28
Xylenes, Total	15.0	ND	18.4	19.2	123	128	1	29.0-154			4.26	28
(S) Toluene-d8					114	111		80.0-120				
(S) 4-Bromofluorobenzene					84.6	93.3		77.0-126				
(S) 1,2-Dichloroethane-d4					87.4	88.8		70.0-130				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588101-3 10/31/20 14:23

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	105			80.0-120
(S) 4-Bromofluorobenzene	96.1			77.0-126
(S) 1,2-Dichloroethane-d4	113			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3588101-1 10/31/20 13:22 • (LCSD) R3588101-2 10/31/20 13:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	4.68	4.49	93.6	89.8	70.0-123			4.14	20
Ethylbenzene	5.00	4.73	4.59	94.6	91.8	79.0-123			3.00	20
Toluene	5.00	4.80	4.69	96.0	93.8	79.0-120			2.32	20
Xylenes, Total	15.0	14.2	13.8	94.7	92.0	79.0-123			2.86	20
(S) Toluene-d8				110	103	80.0-120				
(S) 4-Bromofluorobenzene				103	95.8	77.0-126				
(S) 1,2-Dichloroethane-d4				108	109	70.0-130				

6 Qc

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3587900-1 10/31/20 05:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
<i>(S) o-Terphenyl</i>	76.0			52.0-156

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3587900-2 10/31/20 05:55 • (LCSD) R3587900-3 10/31/20 06:21

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Diesel Range Organics (DRO)	1500	1340	1290	89.3	86.0	50.0-150			3.80	20
<i>(S) o-Terphenyl</i>				82.5	78.5	52.0-156				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

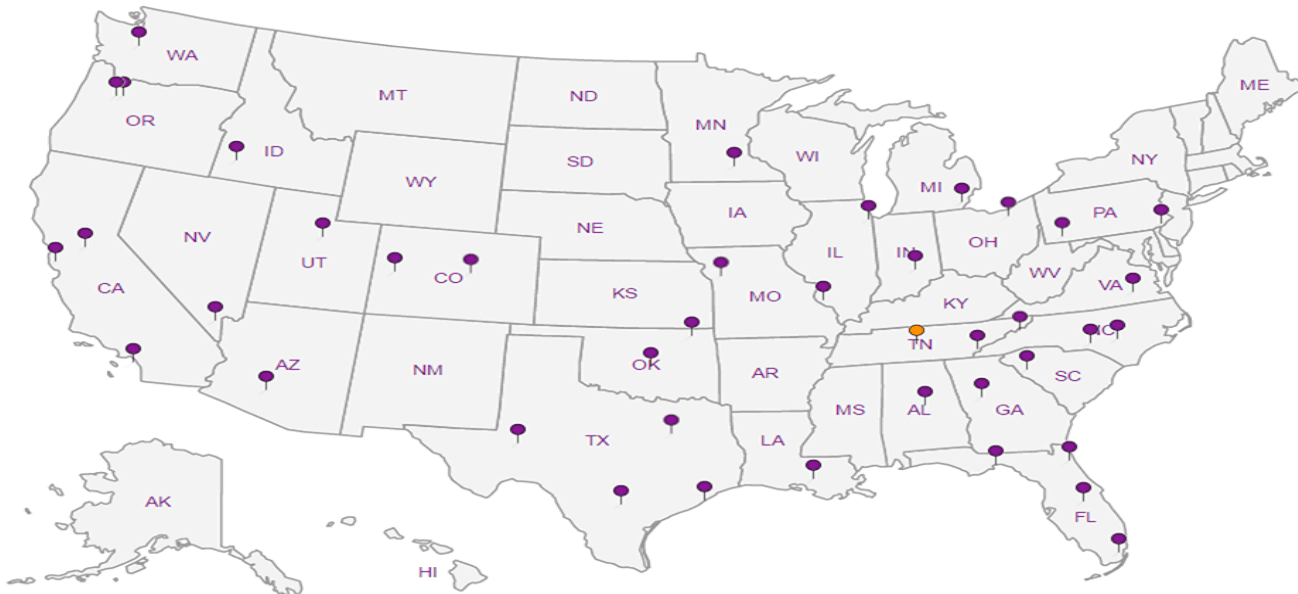
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl


8 Al

9 Sc

**Kinder Morgan- Houston, TX (Scott Martin)**  
 1100 Olive Way, Suite 800

Billing Information:  
 Accounts Payable-Scott Martin  
 1001 Louisiana St.  
 Houston, TX 77002

Analysis / Container / Preservative	
Pres Chk	
	2
	2
	2
	2
	2
	2
	2
	2
	2

Chain of Custody Page \_\_\_ of \_\_\_  
  
 Pace Analytical  
 National Center for Testing & Innovation

Report to:  
 Kyle Haslam

Email To:  
 Kyle.Haslam@arcadis.com; Scott.Wenning@arca

Project Description:  
 KMEP Harbor Island

City/State Collected: **Seattle, WA**

Please Circle:  
 PT MT CT ET

Phone: 206-726-4713

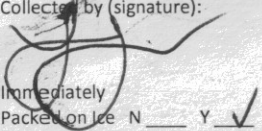
Client Project #  
 30050809.00002000

Lab Project #  
 KINMOROCA-HARBORISLA

Collected by (print):  
 Lauren Selleck

Site/Facility ID #  
 2720 13TH AVENUE SW

P.O. #

Collected by (signature):  
  
 Immediately Packed on Ice N \_\_\_ Y

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #  
 Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	BTEX 8260D 40mlAmb-HCl	Diss Pb 6020 250mlHDPE-NoPres	Ferrous Fe 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NO2NO3 250mlHDPE-H2SO4	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Sulfide 250mlAmb-S-NaOH+ZnAc	Total Pb 6020 250mlHDPE-HNO3
A-28R	grab	GW		10.22.20	1130	14	X	X	X	X	X	X	X	X	X
MW-23		GW				14	X	X	X	X	X	X	X	X	X
MW-24		GW				14	X	X	X	X	X	X	X	X	X
A-27		GW				12	X	X	X	X	X	X	X	X	X
TMW-B1		GW				12	X	X	X	X	X	X	X	X	X
		GW				14	X	X	X	X	X	X	X	X	X
		GW				14	X	X	X	X	X	X	X	X	X
		GW				5		X	X	X			X		
		GW				5		X	X	X			X		
		GW				5		X	X	X			X		

12065 Lebanon Rd  
 Mount Juliet, TN 37122  
 Phone: 615-758-5858  
 Phone: 800-767-5859  
 Fax: 615-758-5859



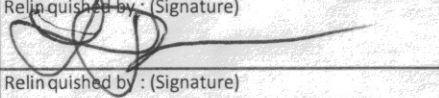
SP... **L1276975**  
**J108**  
 Acctnum: KINMOROCA  
 Template: T175760  
 Prelogin: P802907  
 PM: 110 - Brian Ford  
 PB: TN 10-9-20

Shipped Via:  
 Remarks Sample # (lab only)

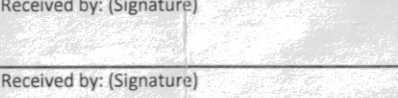
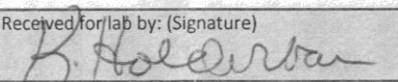
\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:  
 pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_  
 Samples returned via:  
 \_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier  
 Tracking # **9050 0892 9928**

**Sample Receipt Checklist**  
 COC Seal Present/Intact: \_\_\_ NP  Y \_\_\_ N  
 COC Signed/Accurate: \_\_\_ Y \_\_\_ N  
 Bottles arrive intact: \_\_\_ Y \_\_\_ N  
 Correct bottles used: \_\_\_ Y \_\_\_ N  
 Sufficient volume sent: \_\_\_ Y \_\_\_ N  
 If Applicable  
 VOA Zero Headspace: \_\_\_ Y \_\_\_ N  
 Preservation Correct/Checked: \_\_\_ Y \_\_\_ N  
 RAD Screen <0.5 mR/hr: \_\_\_ Y \_\_\_ N

Relinquished by: (Signature)  
  
 Relinquished by: (Signature)  
 Relinquished by: (Signature)

Date: **10.22.20**  
 Time: **1400**

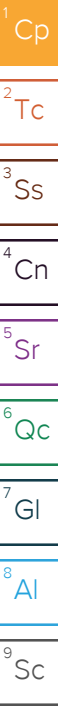
Received by: (Signature)  
  
 Received by: (Signature)  
 Received for lab by: (Signature)  


Trip Blank Received: Yes/No  
 HCL/MeOH  
 TBR  
 Temp: **18.20-18.5°C**  
 Bottles Received: **14**  
 Date: **10/23/20**  
 Time: **9:00**

If preservation required by Login: Date/Time  
 Hold:  
 Condition:  
 NCF / OK







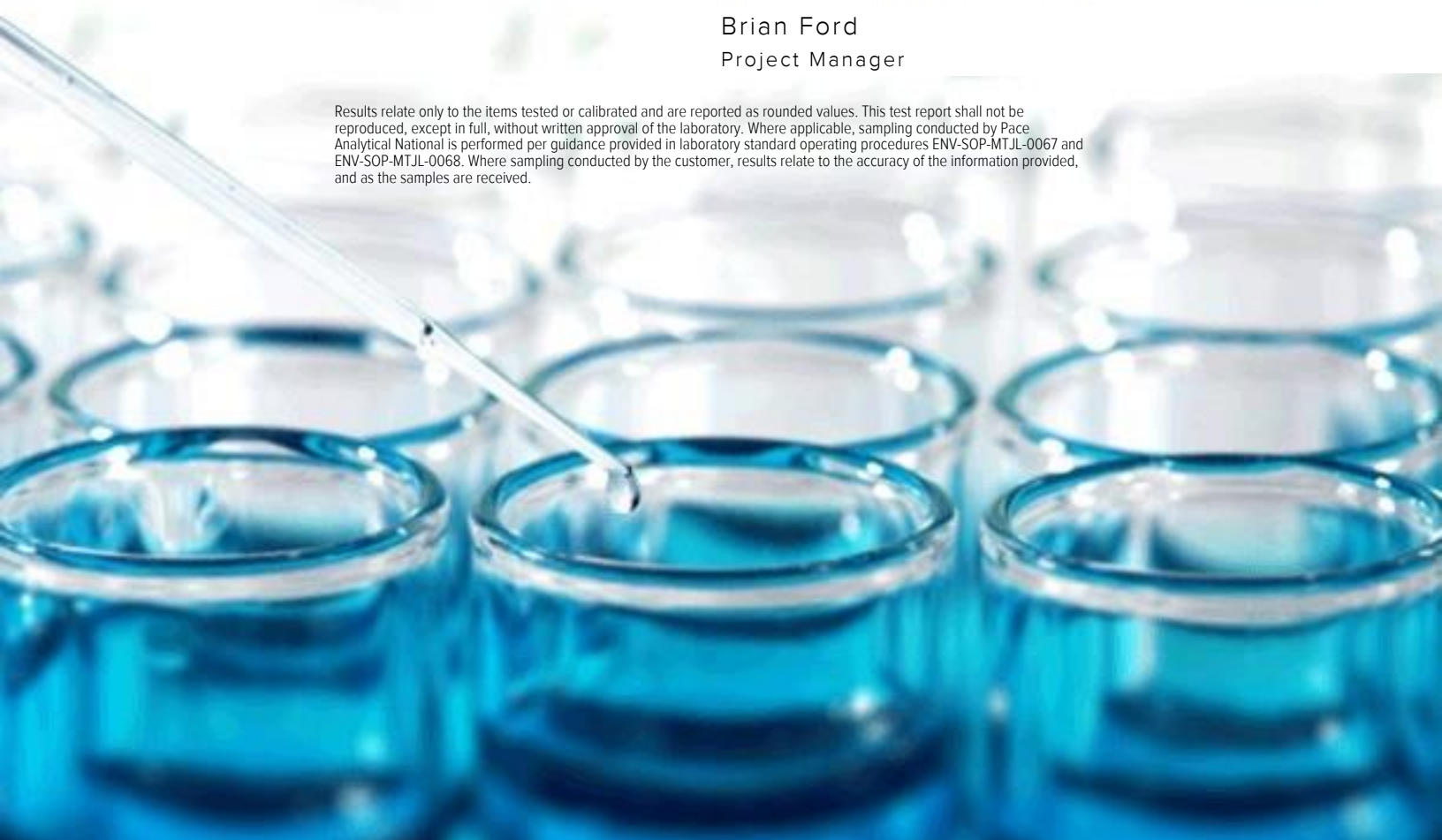
## Kinder Morgan- Houston, TX(Scott Martin)

Sample Delivery Group: L1277202  
Samples Received: 10/23/2020  
Project Number: 30050809.00002000  
Description: KMEP Harbor Island  
Site: 2720 13TH AVENUE SW SEATTLE,WA  
Report To: Kyle Haslam  
1100 Olive Way, Suite 800  
Seattle, WA 98101

Entire Report Reviewed By:

Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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<b>Tc: Table of Contents</b>	<b>2</b>	
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<b>Sr: Sample Results</b>	<b>6</b>	<b>3</b> Ss
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MW-21 L1277202-02	7	<b>4</b> Cn
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MW-07R L1277202-04	9	
MW-2 L1277202-05	10	<b>6</b> Qc
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MW-8 L1277202-07	12	<b>7</b> Gl
TMW-2 L1277202-08	13	<b>8</b> Al
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TMW-4 L1277202-10	15	
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# SAMPLE SUMMARY



## MW-20 L1277202-01 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 16:50

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 06:18	10/29/20 06:18	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 05:35	10/31/20 05:35	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 15:57	AEG	Mt. Juliet, TN

1  
Cp

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Cn

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Sr

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Qc

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Gl

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Al

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## MW-21 L1277202-02 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 13:45

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1569138	1	11/02/20 15:51	11/02/20 15:51	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 05:56	10/31/20 05:56	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 17:40	AEG	Mt. Juliet, TN

## MW-22 L1277202-03 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 14:50

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 06:53	10/29/20 06:53	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 06:16	10/31/20 06:16	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 15:05	AEG	Mt. Juliet, TN

## MW-07R L1277202-04 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 13:58

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 23:19	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 14:37	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 07:38	10/29/20 07:38	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 06:36	10/31/20 06:36	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 06:12	AEG	Mt. Juliet, TN

## MW-2 L1277202-05 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 13:27

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 23:22	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 15:00	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 08:27	10/29/20 08:27	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 06:57	10/31/20 06:57	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 15:31	AEG	Mt. Juliet, TN

## MW-5 L1277202-06 GW

Collected by  
Lauren Selleck

Collected date/time  
10/19/20 15:55

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 23:25	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 15:04	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1566990	1	10/29/20 08:50	10/29/20 08:50	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568128	1	10/30/20 08:07	10/30/20 08:07	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 07:04	AEG	Mt. Juliet, TN

# SAMPLE SUMMARY



## MW-8 L1277202-07 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 12:20

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1565899	1	10/27/20 18:27	10/27/20 23:28	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 15:16	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 16:59	10/28/20 16:59	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 07:17	10/31/20 07:17	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 18:06	AEG	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

## TMW-2 L1277202-08 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 09:57

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	100	10/30/20 20:55	10/30/20 20:55	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 17:23	10/28/20 17:23	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 07:38	10/31/20 07:38	JHH	Mt. Juliet, TN

5  
Sr

6  
Qc

7  
Gl

## TMW-3 L1277202-09 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 12:40

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	100	10/30/20 21:21	10/30/20 21:21	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 17:47	10/28/20 17:47	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 07:58	10/31/20 07:58	JHH	Mt. Juliet, TN

8  
Al

9  
Sc

## TMW-4 L1277202-10 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 14:06

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	100	10/30/20 21:34	10/30/20 21:34	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	10	10/28/20 23:47	10/28/20 23:47	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	5	10/31/20 12:06	10/31/20 12:06	JHH	Mt. Juliet, TN

## TMW-5 L1277202-11 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 10:05

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	100	10/30/20 21:47	10/30/20 21:47	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 18:11	10/28/20 18:11	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 08:19	10/31/20 08:19	JHH	Mt. Juliet, TN

## TMW-6 L1277202-12 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 15:35

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	100	10/30/20 22:00	10/30/20 22:00	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 18:35	10/28/20 18:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 08:39	10/31/20 08:39	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1569734	10	11/03/20 02:02	11/03/20 02:02	JAH	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford  
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 06:18	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	97.1		78.0-120		10/29/2020 06:18	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 05:35	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 05:35	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 05:35	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 05:35	<a href="#">WG1568533</a>
(S) Toluene-d8	104		80.0-120		10/31/2020 05:35	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	107		77.0-126		10/31/2020 05:35	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	117		70.0-130		10/31/2020 05:35	<a href="#">WG1568533</a>

4 Cn

5 Sr

6 Qc

7 Gl

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/01/2020 15:57	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 15:57	<a href="#">WG1567409</a>
(S) o-Terphenyl	71.1		52.0-156		11/01/2020 15:57	<a href="#">WG1567409</a>

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	188		100	1	11/02/2020 15:51	<a href="#">WG1569138</a>
(S) a,a,a-Trifluorotoluene(FID)	98.3		78.0-120		11/02/2020 15:51	<a href="#">WG1569138</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 05:56	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 05:56	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 05:56	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 05:56	<a href="#">WG1568533</a>
(S) Toluene-d8	102		80.0-120		10/31/2020 05:56	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	116		77.0-126		10/31/2020 05:56	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	115		70.0-130		10/31/2020 05:56	<a href="#">WG1568533</a>

4 Cn

5 Sr

6 Qc

7 Gl

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	1670		200	1	11/01/2020 17:40	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 17:40	<a href="#">WG1567409</a>
(S) o-Terphenyl	85.3		52.0-156		11/01/2020 17:40	<a href="#">WG1567409</a>

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 06:53	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	97.4		78.0-120		10/29/2020 06:53	<a href="#">WG1566990</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 06:16	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 06:16	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 06:16	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 06:16	<a href="#">WG1568533</a>
(S) Toluene-d8	103		80.0-120		10/31/2020 06:16	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	107		77.0-126		10/31/2020 06:16	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	115		70.0-130		10/31/2020 06:16	<a href="#">WG1568533</a>

4 Cn

5 Sr

6 Qc

7 Gl

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/01/2020 15:05	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 15:05	<a href="#">WG1567409</a>
(S) o-Terphenyl	81.1		52.0-156		11/01/2020 15:05	<a href="#">WG1567409</a>

8 Al

9 Sc



Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/28/2020 14:37	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 23:19	<a href="#">WG1565899</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 07:38	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	98.3		78.0-120		10/29/2020 07:38	<a href="#">WG1566990</a>

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 06:36	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 06:36	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 06:36	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 06:36	<a href="#">WG1568533</a>
(S) Toluene-d8	103		80.0-120		10/31/2020 06:36	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	103		77.0-126		10/31/2020 06:36	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	115		70.0-130		10/31/2020 06:36	<a href="#">WG1568533</a>

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/01/2020 06:12	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 06:12	<a href="#">WG1567409</a>
(S) o-Terphenyl	76.3		52.0-156		11/01/2020 06:12	<a href="#">WG1567409</a>



## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/28/2020 15:00	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 23:22	<a href="#">WG1565899</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 08:27	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	97.8		78.0-120		10/29/2020 08:27	<a href="#">WG1566990</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 06:57	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 06:57	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 06:57	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 06:57	<a href="#">WG1568533</a>
(S) Toluene-d8	102		80.0-120		10/31/2020 06:57	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	104		77.0-126		10/31/2020 06:57	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	113		70.0-130		10/31/2020 06:57	<a href="#">WG1568533</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/01/2020 15:31	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 15:31	<a href="#">WG1567409</a>
(S) o-Terphenyl	75.8		52.0-156		11/01/2020 15:31	<a href="#">WG1567409</a>





## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/28/2020 15:04	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 23:25	<a href="#">WG1565899</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 08:50	<a href="#">WG1566990</a>
(S) a,a,a-Trifluorotoluene(FID)	98.2		78.0-120		10/29/2020 08:50	<a href="#">WG1566990</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/30/2020 08:07	<a href="#">WG1568128</a>
Toluene	ND		1.00	1	10/30/2020 08:07	<a href="#">WG1568128</a>
Ethylbenzene	ND		1.00	1	10/30/2020 08:07	<a href="#">WG1568128</a>
Total Xylenes	ND		3.00	1	10/30/2020 08:07	<a href="#">WG1568128</a>
(S) Toluene-d8	101		80.0-120		10/30/2020 08:07	<a href="#">WG1568128</a>
(S) 4-Bromofluorobenzene	97.2		77.0-126		10/30/2020 08:07	<a href="#">WG1568128</a>
(S) 1,2-Dichloroethane-d4	83.5		70.0-130		10/30/2020 08:07	<a href="#">WG1568128</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/01/2020 07:04	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 07:04	<a href="#">WG1567409</a>
(S) o-Terphenyl	80.0		52.0-156		11/01/2020 07:04	<a href="#">WG1567409</a>



## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	13.0		5.00	1	10/28/2020 15:16	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/27/2020 23:28	<a href="#">WG1565899</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	10/28/2020 16:59	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	116		78.0-120		10/28/2020 16:59	<a href="#">WG1567195</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 07:17	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 07:17	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 07:17	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 07:17	<a href="#">WG1568533</a>
(S) Toluene-d8	101		80.0-120		10/31/2020 07:17	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	102		77.0-126		10/31/2020 07:17	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	116		70.0-130		10/31/2020 07:17	<a href="#">WG1568533</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	290		200	1	11/01/2020 18:06	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 18:06	<a href="#">WG1567409</a>
(S) o-Terphenyl	84.2		52.0-156		11/01/2020 18:06	<a href="#">WG1567409</a>



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1160000		500000	100	10/30/2020 20:55	<a href="#">WG1566859</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/28/2020 17:23	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	115		78.0-120		10/28/2020 17:23	<a href="#">WG1567195</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 07:38	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 07:38	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 07:38	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 07:38	<a href="#">WG1568533</a>
(S) Toluene-d8	105		80.0-120		10/31/2020 07:38	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	105		77.0-126		10/31/2020 07:38	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	116		70.0-130		10/31/2020 07:38	<a href="#">WG1568533</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	912000		500000	100	10/30/2020 21:21	<a href="#">WG1566859</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	136	<b>B</b>	100	1	10/28/2020 17:47	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	112		78.0-120		10/28/2020 17:47	<a href="#">WG1567195</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 07:58	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 07:58	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 07:58	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 07:58	<a href="#">WG1568533</a>
(S) Toluene-d8	104		80.0-120		10/31/2020 07:58	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	112		77.0-126		10/31/2020 07:58	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	117		70.0-130		10/31/2020 07:58	<a href="#">WG1568533</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1680000		500000	100	10/30/2020 21:34	<a href="#">WG1566859</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2490	<b>B</b>	1000	10	10/28/2020 23:47	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	114		78.0-120		10/28/2020 23:47	<a href="#">WG1567195</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		5.00	5	10/31/2020 12:06	<a href="#">WG1568533</a>
Toluene	ND		5.00	5	10/31/2020 12:06	<a href="#">WG1568533</a>
Ethylbenzene	5.12		5.00	5	10/31/2020 12:06	<a href="#">WG1568533</a>
Total Xylenes	ND		15.0	5	10/31/2020 12:06	<a href="#">WG1568533</a>
(S) Toluene-d8	103		80.0-120		10/31/2020 12:06	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	109		77.0-126		10/31/2020 12:06	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	109		70.0-130		10/31/2020 12:06	<a href="#">WG1568533</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Sample Narrative:

L1277202-10 WG1568533: Non-target compounds too high to run at a lower dilution.



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1210000		500000	100	10/30/2020 21:47	<a href="#">WG1566859</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	790		100	1	10/28/2020 18:11	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	98.9		78.0-120		10/28/2020 18:11	<a href="#">WG1567195</a>

3 Ss

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 08:19	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 08:19	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 08:19	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 08:19	<a href="#">WG1568533</a>
(S) Toluene-d8	101		80.0-120		10/31/2020 08:19	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	109		77.0-126		10/31/2020 08:19	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	120		70.0-130		10/31/2020 08:19	<a href="#">WG1568533</a>

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	1010000		500000	100	10/30/2020 22:00	<a href="#">WG1566859</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	6740		100	1	10/28/2020 18:35	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	89.2		78.0-120		10/28/2020 18:35	<a href="#">WG1567195</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 08:39	<a href="#">WG1568533</a>
Toluene	1.23		1.00	1	10/31/2020 08:39	<a href="#">WG1568533</a>
Ethylbenzene	300		10.0	10	11/03/2020 02:02	<a href="#">WG1569734</a>
Total Xylenes	313		3.00	1	10/31/2020 08:39	<a href="#">WG1568533</a>
(S) Toluene-d8	103		80.0-120		10/31/2020 08:39	<a href="#">WG1568533</a>
(S) Toluene-d8	109		80.0-120		11/03/2020 02:02	<a href="#">WG1569734</a>
(S) 4-Bromofluorobenzene	119		77.0-126		10/31/2020 08:39	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	96.8		77.0-126		11/03/2020 02:02	<a href="#">WG1569734</a>
(S) 1,2-Dichloroethane-d4	118		70.0-130		10/31/2020 08:39	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	88.6		70.0-130		11/03/2020 02:02	<a href="#">WG1569734</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3587990-1 10/30/20 20:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1277202-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1277202-08 10/30/20 20:55 • (DUP) R3587990-3 10/30/20 21:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	1160000	1010000	100	13.2		15

L1277245-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1277245-05 10/31/20 01:43 • (DUP) R3587990-6 10/31/20 01:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	16100	16700	1	3.43		15

Laboratory Control Sample (LCS)

(LCS) R3587990-2 10/30/20 20:42

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	41100	103	80.0-120	

L1277223-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277223-03 10/30/20 23:06 • (MS) R3587990-4 10/30/20 23:19 • (MSD) R3587990-5 10/30/20 23:32

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	110000	154000	160000	87.8	100	1	80.0-120	<u>E</u>	<u>E</u>	3.89	15

L1277245-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1277245-07 10/31/20 02:22 • (MS) R3587990-7 10/31/20 02:35

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	338000	371000	66.3	1	80.0-120	<u>E V</u>





Method Blank (MB)

(MB) R3586301-1 10/27/20 21:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead,Dissolved	U		0.849	5.00

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3586301-2 10/27/20 21:57

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	50.0	44.5	89.1	80.0-120	

4 Cn

5 Sr

L1277171-43 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277171-43 10/27/20 22:00 • (MS) R3586301-4 10/27/20 22:07 • (MSD) R3586301-5 10/27/20 22:10

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead,Dissolved	50.0	ND	45.5	47.7	91.0	95.3	1	75.0-125			4.68	20

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3586694-6 10/28/20 16:05

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		0.849	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3586694-2 10/28/20 14:33

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	46.1	92.3	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1277202-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277202-04 10/28/20 14:37 • (MS) R3586694-4 10/28/20 14:45 • (MSD) R3586694-5 10/28/20 14:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	50.0	ND	45.0	44.4	90.1	88.7	1	75.0-125			1.48	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3588016-2 10/29/20 00:06

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	52.9	↓	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	99.2			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R3588016-1 10/28/20 23:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5210	94.7	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			107	78.0-120	

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588481-2 10/28/20 15:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	58.6	↓	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	114			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R3588481-1 10/28/20 14:40

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5620	102	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			105	78.0-120	

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588906-2 11/02/20 14:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	98.4			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3588906-3 11/02/20 14:23

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	4550	82.7	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			97.0	78.0-120	



Method Blank (MB)

(MB) R3588206-2 10/30/20 05:43

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
<i>(S) Toluene-d8</i>	100			80.0-120
<i>(S) 4-Bromofluorobenzene</i>	97.4			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	82.4			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS)

(LCS) R3588206-1 10/30/20 05:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	5.09	102	70.0-123	
Ethylbenzene	5.00	5.26	105	79.0-123	
Toluene	5.00	4.84	96.8	79.0-120	
Xylenes, Total	15.0	15.6	104	79.0-123	
<i>(S) Toluene-d8</i>			99.3	80.0-120	
<i>(S) 4-Bromofluorobenzene</i>			98.4	77.0-126	
<i>(S) 1,2-Dichloroethane-d4</i>			88.0	70.0-130	

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588432-2 10/31/20 05:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
<i>(S) Toluene-d8</i>	104			80.0-120
<i>(S) 4-Bromofluorobenzene</i>	106			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	117			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3588432-1 10/31/20 04:34

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	4.75	95.0	70.0-123	
Ethylbenzene	5.00	4.97	99.4	79.0-123	
Toluene	5.00	4.60	92.0	79.0-120	
Xylenes, Total	15.0	14.8	98.7	79.0-123	
<i>(S) Toluene-d8</i>			97.7	80.0-120	
<i>(S) 4-Bromofluorobenzene</i>			104	77.0-126	
<i>(S) 1,2-Dichloroethane-d4</i>			119	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588623-3 11/02/20 19:45

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylbenzene	U		0.137	1.00
(S) Toluene-d8	106			80.0-120
(S) 4-Bromofluorobenzene	102			77.0-126
(S) 1,2-Dichloroethane-d4	86.8			70.0-130

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3588623-1 11/02/20 18:43 • (LCSD) R3588623-2 11/02/20 19:04

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	5.00	4.99	4.58	99.8	91.6	79.0-123			8.57	20
(S) Toluene-d8				110	108	80.0-120				
(S) 4-Bromofluorobenzene				100	97.2	77.0-126				
(S) 1,2-Dichloroethane-d4				86.7	89.1	70.0-130				

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc





Method Blank (MB)

(MB) R3587900-1 10/31/20 05:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
<i>(S) o-Terphenyl</i>	76.0			52.0-156

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3587900-2 10/31/20 05:55 • (LCSD) R3587900-3 10/31/20 06:21

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Diesel Range Organics (DRO)	1500	1340	1290	89.3	86.0	50.0-150			3.80	20
<i>(S) o-Terphenyl</i>				82.5	78.5	52.0-156				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

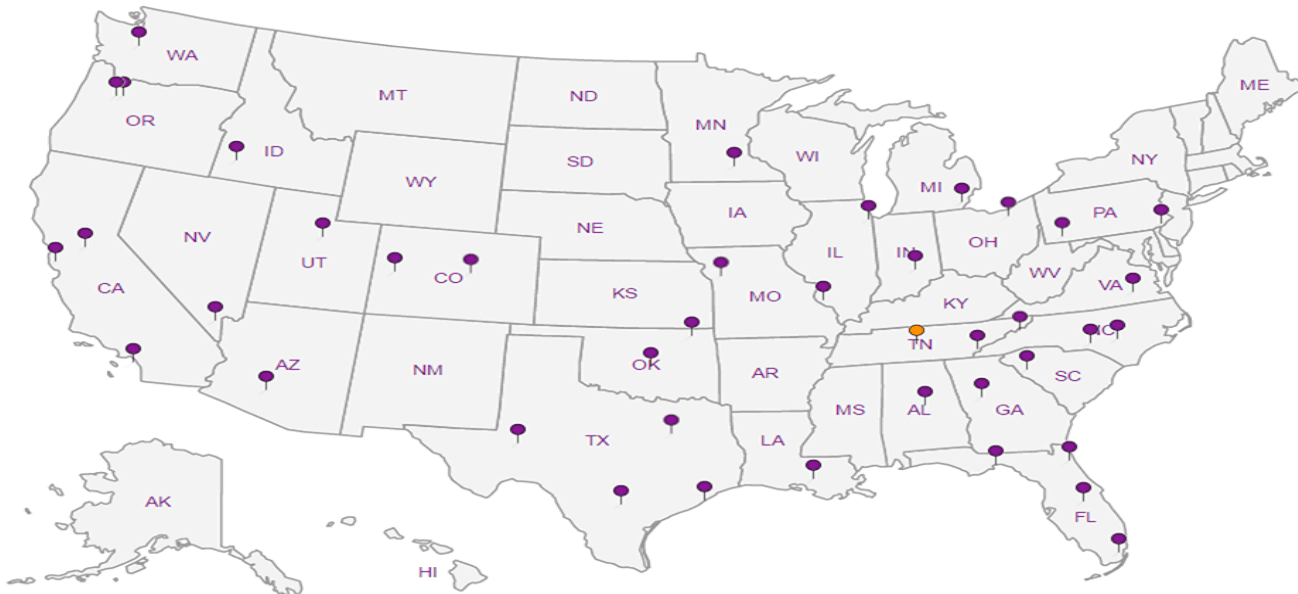
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



**Kinder Morgan- Houston, TX(Scott Martin)**

1100 Olive Way, Suite 800

Report to:  
**Kyle Haslam**

Project Description:  
**KMEP Harbor Island**

Phone: **206-726-4713**

Collected by (print):  
**Lauren Selleck**

Collected by (Signature):

Immediately Packed on Ice N  Y

Billing Information:

Accounts Payable-Scott Martin  
1001 Louisiana St.  
Houston, TX 77002

Pres  
Chk

Email To:  
Kyle.Haslam@arcadis.com; Scott.Wenning@arca

City/State Collected: **Seattle, WA**

Please Circle:  
PT MT CT ET

Client Project #  
**30050809.00002000**

Lab Project #  
**KINMOROCA-HARBORISLA**

Site/Facility ID #  
**2720 13TH AVENUE SW**

P.O. #

**Rush?** (Lab MUST Be Notified)

Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day

Quote #

Date Results Needed

No. of  
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX 8260D 40mlAmb-HCl	Diss Pb 6020 250mlHDPE-NoPres	NWTPHDX w/ SGT 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Total Pb 6020 250mlHDPE-HNO3	Total RCRA8 6020 250mlHDPE-HNO3
TMW-2	Grab	GW	-	10/20/2020	9:57	7	X			X	X		
TMW-3	Grab	GW	-	10/20/2020	12:40	7	X			X	X		
TMW-4	Grab	GW	-	10/20/2020	14:06	7	X			X	X		
TMW-5	Grab	GW	-	10/20/2020	10:05	7	X			X	X		
TMW-6	Grab	GW	-	10/21/2020	15:35	7	X			X	X		
<del>DRUM-1</del>	<del>Grab</del>	<del>GW</del>				<del>7</del>	<del>X</del>			<del>X</del>		<del>X</del>	
		GW				11	X	X	X	X	X	X	X
		GW				11	X	X	X	X	X	X	X
		GW				11	X	X	X	X	X	X	X
		GW				11	X	X	X	X	X	X	X

\* Matrix:  
SS - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

Samples returned via:  
 UPS  FedEx  Courier

Tracking #

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Sample Receipt Checklist

COC Seal Present/Intact:  Y  N  
COC Signed/Accurate:  Y  N  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  N  
Sufficient volume sent:  Y  N  
If Applicable  
VOA Zero Headspace:  Y  N  
Preservation Correct/Checked:  Y  N  
RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)

Date:

10.22.20

Time:

1400

Received by: (Signature)

Trip Blank Received: Yes / No

HCL / MeOH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: **16.0 ± 0.16** Bottles Received: **94**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date:

10/23/20

Time:

9:00

Hold:

Condition:  
NCF / **OK**

Analysis / Container / Preservative

Chain of Custody Page 2 of 2



12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



SDG # **U127202**

Table #

Acctnum: **KINMOROCA**

Template: **T175759**

Prelogin: **P802817**

PM: **110 - Brian Ford**

PB: **TN 10-9-20**

Shipped Via:

Remarks

Sample # (lab only)

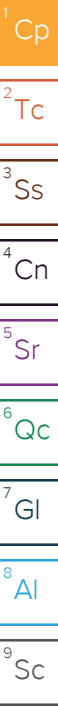
-08

-09

-10

-11

-12



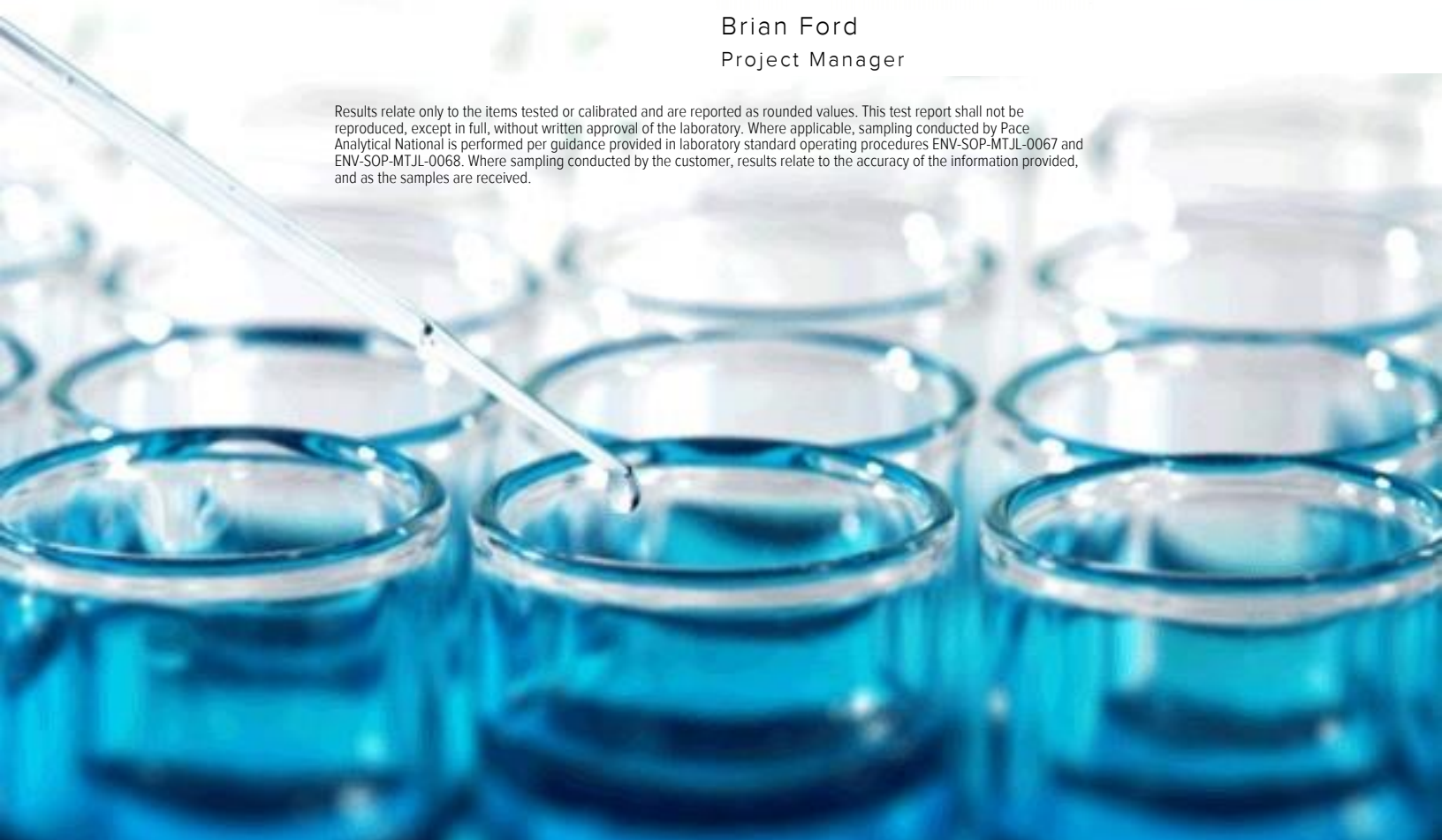
## Kinder Morgan- Houston, TX(Scott Martin)

Sample Delivery Group: L1277245  
Samples Received: 10/23/2020  
Project Number: 30050809.00002000  
Description: KMEP Harbor Island  
Site: 2720 13TH AVENUE SW SEATTLE,WA  
Report To: Kyle Haslam  
1100 Olive Way, Suite 800  
Seattle, WA 98101

Entire Report Reviewed By:

Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	
<b>Ss: Sample Summary</b>	<b>3</b>	<b>2</b> Tc
<b>Cn: Case Narrative</b>	<b>5</b>	
<b>Sr: Sample Results</b>	<b>6</b>	<b>3</b> Ss
MW-12R L1277245-01	6	
SH-02R L1277245-02	7	<b>4</b> Cn
SH-05R L1277245-03	8	
MW-7 L1277245-04	9	<b>5</b> Sr
MW-9 L1277245-05	10	
MW-19 L1277245-06	11	<b>6</b> Qc
TMW-1 L1277245-07	12	
<b>Qc: Quality Control Summary</b>	<b>13</b>	<b>7</b> Gl
Wet Chemistry by Method 9056A	13	
Metals (ICPMS) by Method 6020B	14	<b>8</b> Al
Volatile Organic Compounds (GC) by Method NWTPHGX	16	
Volatile Organic Compounds (GC/MS) by Method 8260D	17	
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	19	<b>9</b> Sc
<b>Gl: Glossary of Terms</b>	<b>20</b>	
<b>Al: Accreditations &amp; Locations</b>	<b>21</b>	
<b>Sc: Sample Chain of Custody</b>	<b>22</b>	

# SAMPLE SUMMARY



## MW-12R L1277245-01 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 16:25

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1565900	1	10/27/20 22:46	10/28/20 04:20	LAT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 15:35	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 18:59	10/28/20 18:59	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 09:00	10/31/20 09:00	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1569734	1	11/03/20 00:00	11/03/20 00:00	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 07:55	AEG	Mt. Juliet, TN

1  
Cp

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Tc

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Cn

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Sr

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Qc

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Gl

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Al

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Sc

## SH-02R L1277245-02 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 12:27

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1565900	1	10/27/20 22:46	10/28/20 04:35	LAT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 15:39	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 19:23	10/28/20 19:23	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 09:20	10/31/20 09:20	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1569734	1	11/03/20 00:20	11/03/20 00:20	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 08:21	AEG	Mt. Juliet, TN

## SH-05R L1277245-03 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 09:53

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1565900	1	10/27/20 22:46	10/28/20 04:39	LAT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 15:43	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 19:47	10/28/20 19:47	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 09:41	10/31/20 09:41	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1567409	1	10/29/20 09:07	11/01/20 08:47	AEG	Mt. Juliet, TN

## MW-7 L1277245-04 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 11:25

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	100	10/31/20 01:29	10/31/20 01:29	MSP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565900	1	10/27/20 22:46	10/28/20 04:42	LAT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 15:46	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 20:11	10/28/20 20:11	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 10:02	10/31/20 10:02	JHH	Mt. Juliet, TN

## MW-9 L1277245-05 GW

Collected by  
Lauren Selleck

Collected date/time  
10/21/20 10:00

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	1	10/31/20 01:43	10/31/20 01:43	MSP	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565900	1	10/27/20 22:46	10/28/20 04:46	LAT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1565916	1	10/28/20 00:48	10/28/20 16:09	LAT	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 20:35	10/28/20 20:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 10:22	10/31/20 10:22	JHH	Mt. Juliet, TN



# SAMPLE SUMMARY

## MW-19 L1277245-06 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 12:15

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	100	10/31/20 02:09	10/31/20 02:09	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 20:59	10/28/20 20:59	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 10:43	10/31/20 10:43	JHH	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## TMW-1 L1277245-07 GW

Collected by  
Lauren Selleck

Collected date/time  
10/20/20 11:03

Received date/time  
10/23/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG1566859	5	10/31/20 10:55	10/31/20 10:55	MSP	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567195	1	10/28/20 21:23	10/28/20 21:23	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568533	1	10/31/20 11:04	10/31/20 11:04	JHH	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford  
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/28/2020 15:35	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/28/2020 04:20	<a href="#">WG1565900</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	103	<u>B</u>	100	1	10/28/2020 18:59	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	117		78.0-120		10/28/2020 18:59	<a href="#">WG1567195</a>

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 09:00	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 09:00	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	11/03/2020 00:00	<a href="#">WG1569734</a>
Total Xylenes	ND		3.00	1	11/03/2020 00:00	<a href="#">WG1569734</a>
(S) Toluene-d8	101		80.0-120		10/31/2020 09:00	<a href="#">WG1568533</a>
(S) Toluene-d8	107		80.0-120		11/03/2020 00:00	<a href="#">WG1569734</a>
(S) 4-Bromofluorobenzene	106		77.0-126		10/31/2020 09:00	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	97.2		77.0-126		11/03/2020 00:00	<a href="#">WG1569734</a>
(S) 1,2-Dichloroethane-d4	113		70.0-130		10/31/2020 09:00	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	88.6		70.0-130		11/03/2020 00:00	<a href="#">WG1569734</a>

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/01/2020 07:55	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 07:55	<a href="#">WG1567409</a>
(S) o-Terphenyl	82.6		52.0-156		11/01/2020 07:55	<a href="#">WG1567409</a>



## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/28/2020 15:39	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/28/2020 04:35	<a href="#">WG1565900</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	220	<u>B</u>	100	1	10/28/2020 19:23	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	116		78.0-120		10/28/2020 19:23	<a href="#">WG1567195</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 09:20	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 09:20	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 09:20	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	11/03/2020 00:20	<a href="#">WG1569734</a>
(S) Toluene-d8	98.7		80.0-120		10/31/2020 09:20	<a href="#">WG1568533</a>
(S) Toluene-d8	107		80.0-120		11/03/2020 00:20	<a href="#">WG1569734</a>
(S) 4-Bromofluorobenzene	106		77.0-126		10/31/2020 09:20	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	98.9		77.0-126		11/03/2020 00:20	<a href="#">WG1569734</a>
(S) 1,2-Dichloroethane-d4	113		70.0-130		10/31/2020 09:20	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	84.1		70.0-130		11/03/2020 00:20	<a href="#">WG1569734</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	252		200	1	11/01/2020 08:21	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 08:21	<a href="#">WG1567409</a>
(S) o-Terphenyl	78.9		52.0-156		11/01/2020 08:21	<a href="#">WG1567409</a>



## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/28/2020 15:43	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/28/2020 04:39	<a href="#">WG1565900</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	180	B	100	1	10/28/2020 19:47	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	116		78.0-120		10/28/2020 19:47	<a href="#">WG1567195</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 09:41	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 09:41	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 09:41	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 09:41	<a href="#">WG1568533</a>
(S) Toluene-d8	104		80.0-120		10/31/2020 09:41	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	106		77.0-126		10/31/2020 09:41	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	111		70.0-130		10/31/2020 09:41	<a href="#">WG1568533</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	314		200	1	11/01/2020 08:47	<a href="#">WG1567409</a>
Residual Range Organics (RRO)	ND		250	1	11/01/2020 08:47	<a href="#">WG1567409</a>
(S) o-Terphenyl	81.1		52.0-156		11/01/2020 08:47	<a href="#">WG1567409</a>



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	681000		500000	100	10/31/2020 01:29	<a href="#">WG1566859</a>

1 Cp

2 Tc

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/28/2020 15:46	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/28/2020 04:42	<a href="#">WG1565900</a>

3 Ss

4 Cn

5 Sr

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	173	<u>B</u>	100	1	10/28/2020 20:11	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	113		78.0-120		10/28/2020 20:11	<a href="#">WG1567195</a>

6 Qc

7 Gl

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 10:02	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 10:02	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 10:02	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 10:02	<a href="#">WG1568533</a>
(S) Toluene-d8	102		80.0-120		10/31/2020 10:02	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	107		77.0-126		10/31/2020 10:02	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	109		70.0-130		10/31/2020 10:02	<a href="#">WG1568533</a>

8 Al

9 Sc



Collected date/time: 10/21/20 10:00

L1277245

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	16100		5000	1	10/31/2020 01:43	<a href="#">WG1566859</a>

1 Cp

2 Tc

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/28/2020 16:09	<a href="#">WG1565916</a>
Lead,Dissolved	ND		5.00	1	10/28/2020 04:46	<a href="#">WG1565900</a>

3 Ss

4 Cn

5 Sr

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	130	<u>B</u>	100	1	10/28/2020 20:35	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	114		78.0-120		10/28/2020 20:35	<a href="#">WG1567195</a>

6 Qc

7 Gl

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 10:22	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 10:22	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 10:22	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 10:22	<a href="#">WG1568533</a>
(S) Toluene-d8	101		80.0-120		10/31/2020 10:22	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	106		77.0-126		10/31/2020 10:22	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	112		70.0-130		10/31/2020 10:22	<a href="#">WG1568533</a>

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	557000		500000	100	10/31/2020 02:09	<a href="#">WG1566859</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	856		100	1	10/28/2020 20:59	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	104		78.0-120		10/28/2020 20:59	<a href="#">WG1567195</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	4.09		1.00	1	10/31/2020 10:43	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 10:43	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 10:43	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 10:43	<a href="#">WG1568533</a>
(S) Toluene-d8	99.7		80.0-120		10/31/2020 10:43	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	109		77.0-126		10/31/2020 10:43	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	110		70.0-130		10/31/2020 10:43	<a href="#">WG1568533</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	331000		25000	5	10/31/2020 10:55	<a href="#">WG1566859</a>

1 Cp

2 Tc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/28/2020 21:23	<a href="#">WG1567195</a>
(S) a,a,a-Trifluorotoluene(FID)	111		78.0-120		10/28/2020 21:23	<a href="#">WG1567195</a>

3 Ss

4 Cn

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 11:04	<a href="#">WG1568533</a>
Toluene	ND		1.00	1	10/31/2020 11:04	<a href="#">WG1568533</a>
Ethylbenzene	ND		1.00	1	10/31/2020 11:04	<a href="#">WG1568533</a>
Total Xylenes	ND		3.00	1	10/31/2020 11:04	<a href="#">WG1568533</a>
(S) Toluene-d8	103		80.0-120		10/31/2020 11:04	<a href="#">WG1568533</a>
(S) 4-Bromofluorobenzene	106		77.0-126		10/31/2020 11:04	<a href="#">WG1568533</a>
(S) 1,2-Dichloroethane-d4	111		70.0-130		10/31/2020 11:04	<a href="#">WG1568533</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3587990-1 10/30/20 20:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1277202-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1277202-08 10/30/20 20:55 • (DUP) R3587990-3 10/30/20 21:08

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	1160000	1010000	100	13.2		15

L1277245-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1277245-05 10/31/20 01:43 • (DUP) R3587990-6 10/31/20 01:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	16100	16700	1	3.43		15

Laboratory Control Sample (LCS)

(LCS) R3587990-2 10/30/20 20:42

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	41100	103	80.0-120	

L1277223-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277223-03 10/30/20 23:06 • (MS) R3587990-4 10/30/20 23:19 • (MSD) R3587990-5 10/30/20 23:32

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	110000	154000	160000	87.8	100	1	80.0-120	<u>E</u>	<u>E</u>	3.89	15

L1277245-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1277245-07 10/31/20 02:22 • (MS) R3587990-7 10/31/20 02:35

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	338000	371000	66.3	1	80.0-120	<u>E V</u>



Method Blank (MB)

(MB) R3586333-1 10/28/20 04:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead,Dissolved	U		0.849	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3586333-2 10/28/20 04:16

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	50.0	48.4	96.8	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1277245-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277245-01 10/28/20 04:20 • (MS) R3586333-4 10/28/20 04:27 • (MSD) R3586333-5 10/28/20 04:31

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead,Dissolved	50.0	ND	47.2	47.2	94.5	94.3	1	75.0-125			0.150	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3586694-6 10/28/20 16:05

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		0.849	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3586694-2 10/28/20 14:33

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	46.1	92.3	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1277202-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277202-04 10/28/20 14:37 • (MS) R3586694-4 10/28/20 14:45 • (MSD) R3586694-5 10/28/20 14:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	50.0	ND	45.0	44.4	90.1	88.7	1	75.0-125			1.48	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3588481-2 10/28/20 15:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	58.6	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	114			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS)

(LCS) R3588481-1 10/28/20 14:40

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5620	102	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			105	78.0-120	

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588432-2 10/31/20 05:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	104			80.0-120
(S) 4-Bromofluorobenzene	106			77.0-126
(S) 1,2-Dichloroethane-d4	117			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3588432-1 10/31/20 04:34

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	4.75	95.0	70.0-123	
Ethylbenzene	5.00	4.97	99.4	79.0-123	
Toluene	5.00	4.60	92.0	79.0-120	
Xylenes, Total	15.0	14.8	98.7	79.0-123	
(S) Toluene-d8			97.7	80.0-120	
(S) 4-Bromofluorobenzene			104	77.0-126	
(S) 1,2-Dichloroethane-d4			119	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588623-3 11/02/20 19:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	106			80.0-120
(S) 4-Bromofluorobenzene	102			77.0-126
(S) 1,2-Dichloroethane-d4	86.8			70.0-130

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3588623-1 11/02/20 18:43 • (LCSD) R3588623-2 11/02/20 19:04

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Ethylbenzene	5.00	4.99	4.58	99.8	91.6	79.0-123			8.57	20
Xylenes, Total	15.0	13.8	12.9	92.0	86.0	79.0-123			6.74	20
(S) Toluene-d8				110	108	80.0-120				
(S) 4-Bromofluorobenzene				100	97.2	77.0-126				
(S) 1,2-Dichloroethane-d4				86.7	89.1	70.0-130				

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3587900-1 10/31/20 05:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
<i>(S) o-Terphenyl</i>	76.0			52.0-156

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3587900-2 10/31/20 05:55 • (LCSD) R3587900-3 10/31/20 06:21

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Diesel Range Organics (DRO)	1500	1340	1290	89.3	86.0	50.0-150			3.80	20
<i>(S) o-Terphenyl</i>				82.5	78.5	52.0-156				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc





Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

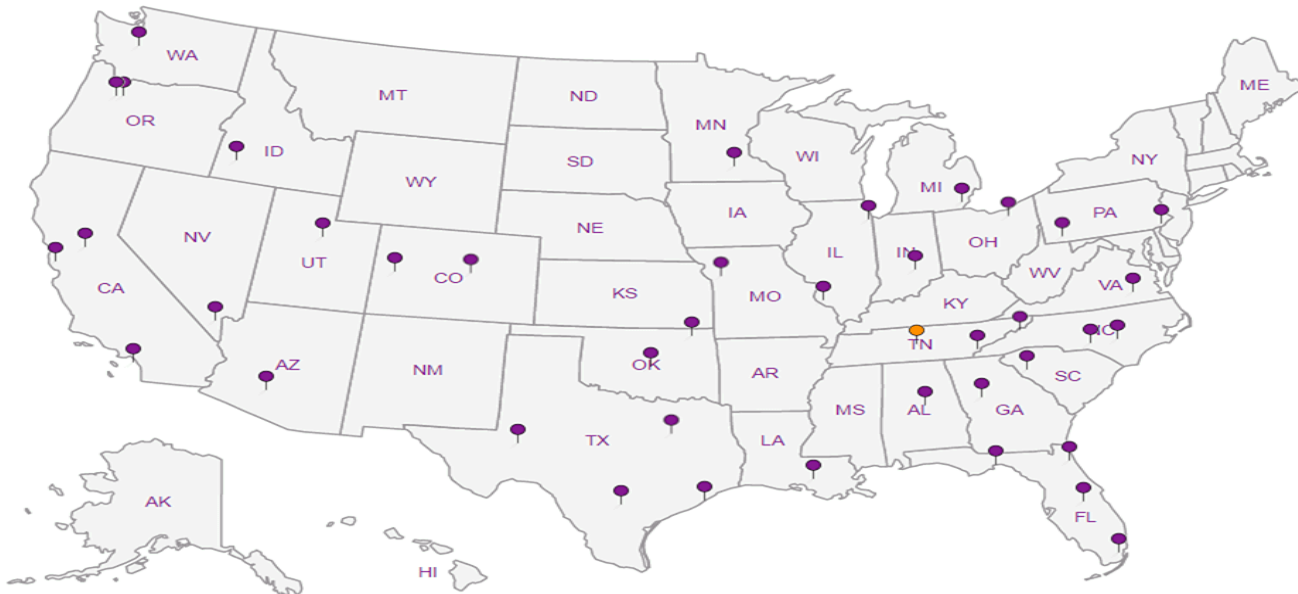
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**Kinder Morgan- Houston, TX (Scott Martin)**  
 1100 Olive Way, Suite 800

Billing Information:  
 Accounts Payable-Scott Martin  
 1001 Louisiana St.  
 Houston, TX 77002

Report to:  
 Kyle Haslam  
 Email To:  
 Kyle.Haslam@arcadis.com; Scott.Wenning@arca

Project Description: KMEP Harbor Island  
 City/State Collected: Seattle, WA  
 Release Circle:  PT  MT  CT  ET

Phone: 206-726-4713  
 Client Project #: 30050809.00002000  
 Lab Project #: KINMOROCA-HARBORISLA

Collected by (print): Lauren Selleck  
 Site/Facility ID #: 2720 13TH AVENUE SW  
 P.O. #

Collected by (signature): *[Signature]*  
 Rush? (Lab MUST Be Notified)  
 Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day  
 Date Results Needed  
 Immediately Packed on Ice N  Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-12R	grab	GW		10.20.20	1025	10
MW-25		GW				10
SH-02R	grab	GW		10.21.20	1227	10
SH-05R	grab	GW		10.21.20	953	10
A-21		GW				8
MW-6		GW				8
MW-7	grab	GW		10.20.20	1125	9
MW-9	grab	GW		10.21.20	1000	9
MW-19	grab	GW		10.20.20	1215	7
TMW-1	grab	GW		10.20.20	1103	7

Analysis / Container / Preservative										
BTEX 8260D 40mlAmb-HCI	Diss Pb 6020 250mlHDPE-NoPres	NWTPHDX w/ SGT 40mlAmb-HCI-BT	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Total Pb 6020 250mlHDPE-HNO3	Total RCRA8 6020 250mlHDPE-HNO3				
X	X	X	X		X					
X	X	X	X		X					
X	X	X	X		X					
X	X	X	X		X					
X	X	X	X		X					
X	X	X	X		X					
X	X	X	X		X					
X	X	X	X		X					

Chain of Custody Page \_\_\_ of \_\_\_



12065 Lebanon Rd  
 Mount Juliet, TN 37122  
 Phone: 615-758-5858  
 Phone: 800-767-5859  
 Fax: 615-758-5859



SDG # **E088**

Table #

Acctnum: KINMOROCA  
 Template: T175759  
 Prelogin: P802817  
 PM: 110 - Brian Ford  
 PB: TN 10-9-20

Shipped Via:

Remarks | Sample # (lab only)

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  
 UPS  FedEx  Courier

Tracking # **9186 2509 00182**

Sample Receipt Checklist	
COC Seal Present/Intact: <input type="checkbox"/> NP <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
COC Signed/Accurate: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Bottles arrive intact: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Correct bottles used: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Sufficient volume sent: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
IF Applicable	
VOA Zero Headspace: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
Preservation Correct/Checked: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	
RAD Screen <0.5 mR/hr: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	

Relinquished by: (Signature) <i>[Signature]</i>	Date: 10.22.20	Time: 1400	Received by: (Signature)	Trip Blank Received: Yes/No HCL/MeoH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <b>11.0°C</b> Bottles Received: <b>62</b>
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 10-23-20 Time: 9:00

If preservation required by Login: Date/Time

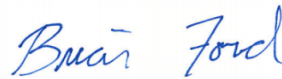
Hold:

Condition: NCF / **OK**

## Kinder Morgan- Houston, TX(Scott Martin)

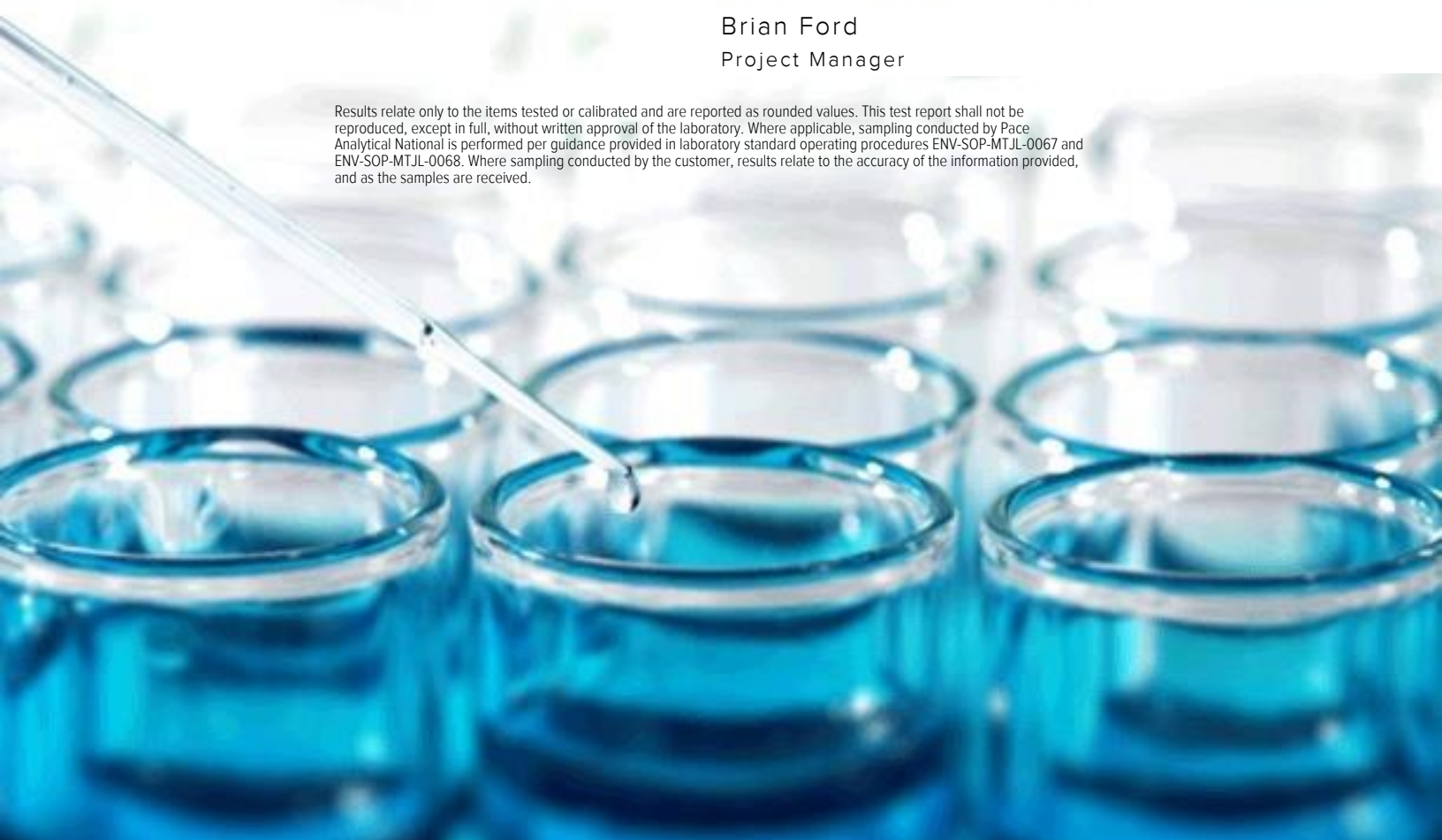
Sample Delivery Group: L1277788  
Samples Received: 10/24/2020  
Project Number: 30050809.00002000  
Description: KMEP Harbor Island  
Site: 2720 13TH AVENUE SW SEATTLE,WA  
Report To: Kyle Haslam  
1100 Olive Way, Suite 800  
Seattle, WA 98101

Entire Report Reviewed By:



Brian Ford  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	
<b>Ss: Sample Summary</b>	<b>3</b>	<b>2</b> Tc
<b>Cn: Case Narrative</b>	<b>5</b>	
<b>Sr: Sample Results</b>	<b>6</b>	<b>3</b> Ss
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A-8 L1277788-02	7	<b>4</b> Cn
A-10 L1277788-03	8	<b>5</b> Sr
MW-16 L1277788-04	9	
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MW-25 L1277788-06	11	
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<b>Al: Accreditations &amp; Locations</b>	<b>24</b>	
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# SAMPLE SUMMARY



## A-5 L1277788-01 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/23/20 10:50  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	5	10/30/20 00:39	10/30/20 00:39	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 17:27	10/31/20 17:27	ACG	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

## A-8 L1277788-02 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/23/20 11:15  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 17:28	10/29/20 17:28	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 17:46	10/31/20 17:46	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1569002	1	11/01/20 21:01	11/05/20 07:32	JDG	Mt. Juliet, TN

4  
Cn

5  
Sr

6  
Qc

## A-10 L1277788-03 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/23/20 10:05  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 17:52	10/29/20 17:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 18:05	10/31/20 18:05	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1569002	1	11/01/20 21:01	11/05/20 07:52	JDG	Mt. Juliet, TN

7  
Gl

8  
Al

9  
Sc

## MW-16 L1277788-04 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 15:48  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 18:16	10/29/20 18:16	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 18:24	10/31/20 18:24	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1569002	1	11/01/20 21:01	11/05/20 08:12	JDG	Mt. Juliet, TN

## DRUM-1 L1277788-05 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/23/20 12:10  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG1565140	1	10/27/20 21:53	10/28/20 12:51	BMF	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1566847	1	10/29/20 15:46	10/29/20 22:02	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 18:40	10/29/20 18:40	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 18:43	10/31/20 18:43	ACG	Mt. Juliet, TN

## MW-25 L1277788-06 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/23/20 10:20  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1566836	1	10/30/20 19:21	10/31/20 17:41	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1566847	1	10/29/20 15:46	10/29/20 22:05	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 19:04	10/29/20 19:04	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 19:02	10/31/20 19:02	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1569002	1	11/01/20 21:01	11/05/20 08:32	JDG	Mt. Juliet, TN

# SAMPLE SUMMARY



## A-21 L1277788-07 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/23/20 09:00  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1566836	1	10/30/20 19:21	10/31/20 17:44	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1566847	1	10/29/20 15:46	10/29/20 22:08	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 19:28	10/29/20 19:28	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 19:21	10/31/20 19:21	ACG	Mt. Juliet, TN

1  
Cp

2  
Tc

3  
Ss

4  
Cn

5  
Sr

6  
Qc

7  
Gl

8  
Al

9  
Sc

## MW-6 L1277788-08 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 16:10  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1566836	1	10/30/20 19:21	10/31/20 17:47	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1566847	1	10/29/20 15:46	10/29/20 22:12	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 19:52	10/29/20 19:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 19:39	10/31/20 19:39	ACG	Mt. Juliet, TN

## A-14R L1277788-09 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/23/20 09:10  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1566836	1	10/30/20 19:21	10/31/20 17:51	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1566847	1	10/29/20 15:46	10/29/20 22:15	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 20:16	10/29/20 20:16	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 19:59	10/31/20 19:59	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1569002	1	11/01/20 21:01	11/05/20 08:52	JDG	Mt. Juliet, TN

## MW-1 L1277788-10 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 15:06  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1566836	1	10/30/20 19:21	10/31/20 17:54	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1566847	1	10/29/20 15:46	10/29/20 22:18	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 20:40	10/29/20 20:40	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 20:18	10/31/20 20:18	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1569002	1	11/01/20 21:01	11/05/20 09:12	JDG	Mt. Juliet, TN

## MW-3 L1277788-11 GW

Collected by  
Lauren Selleck  
Collected date/time  
10/22/20 15:10  
Received date/time  
10/24/20 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG1566836	1	10/30/20 19:21	10/31/20 17:57	JPD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG1566847	1	10/29/20 15:46	10/29/20 22:28	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1567534	1	10/29/20 21:04	10/29/20 21:04	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1568958	1	10/31/20 20:37	10/31/20 20:37	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG1569002	1	11/01/20 21:01	11/05/20 09:32	JDG	Mt. Juliet, TN



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford  
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc





Collected date/time: 10/23/20 10:50

L1277788

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	585	<u>B</u>	500	5	10/30/2020 00:39	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	114		78.0-120		10/30/2020 00:39	<a href="#">WG1567534</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 17:27	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 17:27	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 17:27	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 17:27	<a href="#">WG1568958</a>
(S) Toluene-d8	116		80.0-120		10/31/2020 17:27	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	86.0		77.0-126		10/31/2020 17:27	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	78.9		70.0-130		10/31/2020 17:27	<a href="#">WG1568958</a>

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 10/23/20 11:15

L1277788

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	249	<u>B</u>	100	1	10/29/2020 17:28	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	113		78.0-120		10/29/2020 17:28	<a href="#">WG1567534</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 17:46	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 17:46	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 17:46	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 17:46	<a href="#">WG1568958</a>
(S) Toluene-d8	115		80.0-120		10/31/2020 17:46	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	83.4		77.0-126		10/31/2020 17:46	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	77.6		70.0-130		10/31/2020 17:46	<a href="#">WG1568958</a>

4 Cn

5 Sr

6 Qc

7 Gl

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/05/2020 07:32	<a href="#">WG1569002</a>
Residual Range Organics (RRO)	ND		250	1	11/05/2020 07:32	<a href="#">WG1569002</a>
(S) o-Terphenyl	77.0		52.0-156		11/05/2020 07:32	<a href="#">WG1569002</a>

8 Al

9 Sc



## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 17:52	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	115		78.0-120		10/29/2020 17:52	<a href="#">WG1567534</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 18:05	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 18:05	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 18:05	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 18:05	<a href="#">WG1568958</a>
(S) Toluene-d8	118		80.0-120		10/31/2020 18:05	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	85.5		77.0-126		10/31/2020 18:05	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	79.8		70.0-130		10/31/2020 18:05	<a href="#">WG1568958</a>

4 Cn

5 Sr

6 Qc

7 Gl

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	704		200	1	11/05/2020 07:52	<a href="#">WG1569002</a>
Residual Range Organics (RRO)	ND		250	1	11/05/2020 07:52	<a href="#">WG1569002</a>
(S) o-Terphenyl	81.0		52.0-156		11/05/2020 07:52	<a href="#">WG1569002</a>

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 18:16	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	116		78.0-120		10/29/2020 18:16	<a href="#">WG1567534</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 18:24	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 18:24	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 18:24	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 18:24	<a href="#">WG1568958</a>
(S) Toluene-d8	117		80.0-120		10/31/2020 18:24	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	84.2		77.0-126		10/31/2020 18:24	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	78.3		70.0-130		10/31/2020 18:24	<a href="#">WG1568958</a>

4 Cn

5 Sr

6 Qc

7 Gl

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/05/2020 08:12	<a href="#">WG1569002</a>
Residual Range Organics (RRO)	ND		250	1	11/05/2020 08:12	<a href="#">WG1569002</a>
(S) o-Terphenyl	70.5		52.0-156		11/05/2020 08:12	<a href="#">WG1569002</a>

8 Al

9 Sc



Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.200	1	10/28/2020 12:51	<a href="#">WG1565140</a>

1 Cp

2 Tc

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	15.1		2.00	1	10/29/2020 22:02	<a href="#">WG1566847</a>
Barium	ND		20.0	1	10/29/2020 22:02	<a href="#">WG1566847</a>
Cadmium	ND		1.00	1	10/29/2020 22:02	<a href="#">WG1566847</a>
Chromium	ND		2.00	1	10/29/2020 22:02	<a href="#">WG1566847</a>
Lead	5.12		5.00	1	10/29/2020 22:02	<a href="#">WG1566847</a>
Selenium	ND		2.00	1	10/29/2020 22:02	<a href="#">WG1566847</a>
Silver	ND		2.00	1	10/29/2020 22:02	<a href="#">WG1566847</a>

3 Ss

4 Cn

5 Sr

6 Qc

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1120		100	1	10/29/2020 18:40	<a href="#">WG1567534</a>
(S) a, a, a-Trifluorotoluene(FID)	96.1		78.0-120		10/29/2020 18:40	<a href="#">WG1567534</a>

7 Gl

8 Al

9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	35.9		1.00	1	10/31/2020 18:43	<a href="#">WG1568958</a>
Toluene	2.09		1.00	1	10/31/2020 18:43	<a href="#">WG1568958</a>
Ethylbenzene	30.6		1.00	1	10/31/2020 18:43	<a href="#">WG1568958</a>
Total Xylenes	17.6		3.00	1	10/31/2020 18:43	<a href="#">WG1568958</a>
(S) Toluene-d8	113		80.0-120		10/31/2020 18:43	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	83.9		77.0-126		10/31/2020 18:43	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	80.3		70.0-130		10/31/2020 18:43	<a href="#">WG1568958</a>



Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/29/2020 22:05	<a href="#">WG1566847</a>
Lead,Dissolved	ND		5.00	1	10/31/2020 17:41	<a href="#">WG1566836</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 19:04	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	115		78.0-120		10/29/2020 19:04	<a href="#">WG1567534</a>

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 19:02	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 19:02	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 19:02	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 19:02	<a href="#">WG1568958</a>
(S) Toluene-d8	114		80.0-120		10/31/2020 19:02	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	92.8		77.0-126		10/31/2020 19:02	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	81.1		70.0-130		10/31/2020 19:02	<a href="#">WG1568958</a>

6 Qc

7 Gl

8 Al

9 Sc

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	633		200	1	11/05/2020 08:32	<a href="#">WG1569002</a>
Residual Range Organics (RRO)	ND		250	1	11/05/2020 08:32	<a href="#">WG1569002</a>
(S) o-Terphenyl	82.5		52.0-156		11/05/2020 08:32	<a href="#">WG1569002</a>



Collected date/time: 10/23/20 09:00

L1277788

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/29/2020 22:08	<a href="#">WG1566847</a>
Lead,Dissolved	ND		5.00	1	10/31/2020 17:44	<a href="#">WG1566836</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	201	<u>B</u>	100	1	10/29/2020 19:28	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	112		78.0-120		10/29/2020 19:28	<a href="#">WG1567534</a>

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 19:21	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 19:21	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 19:21	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 19:21	<a href="#">WG1568958</a>
(S) Toluene-d8	117		80.0-120		10/31/2020 19:21	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	86.6		77.0-126		10/31/2020 19:21	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	80.4		70.0-130		10/31/2020 19:21	<a href="#">WG1568958</a>

6 Qc

7 Gl

8 Al

9 Sc



Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/29/2020 22:12	<a href="#">WG1566847</a>
Lead,Dissolved	ND		5.00	1	10/31/2020 17:47	<a href="#">WG1566836</a>

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	250	B	100	1	10/29/2020 19:52	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	114		78.0-120		10/29/2020 19:52	<a href="#">WG1567534</a>

4 Cn

5 Sr

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 19:39	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 19:39	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 19:39	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 19:39	<a href="#">WG1568958</a>
(S) Toluene-d8	119		80.0-120		10/31/2020 19:39	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	85.8		77.0-126		10/31/2020 19:39	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	79.4		70.0-130		10/31/2020 19:39	<a href="#">WG1568958</a>

6 Qc

7 Gl

8 Al

9 Sc





## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/29/2020 22:15	<a href="#">WG1566847</a>
Lead,Dissolved	ND		5.00	1	10/31/2020 17:51	<a href="#">WG1566836</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 20:16	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	113		78.0-120		10/29/2020 20:16	<a href="#">WG1567534</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 19:59	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 19:59	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 19:59	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 19:59	<a href="#">WG1568958</a>
(S) Toluene-d8	117		80.0-120		10/31/2020 19:59	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	83.8		77.0-126		10/31/2020 19:59	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	78.8		70.0-130		10/31/2020 19:59	<a href="#">WG1568958</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/05/2020 08:52	<a href="#">WG1569002</a>
Residual Range Organics (RRO)	ND		250	1	11/05/2020 08:52	<a href="#">WG1569002</a>
(S) o-Terphenyl	74.0		52.0-156		11/05/2020 08:52	<a href="#">WG1569002</a>



## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	ND		5.00	1	10/29/2020 22:18	<a href="#">WG1566847</a>
Lead,Dissolved	ND		5.00	1	10/31/2020 17:54	<a href="#">WG1566836</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 20:40	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	115		78.0-120		10/29/2020 20:40	<a href="#">WG1567534</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		1.00	1	10/31/2020 20:18	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 20:18	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 20:18	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 20:18	<a href="#">WG1568958</a>
(S) Toluene-d8	118		80.0-120		10/31/2020 20:18	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	85.2		77.0-126		10/31/2020 20:18	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	81.7		70.0-130		10/31/2020 20:18	<a href="#">WG1568958</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Diesel Range Organics (DRO)	ND		200	1	11/05/2020 09:12	<a href="#">WG1569002</a>
Residual Range Organics (RRO)	ND		250	1	11/05/2020 09:12	<a href="#">WG1569002</a>
(S) o-Terphenyl	78.5		52.0-156		11/05/2020 09:12	<a href="#">WG1569002</a>



## Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Lead	ND		5.00	1	10/29/2020 22:28	<a href="#">WG1566847</a>
Lead,Dissolved	ND		5.00	1	10/31/2020 17:57	<a href="#">WG1566836</a>

1 Cp

2 Tc

3 Ss

## Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/29/2020 21:04	<a href="#">WG1567534</a>
(S) a,a,a-Trifluorotoluene(FID)	115		78.0-120		10/29/2020 21:04	<a href="#">WG1567534</a>

4 Cn

5 Sr

## Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Benzene	ND		1.00	1	10/31/2020 20:37	<a href="#">WG1568958</a>
Toluene	ND		1.00	1	10/31/2020 20:37	<a href="#">WG1568958</a>
Ethylbenzene	ND		1.00	1	10/31/2020 20:37	<a href="#">WG1568958</a>
Total Xylenes	ND		3.00	1	10/31/2020 20:37	<a href="#">WG1568958</a>
(S) Toluene-d8	117		80.0-120		10/31/2020 20:37	<a href="#">WG1568958</a>
(S) 4-Bromofluorobenzene	81.5		77.0-126		10/31/2020 20:37	<a href="#">WG1568958</a>
(S) 1,2-Dichloroethane-d4	80.3		70.0-130		10/31/2020 20:37	<a href="#">WG1568958</a>

6 Qc

7 Gl

8 Al

9 Sc

## Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	11/05/2020 09:32	<a href="#">WG1569002</a>
Residual Range Organics (RRO)	ND		250	1	11/05/2020 09:32	<a href="#">WG1569002</a>
(S) o-Terphenyl	79.0		52.0-156		11/05/2020 09:32	<a href="#">WG1569002</a>



Method Blank (MB)

(MB) R3586559-1 10/28/20 12:17

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.100	0.200

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

Laboratory Control Sample (LCS)

(LCS) R3586559-2 10/28/20 12:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	3.00	2.92	97.3	80.0-120	

<sup>7</sup> Gl

<sup>8</sup> Al

L1276362-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1276362-16 10/28/20 12:21 • (MS) R3586559-3 10/28/20 12:23 • (MSD) R3586559-4 10/28/20 12:25

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	ND	2.82	2.88	93.9	95.9	1	75.0-125			2.10	20

<sup>9</sup> Sc



Method Blank (MB)

(MB) R3587996-1 10/31/20 16:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead,Dissolved	U		0.849	5.00

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3587996-2 10/31/20 16:55

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Lead,Dissolved	50.0	43.4	86.7	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

L1277815-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277815-03 10/31/20 16:59 • (MS) R3587996-4 10/31/20 17:05 • (MSD) R3587996-5 10/31/20 17:09

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead,Dissolved	50.0	ND	47.8	46.7	95.6	93.5	1	75.0-125			2.26	20

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3587368-1 10/29/20 21:09

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Arsenic	U		0.180	2.00
Barium	U		0.381	20.0
Cadmium	U		0.150	1.00
Chromium	U		1.24	2.00
Lead	U		0.849	5.00
Selenium	U		0.300	2.00
Silver	U		0.0700	2.00

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

Laboratory Control Sample (LCS)

(LCS) R3587368-2 10/29/20 21:12

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Arsenic	50.0	47.6	95.2	80.0-120	
Barium	50.0	47.4	94.8	80.0-120	
Cadmium	50.0	50.1	100	80.0-120	
Chromium	50.0	49.4	98.7	80.0-120	
Lead	50.0	48.4	96.9	80.0-120	
Selenium	50.0	50.4	101	80.0-120	
Silver	50.0	50.4	101	80.0-120	

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

L1277690-38 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1277690-38 10/29/20 21:16 • (MS) R3587368-4 10/29/20 21:22 • (MSD) R3587368-5 10/29/20 21:26

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Arsenic	50.0	ND	47.5	48.6	95.1	97.2	1	75.0-125			2.25	20
Barium	50.0	ND	50.9	50.3	95.6	94.3	1	75.0-125			1.34	20
Cadmium	50.0	ND	50.7	51.4	101	103	1	75.0-125			1.33	20
Chromium	50.0	ND	50.1	50.7	97.6	98.8	1	75.0-125			1.19	20
Lead	50.0	ND	49.8	48.4	99.6	96.9	1	75.0-125			2.80	20
Selenium	50.0	ND	51.1	50.8	102	102	1	75.0-125			0.617	20
Silver	50.0	ND	51.2	51.4	102	103	1	75.0-125			0.365	20



Method Blank (MB)

(MB) R3588102-3 10/29/20 15:42

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	64.0	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	115			78.0-120

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3588102-1 10/29/20 12:48 • (LCSD) R3588102-2 10/29/20 14:01

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	5450	5000	99.1	90.9	70.0-124			8.61	20
(S) a,a,a-Trifluorotoluene(FID)				102	99.4	78.0-120				

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3588800-3 10/31/20 14:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	0.196	U	0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	116			80.0-120
(S) 4-Bromofluorobenzene	85.1			77.0-126
(S) 1,2-Dichloroethane-d4	79.3			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3588800-1 10/31/20 13:06 • (LCSD) R3588800-2 10/31/20 13:25

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	5.00	4.92	4.89	98.4	97.8	70.0-123			0.612	20
Ethylbenzene	5.00	5.11	5.00	102	100	79.0-123			2.18	20
Toluene	5.00	5.50	5.58	110	112	79.0-120			1.44	20
Xylenes, Total	15.0	14.3	14.7	95.3	98.0	79.0-123			2.76	20
(S) Toluene-d8				114	113	80.0-120				
(S) 4-Bromofluorobenzene				85.9	87.7	77.0-126				
(S) 1,2-Dichloroethane-d4				85.2	81.1	70.0-130				

6 Qc

7 Gl

8 Al

9 Sc





Method Blank (MB)

(MB) R3589622-1 11/05/20 06:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Diesel Range Organics (DRO)	U		66.7	200
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	97.5			52.0-156

Laboratory Control Sample (LCS)

(LCS) R3589622-2 11/05/20 07:11

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Diesel Range Organics (DRO)	1500	1310	87.3	50.0-150	
(S) o-Terphenyl			92.5	52.0-156	

L1279815-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1279815-18 11/05/20 13:34 • (MS) R3589622-3 11/05/20 13:54 • (MSD) R3589622-4 11/05/20 14:14

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Diesel Range Organics (DRO)	1500	1840	3000	2690	77.3	56.7	1	50.0-150			10.9	20
(S) o-Terphenyl					97.5	87.0		52.0-156				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

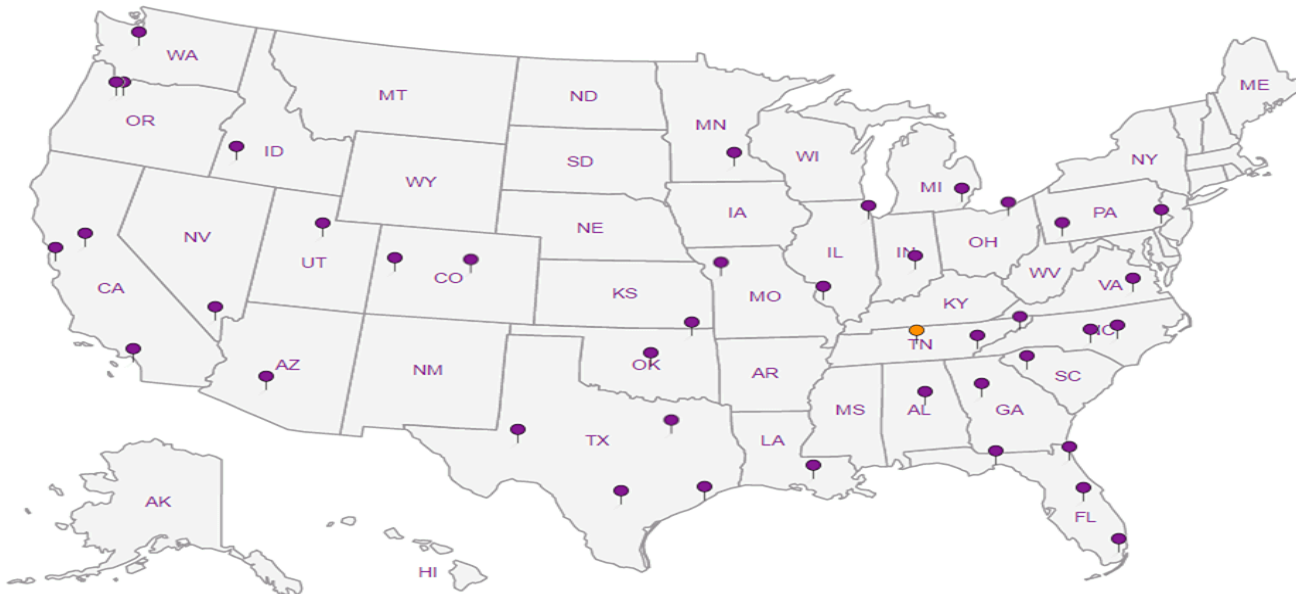
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



**Kinder Morgan- Houston, TX(Scott Martin)**  
 1100 Olive Way, Suite 800

Billing Information:  
 Accounts Payable-Scott Martin  
 1001 Louisiana St.  
 Houston, TX 77002

Pres Chk

Report to:  
 Kyle Haslam

Email To:  
 Kyle.Haslam@arcadis.com;Scott.Wenning@arca

Project Description:  
 KMEP Harbor Island

City/State  
 Collected: **Seattle, WA**

Please Circle:  
 PT  MT  CT  ET

Phone: **206-726-4713**


Client Project #  
**30050809.00002000**

Lab Project #  
**KINMOROCA-HARBORISLA**

Collected by (print):  
**L. Selleck**

Site/Facility ID #  
**2720 13TH AVENUE SW**

P.O. #

Collected by (signature):  
  
 Immediately Packed on Ice N  Y

**Rush?** (Lab MUST Be Notified)  
 Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day

Quote #  
 Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

<del>11</del>		GW				7	X		X	X						
<del>12</del>		GW				11	X	X	X	X	X	X				
A-5	Grab	GW	-	10/23/2020	10:50	6	X			X						-01
A-23R		GW				6	X			X						
MW-14		GW				6	X			X						
MW-18		GW				6	X			X						
A-8	Grab	GW	-	10/23/2020	11:15	8	X	X	X							02
A-10	Grab	GW	-	10/23/2020	10:05	8	X	X	X							03
MW-4		GW				8	X	X	X							
MW-16	Grab	GW	-	10/22/2020	1548	8	X	X	X							04

Analysis / Container / Preservative	
BTEX 8260D 40mlAmb-HCl	
Diss Pb 6020 250mlHDPE-NoPres	
NWTPHDX w/ SGT 40mlAmb-HCl-BT	
NWTPHGX 40mlAmb HCl	
Sulfate 125mlHDPE-NoPres	
Total Pb 6020 250mlHDPE-HNO3	
Total RCRA8 6020 250mlHDPE-HNO3	

Chain of Custody Page \_\_\_ of \_\_\_



12065 Lebanon Rd  
 Mount Juliet, TN 37122  
 Phone: 615-758-5858  
 Phone: 800-767-5859  
 Fax: 615-758-5859

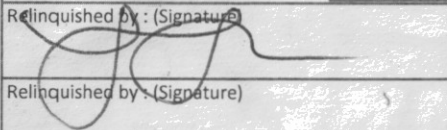


SDG # **L1277789**  
**1166**  
 Acctnum: **KINMOROCA**  
 Template: **T175759**  
 Prelogin: **P802817**  
 PM: **110 - Brian Ford**  
 PB: **TN 10-9-20**  
 Shipped Via:  
 Remarks Sample # (lab only)

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

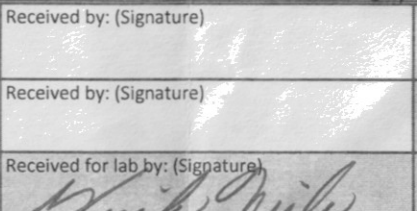
Remarks:  
 Samples returned via:  
 UPS  FedEx  Courier  
 Tracking # **9159 8750 5100**

Sample Receipt Checklist  
 COC Seal Present/Intact:  Y  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 If Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N  
 RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)  
  
 Relinquished by: (Signature)  
 Relinquished by: (Signature)

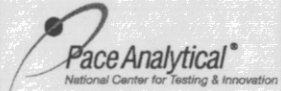
Date:  
**10.23.20**  
 Date:  
 Date:

Time:  
**1300**  
 Time:  
 Time:

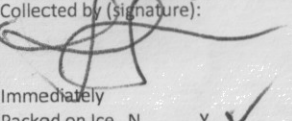
Received by: (Signature)  
  
 Received by: (Signature)  
 Received for lab by: (Signature)

Trip Blank Received: Yes/No  
 HCL / MeOH  
 TBR  
 Temp: **11.0-11.5**  
 Bottles Received: **93**  
 Date: **10/24/2020** Time: **09:00**

If preservation required by Login: Date/Time  
 Hold:  
 Condition:  
 NCF /  OK

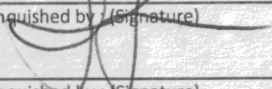
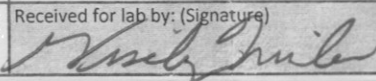
<b>Kinder Morgan- Houston, TX(Scott Martin)</b> 1100 Olive Way, Suite 800	Billing Information: <b>Accounts Payable-Scott Martin</b> 1001 Louisiana St. Houston, TX 77002	Pres Chk Analysis / Container / Preservative L2	Chain of Custody Page ___ of ___  National Center for Testing & Innovation
	Report to: <b>Kyle Haslam</b>		

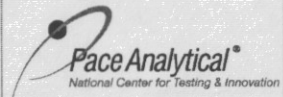
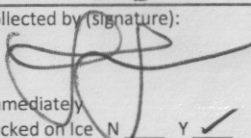
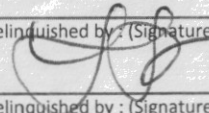
Project Description: <b>KMEP Harbor Island</b>	City/State Collected: <b>Seattle, WA</b>	Please Circle: <input checked="" type="radio"/> PT <input type="radio"/> MT <input type="radio"/> CT <input type="radio"/> ET	12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859
Phone: <b>206-726-4713</b>	Client Project # <b>30050809.00002000</b>	Lab Project # <b>KINMOROCA-HARBORISLA</b>	

Collected by (print): <b>L. Selick</b>	Site/Facility ID # <b>2720 13TH AVENUE SW</b>	P.O. #	SDG # <b>L1277788</b> Table # Acctnum: <b>KINMOROCA</b> Template: <b>T175759</b> Prelogin: <b>P802817</b> PM: <b>110 - Brian Ford</b> PB: <b>TN10-9-20</b>
Collected by (signature): 	Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day	Quote # Date Results Needed	

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	BTEX 8260D 40mlAmb-HCl	Diss Pb 6020 250mlHDPE-NoPres	NWTPHDX w/ SGT 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Total Pb 6020 250mlHDPE-HNO3	Total RCRA8 6020 250mlHDPE-HNO3	Remarks	Sample # (lab only)
TMW-2		GW				7	X		X	X					
TMW-3		GW				7	X		X	X					
TMW-4		GW				7	X		X	X					
TMW-5		GW				7	X		X	X					
TMW-6		GW				7	X		X	X					
DRUM-1	Grab	GW		10/23/2020	1210	7	X		X			X			-05
		GW				11	X	X	X	X	X	X	X		
		GW				11	X	X	X	X	X	X	X		
		GW				11	X	X	X	X	X	X	X		

* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other	Remarks: Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier	Tracking # <b>9159 8180 5100</b>	pH _____ Temp _____ Flow _____ Other _____	Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N
--	---	-------------------------------------	---	---

Relinquished by: (Signature) 	Date: <b>10.23.20</b>	Time: <b>11:30</b>	Received by: (Signature) 	Trip Blank Received: Yes / No <input type="checkbox"/> HCL / MeOH <input type="checkbox"/> TBR	Temp: <b>16-17.5</b>	Bottles Received: <b>93</b>	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: <b>10/24/2020</b>	Time: <b>09:00</b>	Hold:	Condition: NCF <input checked="" type="checkbox"/> OK

<b>Kinder Morgan- Houston, TX(Scott Martin)</b> 1100 Olive Way, Suite 800		Billing Information: <b>Accounts Payable-Scott Martin</b> 1001 Louisiana St. Houston, TX 77002				Pres Chk	Analysis / Container / Preservative							Chain of Custody Page ___ of ___		
		Report to: <b>Kyle Haslam</b>		Email To: Kyle.Haslam@arcadis.com;Scott.Wenning@arca			<div style="display: flex; justify-content: space-between;"> <div style="width: 20%;">           Project Description:  <b>KMEP Harbor Island</b> </div> <div style="width: 20%;">           City/State Collected:  <b>Seattle, WA</b> </div> <div style="width: 20%;">           Please Circle:  <input checked="" type="radio"/> PT <input type="radio"/> MT <input type="radio"/> CT <input type="radio"/> ET         </div> </div>									
Phone: <b>206-726-4713</b>		Client Project # <b>30050809.00002000</b>		Lab Project # <b>KINMOROCA-HARBORISLA</b>		<div style="display: flex; justify-content: space-between;"> <div style="width: 15%;">BTEX 8260D 40mlAmb-HCl</div> <div style="width: 15%;">Diss Pb 6020 250mlHDPE-NoPres</div> <div style="width: 15%;">NWTPHDX w/ SGT 40mlAmb-HCl-BT</div> <div style="width: 15%;">NWTPHGX 40mlAmb HCl</div> <div style="width: 15%;">Sulfate 125mlHDPE-NoPres</div> <div style="width: 15%;">Total Pb 6020 250mlHDPE-HNO3</div> <div style="width: 15%;">Total RCRA8 6020 250mlHDPE-HNO3</div> </div>							12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859			
Collected by (print): <b>L. Selleck</b>		Site/Facility ID # <b>2720 13TH AVENUE SW</b>		P.O. #									SDG # <b>L1277789</b>		Table #	
Collected by (Signature): 		Rush? (Lab MUST Be Notified) <input type="checkbox"/> Same Day <input type="checkbox"/> Five Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day (Rad Only) <input type="checkbox"/> Two Day <input type="checkbox"/> 10 Day (Rad Only) <input type="checkbox"/> Three Day		Quote #									Prelogin: <b>P802817</b> PM: <b>110 - Brian Ford</b> PB: <b>TN 10-9-20</b>		Shipped Via:	
Immediately Packed on Ice <input type="checkbox"/> N <input checked="" type="checkbox"/> Y		Date Results Needed		No. of Cntrs									Remarks		Sample # (lab only)	
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time											
<del>MW-12R</del>		GW				10	X	X	X	X	X					
MW-25	Grab	GW	-	10/23/2020	1020	10	X	X	X	X	X		-06			
<del>SH-03R</del>		GW				10	X	X	X	X	X					
<del>SH-05R</del>		GW				10	X	X	X	X	X					
A-21	Grab	GW	-	10/23/2020	900	8	X	X		X	X		07			
MW-6	Grab	GW	-	10/27/2020	1610	8	X	X		X	X		08			
<del>MW-7</del>		GW				9	X	X		X	X					
<del>MW-9</del>		GW				9	X	X		X	X					
<del>MW-19</del>		GW				7	X			X	X					
<del>TMW-1</del>		GW				7	X			X	X					
* Matrix: SS - Soil AIR - Air F - Filter GW - Groundwater B - Bioassay WW - WasteWater DW - Drinking Water OT - Other		Remarks:				pH _____ Temp _____ Flow _____ Other _____				Sample Receipt Checklist COC Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N COC Signed/Accurate: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Bottles arrive intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Correct bottles used: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Sufficient volume sent: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If Applicable VOA Zero Headspace: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Preservation Correct/Checked: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N RAD Screen <0.5 mR/hr: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N						
Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier		Tracking # <b>9159 8780 5100</b>		Relinquished by: (Signature) 		Date: <b>10.23.2020</b> Time: <b>1300</b>		Received by: (Signature)		Trip Blank Received: Yes / No <input type="checkbox"/> HCL / MeOH <input type="checkbox"/> TBR		Temp: <b>16.1°C</b> Bottles Received: <b>93</b>		If preservation required by Login: Date/Time		
Relinquished by: (Signature)		Date:		Time:		Received by: (Signature)		Date:		Time:		Hold:		Condition: NCF / <input checked="" type="checkbox"/> OK		

**Kinder Morgan- Houston, TX(Scott Martin)**  
 1100 Olive Way, Suite 800

Billing Information:  
 Accounts Payable-Scott Martin  
 1001 Louisiana St.  
 Houston, TX 77002

Pres Chk  
 Analysis / Container / Preservative  
 22

Chain of Custody Page \_\_\_\_ of \_\_\_\_  
**Pace Analytical**  
 National Center for Testing & Innovation  
 12065 Lebanon Rd  
 Mount Juliet, TN 37122  
 Phone: 615-758-5858  
 Phone: 800-767-5859  
 Fax: 615-758-5859

Report to:  
**Kyle Haslam**

Email To:  
 Kyle.Haslam@arcadis.com; Scott.Wenning@arcadis.com

Project Description:  
**KMEP Harbor Island**

City/State Collected: **Seattle, WA**  
 Please Circle:  PT  MT  CT  ET

Phone: **206-726-4713**

Client Project # **30050809.00002000**  
 Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): **L. Seneck**  
 Collected by (signature): *[Signature]*  
 Immediately Packed on Ice  N  Y

Site/Facility ID # **2720 13TH AVENUE SW**  
 P.O. #  
 Quote #  
 Date Results Needed  
 No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	BTEX 8260D 40mlAmb-HCI	Diss Pb 6020 250mlHDPE-NoPres	NWTPHDX w/ SGT 40mlAmb-HCI-BT	NWTPHGX 40mlAmb HCl	Sulfate 125mlHDPE-NoPres	Total Pb 6020 250mlHDPE-HNO3	Total RCRA8 6020 250mlHDPE-HNO3
MW-20		GW				8	X	X	X				
MW-21		GW				8	X	X	X				
MW-22		GW				8	X	X	X				
A-14R	grab	GW	—	10.23.20	9:10	10	X	X	X	X		X	
MW-07R		GW				10	X	X	X	X		X	
MW-1	grab	GW	—	10.22.20	1506	10	X	X	X	X		X	
MW-2		GW				10	X	X	X	X		X	
MW-3	grab	GW	—	10.22.20	1510	10	X	X	X	X		X	
MW-5		GW				10	X	X	X	X		X	
MW-8		GW				10	X	X	X	X		X	



SDG # **L1277788**  
 Table #  
 Acctnum: **KINMOROCA**  
 Template: **T175759**  
 Prelogin: **P802817**  
 PM: **110 - Brian Ford**  
 PB: **TN 10-9-20**  
 Shipped Via:  
 Remarks Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	Cntrs
MW-20		GW				8
MW-21		GW				8
MW-22		GW				8
A-14R	grab	GW	—	10.23.20	9:10	10
MW-07R		GW				10
MW-1	grab	GW	—	10.22.20	1506	10
MW-2		GW				10
MW-3	grab	GW	—	10.22.20	1510	10
MW-5		GW				10
MW-8		GW				10

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:  
 pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_  
 Samples returned via:  UPS  FedEx  Courier  
 Tracking # **9159 8780 5100**

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> NP	<input type="checkbox"/> Y	<input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N
If Applicable			
VOA Zero HeadSpace:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N

Relinquished by: (Signature) *[Signature]*  
 Date: **10.23.20**  
 Time: **1300**

Received by: (Signature)  
 Trip Blank Received: Yes / No  
 HCL / MeOH  
 TBR  
 Temp: **1.6** °C  
 Bottles Received: **13**

Received for lab by: (Signature) *[Signature]*  
 Date: **10/24/2020**  
 Time: **09:00**  
 Hold:  
 Condition: **NCF / OK**

# APPENDIX D

## Historical Groundwater Elevations





**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-1	02/11/02	10.93	7.47	--	3.46	
A-1	05/20/02	10.93	9.99	--	0.94	
A-1	08/27/02	10.93	4.72	--	6.21	
A-1	11/04/02	10.93	8.95	--	1.98	
A-1	02/18/03	10.93	7.92	--	3.01	
A-1	06/09/03	10.93	8.47	--	2.46	
A-1	09/15/03	14.64	8.83	--	5.81	
A-1	11/18/03	14.64	8.45	--	6.19	
A-1	02/24/04	14.64	7.89	--	6.75	
A-1	05/10/04	14.64	8.53	--	6.11	
A-1	08/24/04	14.64	8.73	--	5.91	
A-1	12/13/04	14.64	8.45	--	6.19	
A-1	03/08/05	14.64	8.59	--	6.05	
A-1	06/06/05	14.64	8.41	--	6.23	
A-1	09/19/05	14.64	8.87	--	5.77	
A-1	12/12/05	14.64	8.63	--	6.01	
A-1	03/13/06	14.64	7.95	--	6.69	
A-1	06/05/06	14.64	8.37	--	6.27	
A-1	09/11/06	14.64	8.81	--	5.83	
A-1	12/11/06	14.64	7.95	--	6.69	
A-2	02/11/02	10.85	7.41	--	3.44	
A-2	05/20/02	10.85	9.28	--	1.57	
A-2	08/27/02	10.85	4.66	--	6.19	
A-2	11/04/02	10.85	8.90	--	1.95	
A-2	02/18/03	10.85	7.98	--	2.87	
A-2	06/09/03	10.85	8.41	--	2.44	
A-2	09/15/03	14.66	8.77	--	5.89	
A-2	11/18/03	14.66	8.35	--	6.31	
A-2	02/24/04	14.66	7.80	--	6.86	
A-2	05/10/04	14.66	8.51	--	6.15	
A-2	08/24/04	14.66	8.55	--	6.11	
A-2	12/13/04	14.66	8.38	--	6.28	
A-2	03/08/05	14.66	8.77	--	5.89	
A-2	06/06/05	14.66	8.45	--	6.21	
A-2	09/19/05	14.66	8.79	--	5.87	
A-2	12/12/05	14.66	8.58	--	6.08	
A-2	03/13/06	14.66	7.81	--	6.85	
A-2	06/05/06	14.66	8.29	--	6.37	
A-2	09/11/06	14.66	8.76	--	5.90	
A-2	12/11/06	14.66	7.96	--	6.70	
A-3	02/11/02	10.50	7.30	<0.01	3.2	
A-3	05/20/02	10.50	9.03	--	1.47	
A-3	08/27/02	10.50	8.43	--	2.07	
A-3	11/04/02	10.50	8.64	--	1.86	
A-3	02/18/03	10.50	7.61	--	2.89	
A-3	06/09/03	10.50	8.19	--	2.31	
A-3	09/15/03	14.32	8.50	--	5.82	
A-3	11/18/03	14.32	7.56	--	6.76	
A-3	02/24/04	14.32	7.56	--	6.76	
A-3	05/10/04	14.32	8.12	--	6.20	
A-3	08/24/04	14.32	8.23	--	6.09	
A-3	12/13/04	14.32	7.85	--	6.47	
A-3	03/08/05	14.32	8.20	--	6.12	
A-3	06/06/05	14.32	8.03	--	6.29	
A-3	09/19/05	14.32	8.50	--	5.82	
A-3	12/12/05	14.32	8.32	--	6.00	
A-3	03/13/06	14.32	7.51	--	6.81	
A-3	06/05/06	14.32	7.96	--	6.36	
A-3	09/11/06	14.32	8.46	--	5.86	
A-3	12/11/06	14.32	7.56	--	6.76	
A-4	02/11/02	10.74	7.38	0.14	3.47	
A-4	05/20/02	10.74	8.20	0.02	2.56	
A-4	08/27/02	10.74	7.62	0.04	3.15	
A-4	11/04/02	10.74	7.92	Sheen	2.82	Product recovery pump in well
A-4	02/18/03	10.74	7.84	Sheen	2.90	Product recovery pump in well
A-4	06/09/03	10.74	6.40	0.10	4.42	Product recovery pump in well
A-4	09/15/03	13.22	8.38	0.10	4.92	Product recovery pump in well
A-4	11/18/03	13.22	6.65	0.01	6.58	Product recovery pump in well
A-4	02/24/04	13.22	7.00	--	6.22	Product recovery pump in well
A-4	05/10/04	13.22	6.79	--	6.43	Product recovery pump in well
A-4	08/24/04	13.22	7.76	--	5.46	Product recovery pump in well
A-4	12/13/04	13.22	6.10	Sheen	7.12	
A-4	03/08/05	13.22	7.21	Sheen	6.01	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-4	06/06/05	13.22	7.23	Sheen	5.99	
A-4	09/19/05	13.22	7.78	--	5.44	
A-4	12/12/05	13.22	7.77	--	5.45	
A-4	03/13/06	13.22	6.85	--	6.37	
A-4	06/05/06	13.22	7.30	Sheen	5.92	
A-4	09/11/06	13.22	8.02	0.01	5.21	
A-4	12/11/06	13.22	7.04	--	6.18	
A-4	03/26/07	13.22	6.90	--	6.32	
A-4	06/18/07	13.22	7.29	--	5.93	
A-4	09/24/07	13.22	7.48	Sheen	5.74	
A-4	12/10/07	13.22	6.83	--	6.39	
A-4	03/03/08	13.22	7.11	0.01	6.12	
A-4	06/02/08	13.22	7.52	Sheen	5.70	
A-4	09/04/08	13.22	7.57	Sheen	5.65	
A-4	12/04/08	13.22	7.44	--	5.78	
A-4	03/04/09	13.22	7.09	--	6.13	
A-4	06/01/09	13.22	7.32	Sheen	5.90	
A-4	09/21/09	13.22	7.61	Sheen	5.61	
A-4	11/16/09	13.22	6.97	Sheen	6.25	
A-4	03/08/10	13.22	6.54	--	6.68	
A-4	06/07/10	13.22	6.92	Sheen	6.30	
A-4	09/09/10	13.22	7.59	--	5.63	
A-4	11/16/10	13.22	7.11	--	6.11	
A-4	03/01/11	13.22	6.66	--	6.56	
A-4	05/23/11	13.22	6.84	Sheen	6.38	
A-4	08/29/11	13.22	7.50	--	5.72	
A-4	12/01/11	13.22	7.16	--	6.06	
A-4	03/01/12	13.22	--	--	--	Not Measured
A-4	05/30/12	13.22	6.88	--	6.34	
A-4	08/25/12	13.22	7.17	--	6.05	
A-4	11/07/12	13.22	6.77	--	6.45	
A-4	02/28/13	13.22	6.69	--	6.53	
A-4	04/08/13	13.22	6.83	--	6.39	
A-4	07/29/13	13.22	7.23	--	5.99	
A-4	10/02/13	13.22	5.10	--	8.12	
A-4	01/21/14	13.22	7.12	--	6.10	
A-4	04/22/14	13.22	6.71	--	6.51	
A-4	07/15/14	13.22	7.09	--	6.13	
A-4	03/17/15	13.22	3.74	--	9.48	
A-4	09/29/15	13.22	--	--	--	Not Measured
A-4	03/29/16	13.22	6.02	--	7.20	
A-4	10/11/16	13.22	7.32	--	5.90	
A-4	03/28/17	13.22	5.97	--	7.25	
A-4	10/10/17	13.22	7.31	--	5.91	
A-4	03/28/18	13.22	6.70	--	6.52	
A-4	10/02/18	13.22	7.22	--	6.00	
A-4	04/02/19	13.22	6.67	--	6.55	
A-4	10/01/19	13.22	7.25	--	5.97	
A-4	03/25/20	13.22	6.71	--	6.51	
A-4	10/19/20	13.22	7.10	--	6.12	
A-5	02/11/02	10.42	7.00	--	3.42	
A-5	05/20/02	10.42	8.89	--	1.53	
A-5	08/27/02	10.42	8.25	--	2.17	
A-5	11/04/02	10.42	8.43	--	1.99	
A-5	02/18/03	10.42	7.35	--	3.07	
A-5	06/09/03	10.42	7.99	--	2.43	
A-5	09/15/03	14.13	8.33	Sheen	5.80	
A-5	11/18/03	14.13	7.82	--	6.31	
A-5	02/24/04	14.13	6.45	--	7.68	
A-5	05/10/04	14.13	8.04	--	6.09	
A-5	08/24/04	14.13	8.02	--	6.11	
A-5	12/13/04	14.13	7.88	--	6.25	
A-5	03/08/05	14.13	8.00	--	6.13	
A-5	06/06/05	14.13	7.89	--	6.24	
A-5	09/19/05	14.13	8.37	--	5.76	
A-5	12/12/05	14.13	8.15	--	5.98	
A-5	03/13/06	14.13	7.39	--	6.74	
A-5	06/05/06	14.13	7.82	--	6.31	
A-5	09/11/06	14.13	8.34	--	5.79	
A-5	12/11/06	14.13	7.41	--	6.72	
A-5	03/26/07	14.13	7.41	--	6.72	
A-5	06/18/07	14.13	8.32	--	5.81	
A-5	09/24/07	14.13	8.32	--	5.81	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-5	12/10/07	14.13	7.66	--	6.47	
A-5	03/03/08	14.13	7.78	--	6.35	
A-5	06/02/08	14.13	8.21	--	5.92	
A-5	09/04/08	14.13	8.10	--	6.03	
A-5	12/04/08	14.13	8.15	--	5.98	
A-5	03/04/09	14.13	7.76	--	6.37	
A-5	06/01/09	14.13	8.03	--	6.10	
A-5	09/21/09	14.13	8.35	--	5.78	
A-5	11/16/09	14.13	7.70	--	6.43	
A-5	03/08/10	14.13	7.21	--	6.92	
A-5	06/07/10	14.13	7.74	--	6.39	
A-5	09/09/10	14.13	8.26	--	5.87	
A-5	11/15/10	14.13	7.85	--	6.28	
A-5	03/01/11	14.13	7.47	--	6.66	
A-5	05/23/11	14.13	7.58	--	6.55	
A-5	08/29/11	14.13	8.17	--	5.96	
A-5	12/01/11	14.13	7.89	--	6.24	
A-5	03/01/12	14.13	7.62	--	6.51	
A-5	05/30/12	14.13	7.67	--	6.46	
A-5	08/25/12	14.13	7.91	--	6.22	
A-5	11/07/12	14.13	7.54	--	6.59	
A-5	02/27/13	14.13	7.59	--	6.54	
A-5	04/08/13	14.13	7.56	--	6.57	
A-5	07/29/13	14.13	7.88	--	6.25	
A-5	10/02/13	14.13	7.64	--	6.49	
A-5	01/21/14	14.13	7.92	--	6.21	
A-5	04/22/14	14.13	7.50	--	6.63	
A-5	07/15/14	14.13	7.85	--	6.28	
A-5	03/17/15	14.13	7.45	--	6.68	
A-5	09/29/15	14.13	7.80	--	6.33	
A-5	03/29/16	14.13	6.89	--	7.24	
A-5	10/11/16	14.13	8.05	--	6.08	
A-5	03/28/17	14.13	6.76	--	7.37	
A-5	10/10/17	14.13	8.05	--	6.08	
A-5	03/28/18	14.13	7.51	--	6.62	
A-5	10/02/18	14.13	7.99	--	6.14	
A-5	04/02/19	14.13	7.46	--	6.67	
A-5	10/01/19	14.13	7.99	--	6.14	
A-5	03/25/20	14.13	7.52	--	6.61	
A-5	10/19/20	14.13	7.89	--	6.24	
A-6	02/11/02	--	6.40	0.13	--	Not Measured-Casing Broken
A-6	05/20/02	--	8.13	0.14	--	Not Measured-Casing Broken
A-6	08/27/02	--	7.80	0.45	--	Not Measured-Casing Broken
A-6	11/04/02	--	7.33	0.01	--	Not Measured-Product recovery pump in well, Casing Broken
A-6	02/18/03	--	8.50	Sheen	--	Not Measured-Product recovery pump in well, Casing Broken
A-6	06/09/03	--	7.45	0.01	--	Not Measured-Re-cut TOC; repaired
A-6	09/15/03	12.81	7.77	0.01	5.05	Product recovery pump in well
A-6	11/18/03	12.81	7.46	0.54	5.78	Product recovery pump in well
A-6	02/24/04	12.81	6.65	0.40	6.48	Product recovery pump in well
A-6	05/10/04	12.81	6.95	0.10	5.94	Product recovery pump in well
A-6	08/24/04	12.81	7.21	0.21	5.77	Product recovery pump in well
A-6	12/13/04	12.81	6.80	0.14	6.12	
A-6	03/08/05	12.81	6.98	0.32	6.09	
A-6	06/06/05	12.81	6.81	0.04	6.03	
A-6	09/19/05	12.81	7.81	0.59	5.47	
A-6	10/12/05	12.81	7.95	0.50	5.26	
A-6	12/12/05	12.81	8.20	0.95	5.37	
A-6	03/13/06	12.81	6.68	0.08	6.19	
A-6	06/05/06	12.81	7.10	0.13	5.81	
A-6	09/11/06	12.81	7.82	0.27	5.21	
A-6	12/11/06	12.81	6.58	0.02	6.25	
A-6	03/26/07	12.81	6.51	--	6.30	
A-6	06/18/07	12.81	7.00	--	5.81	
A-6	09/24/07	12.81	7.20	Sheen	5.61	
A-6	12/10/07	12.81	6.58	--	6.23	
A-6	03/03/08	12.81	6.59	--	6.22	
A-6	06/02/08	12.81	7.05	Sheen	5.76	
A-6	09/04/08	12.81	7.19	Sheen	5.62	
A-6	12/04/08	12.81	7.15	Sheen	5.66	
A-6	03/04/09	12.81	6.51	Sheen	6.30	
A-6	06/01/09	12.81	7.00	Sheen	5.81	
A-6	09/21/09	12.81	7.24	Sheen	5.57	
A-6	11/16/09	12.81	6.50	Sheen	6.31	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-6	03/08/10	12.81	6.14	--	6.67	
A-6	06/07/10	12.81	6.71	Sheen	6.10	
A-6	09/09/10	12.81	7.12	--	5.69	
A-6	11/15/10	12.81	6.79	Sheen	6.02	
A-6	03/01/11	12.81	6.38	Sheen	6.43	
A-6	05/23/11	12.81	6.52	Sheen	6.29	
A-6	08/29/11	12.81	7.04	0.03	5.79	
A-6	12/01/11	12.81	6.95	Sheen	5.86	
A-6	03/01/12	12.81	6.60	--	6.21	
A-6	05/30/12	12.81	6.58	--	6.23	
A-6	08/25/12	12.81	7.18	--	5.63	
A-6	11/07/12	12.81	6.61	--	6.20	
A-6	02/27/13	12.81	6.54	--	6.27	
A-6	04/08/13	12.81	6.46	--	6.35	
A-6	07/29/13	12.81	6.83	--	5.98	
A-6	10/02/13	12.81	6.66	Sheen	6.15	0.04 ft of SPH observed. Absorbent sock placed in well.
A-6	01/21/14	12.81	6.80	--	6.01	
A-6	04/22/14	12.81	6.32	--	6.49	
A-6	07/15/14	12.81	6.69	--	6.12	
A-6	03/17/15	12.81	6.30	0.10	6.59	Absorbent sock placed in well
A-6	06/08/15	12.81	6.70	--	6.11	
A-6	09/29/15	12.81	7.79	0.05	5.06	Absorbent sock placed in well
A-6	12/21/15	12.81	5.20	--	7.61	
A-6	03/29/16	12.81	5.77	<0.01	7.04	Sheen. Absorbent sock placed in well
A-6	06/16/16	12.81	6.79	--	6.02	
A-6	09/01/16	12.81	7.01	0.05	5.80	Absorbent sock placed in well
A-6	10/11/16	12.81	7.09	--	5.72	
A-6	03/28/17	12.81	5.77	--	7.04	Sheen
A-6	10/10/17	12.81	6.96	0.01	5.85	
A-6	03/28/18	12.81	6.47	0.02	6.36	
A-6	10/02/18	12.81	6.91	--	5.90	
A-6	04/02/19	12.81	6.30	--	6.51	
A-6	10/01/19	12.81	6.96	0.06	5.90	Absorbent sock placed in well
A-6	03/25/20	12.81	6.44	--	6.37	
A-6	10/19/20	12.81	6.81	--	6.00	
A-7	02/11/02	9.50	6.25	--	3.25	
A-7	05/20/02	9.50	8.10	--	1.40	
A-7	08/27/02	9.50	7.40	--	2.10	
A-7	11/04/02	9.50	7.55	--	1.95	
A-7	02/18/03	9.50	7.53	--	1.97	
A-7	06/09/03	9.50	7.12	--	2.38	
A-7	09/15/03	13.43	7.45	--	5.98	
A-7	11/18/03	13.43	6.78	--	6.65	
A-7	02/24/04	13.43	6.89	--	6.54	
A-7	05/10/04	13.43	6.66	--	6.77	
A-7	08/24/04	13.43	7.67	--	5.76	
A-7	12/13/04	13.43	6.88	--	6.55	
A-7	03/08/05	13.43	4.45	--	8.98	
A-7	06/06/05	13.43	6.84	--	6.59	
A-7	09/19/05	13.43	7.47	--	5.96	
A-7	12/12/05	13.43	7.22	--	6.21	
A-7	03/13/06	13.43	6.41	--	7.02	
A-7	06/05/06	13.43	6.90	--	6.53	
A-7	09/11/06	13.43	7.53	--	5.90	
A-7	12/11/06	13.43	6.69	--	6.74	
A-8	02/11/02	10.46	6.98	--	3.48	
A-8	05/20/02	10.46	8.87	--	1.59	
A-8	08/27/02	10.46	7.26	--	3.20	
A-8	11/04/02	10.46	8.51	--	1.95	
A-8	02/18/03	10.46	4.83	--	5.63	
A-8	06/09/03	10.46	8.11	--	2.35	
A-8	09/15/03	14.61	8.38	--	6.23	
A-8	11/18/03	14.61	7.87	Sheen	6.74	
A-8	02/24/04	14.61	7.43	--	7.18	
A-8	05/10/04	14.61	8.04	--	6.57	
A-8	08/24/04	14.61	8.18	--	6.43	
A-8	12/13/04	14.61	7.90	--	6.71	
A-8	03/08/05	14.61	8.11	--	6.50	
A-8	06/06/05	14.61	7.98	--	6.63	
A-8	09/19/05	14.61	8.44	--	6.17	
A-8	12/12/05	14.61	8.22	--	6.39	
A-8	03/13/06	14.61	7.49	--	7.12	
A-8	06/05/06	14.61	7.89	--	6.72	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-8	09/11/06	14.61	8.45	--	6.16	
A-8	12/11/06	14.61	7.66	--	6.95	
A-8	03/26/07	14.61	7.71	--	6.90	
A-8	06/18/07	14.61	8.27	--	6.34	
A-8	09/24/07	14.61	8.50	--	6.11	
A-8	12/10/07	14.61	7.44	--	7.17	
A-8	03/03/08	14.61	7.83	--	6.78	
A-8	06/02/08	14.61	8.20	--	6.41	
A-8	09/04/08	14.61	--	--	--	Inaccessible
A-8	12/04/08	14.61	8.20	--	6.41	
A-8	03/04/09	14.61	7.70	--	6.91	
A-8	06/01/09	14.61	8.11	--	6.50	
A-8	09/21/09	14.61	8.37	--	6.24	
A-8	11/16/09	14.61	7.70	--	6.91	
A-8	03/08/10	14.61	7.31	--	7.30	
A-8	06/07/10	14.61	7.85	--	6.76	
A-8	09/09/10	14.61	8.28	--	6.33	
A-8	11/15/10	14.61	7.94	--	6.67	
A-8	03/01/11	14.61	7.56	--	7.05	
A-8	05/23/11	14.61	7.70	--	6.91	
A-8	08/29/11	14.61	8.21	--	6.40	
A-8	12/01/11	14.61	8.06	--	6.55	
A-8	03/01/12	14.61	7.74	--	6.87	
A-8	05/30/12	14.61	7.87	--	6.74	
A-8	08/25/12	14.61	7.97	--	6.64	
A-8	11/07/12	14.61	7.63	--	6.98	
A-8	02/27/13	14.61	8.71	--	5.90	
A-8	04/08/13	14.61	7.67	--	6.94	
A-8	07/29/13	14.61	7.98	--	6.63	
A-8	10/02/13	14.61	7.75	--	6.86	
A-8	01/21/14	14.61	7.98	--	6.63	
A-8	04/22/14	14.61	7.52	--	7.09	
A-8	07/15/14	14.61	7.89	--	6.72	
A-8	03/17/15	14.61	7.41	--	7.2	
A-8	09/29/15	14.61	7.92	--	6.69	
A-8	03/29/16	14.61	6.96	--	7.65	
A-8	10/11/16	14.61	8.21	--	6.40	
A-8	03/28/17	14.61	6.95	--	7.66	
A-8	10/10/17	14.61	8.14	--	6.47	
A-8	03/28/18	14.61	7.61	--	7.00	
A-8	10/02/18	14.61	8.11	--	6.50	
A-8	04/02/19	14.61	4.50	--	10.11	
A-8	10/01/19	14.61	8.06	--	6.55	
A-8	03/25/20	14.61	7.63	--	6.98	
A-8	10/19/20	14.61	7.97	--	6.64	
A-9	02/11/02	10.35	7.20	0.01	3.16	
A-9	05/20/02	10.35	8.86	--	1.49	
A-9	08/27/02	10.35	8.27	Sheen	2.08	
A-9	11/04/02	10.35	8.39	0.01	1.97	
A-9	02/18/03	10.35	7.45	--	2.90	
A-9	06/09/03	10.35	8.06	--	2.29	
A-9	09/15/03	14.42	8.03	--	6.39	
A-9	11/18/03	14.42	7.62	--	6.80	
A-9	02/24/04	14.42	7.21	--	7.21	
A-9	05/10/04	14.42	8.00	--	6.42	
A-9	08/24/04	14.42	8.18	--	6.24	
A-9	12/13/04	14.42	7.73	--	6.69	
A-9	03/08/05	14.42	8.00	--	6.42	
A-9	06/06/05	14.42	7.89	--	6.53	
A-9	09/19/05	14.42	8.28	--	6.14	
A-9	12/12/05	14.42	8.04	--	6.38	
A-9	03/13/06	14.42	7.37	--	7.05	
A-9	06/05/06	14.42	7.79	--	6.63	
A-9	09/11/06	14.42	8.36	--	6.06	
A-9	12/11/06	14.42	7.46	--	6.96	
A-10	02/11/02	9.48	6.15	--	3.33	
A-10	05/20/02	9.48	7.98	--	1.50	
A-10	08/27/02	9.48	7.34	Sheen	2.14	
A-10	11/04/02	9.48	7.54	Sheen	1.94	
A-10	02/18/03	9.48	6.57	--	2.91	
A-10	06/09/03	9.48	7.15	--	2.33	
A-10	09/15/03	13.51	7.45	Sheen	6.06	
A-10	11/18/03	13.51	6.95	Sheen	6.56	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-10	02/24/04	13.51	6.50	Sheen	7.01	
A-10	05/10/04	13.51	7.15	Sheen	6.36	
A-10	08/24/04	13.51	7.31	--	6.20	
A-10	12/13/04	13.51	6.95	--	6.56	
A-10	03/08/05	13.51	7.17	--	6.34	
A-10	06/06/05	13.51	7.01	--	6.50	
A-10	09/19/05	13.51	7.54	--	5.97	
A-10	12/12/05	13.51	7.25	--	6.26	
A-10	03/13/06	13.51	6.58	--	6.93	
A-10	06/05/06	13.51	6.92	--	6.59	
A-10	09/11/06	13.51	7.43	--	6.08	
A-10	12/11/06	13.51	6.59	--	6.92	
A-10	03/26/07	13.51	6.83	--	6.68	
A-10	06/18/07	13.51	7.29	--	6.22	
A-10	09/24/07	13.51	7.44	--	6.07	
A-10	12/10/07	13.51	6.79	--	6.72	
A-10	03/03/08	13.51	7.83	--	5.68	
A-10	06/02/08	13.51	7.31	--	6.20	
A-10	09/04/08	13.51	7.23	--	6.28	
A-10	12/04/08	13.51	6.87	--	6.64	
A-10	03/04/09	13.51	6.90	--	6.61	
A-10	06/01/09	13.51	7.18	--	6.33	
A-10	09/21/09	13.51	7.39	--	6.12	
A-10	11/16/09	13.51	6.84	--	6.67	
A-10	03/08/10	13.51	6.34	--	7.17	
A-10	06/07/10	13.51	6.84	--	6.67	
A-10	09/09/10	13.51	7.34	--	6.17	
A-10	11/15/10	13.51	6.93	--	6.58	
A-10	03/01/11	13.51	6.60	--	6.91	
A-10	05/23/11	13.51	6.68	--	6.83	
A-10	08/29/11	13.51	7.25	--	6.26	
A-10	12/01/11	13.51	6.96	--	6.55	
A-10	03/01/12	13.51	6.72	--	6.79	
A-10	05/30/12	13.51	6.72	--	6.79	
A-10	08/25/12	13.51	7.30	--	6.21	
A-10	11/07/12	13.51	7.08	--	6.43	
A-10	02/27/13	13.51	6.64	--	6.87	
A-10	04/08/13	13.51	6.61	--	6.90	
A-10	07/29/13	13.51	6.95	--	6.56	
A-10	10/02/13	13.51	6.46	--	7.05	
A-10	01/21/14	13.51	7.05	--	6.46	
A-10	04/22/14	13.51	6.65	--	6.86	
A-10	07/15/14	13.51	7.50	--	6.01	
A-10	03/17/15	13.51	6.48	--	7.03	
A-10	09/29/15	13.51	6.97	--	6.54	
A-10	03/29/16	13.51	5.96	--	7.55	
A-10	10/11/16	13.51	7.21	--	6.30	
A-10	03/28/17	13.51	6.02	--	7.49	
A-10	10/10/17	13.51	7.20	--	6.31	
A-10	03/28/18	13.51	6.60	--	6.91	
A-10	10/02/18	13.51	7.19	--	6.32	
A-10	04/02/19	13.51	6.65	--	6.86	
A-10	10/01/19	13.51	7.10	--	6.41	
A-10	03/25/20	13.51	6.69	--	6.82	
A-10	10/19/20	13.51	7.02	--	6.49	
A-11	02/11/02	10.36	7.01	--	3.35	
A-11	05/20/02	10.36	8.83	--	1.53	
A-11	08/27/02	10.36	8.21	--	2.15	
A-11	11/04/02	10.36	8.73	--	1.63	
A-11	02/18/03	10.36	5.42	--	4.94	
A-11	06/09/03	10.36	8.01	--	2.35	
A-11	09/15/03	14.40	8.32	--	6.08	
A-11	11/18/03	14.40	6.71	--	7.69	
A-11	02/24/04	14.40	7.35	--	7.05	
A-11	05/10/04	14.40	8.10	--	6.30	
A-11	08/24/04	14.40	8.17	--	6.23	
A-11	12/13/04	14.40	7.85	--	6.55	
A-11	03/08/05	14.40	7.90	--	6.50	
A-11	06/06/05	14.40	7.88	--	6.52	
A-11	09/19/05	14.40	8.34	0.01	6.07	
A-11	10/12/05	14.40	8.24	--	6.16	
A-11	12/12/05	14.40	8.10	--	6.30	
A-11	03/13/06	14.40	7.40	--	7.00	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-11	06/05/06	14.40	7.80	--	6.60	
A-11	09/11/06	14.40	8.32	--	6.08	
A-11	12/11/06	14.40	7.42	--	6.98	
A-11	12/10/07	14.40	7.64	--	6.76	
A-11	03/03/08	14.40	7.39	--	7.01	
A-11	03/04/09	14.40	7.70	--	6.70	
A-11	06/01/09	14.40	8.00	--	6.40	
A-11	09/21/09	14.40	8.26	--	6.14	
A-11	11/16/09	14.40	7.65	--	6.75	
A-11	03/08/10	14.40	7.20	--	7.20	
A-11	06/07/10	14.40	7.69	--	6.71	
A-11	09/09/10	14.40	8.20	--	6.20	
A-11	11/15/10	14.40	7.78	--	6.62	
A-11	03/01/11	14.40	7.43	--	6.97	
A-11	05/23/11	14.40	7.52	--	6.88	
A-11	08/29/11	14.40	8.09	--	6.31	
A-11	12/01/11	14.40	7.82	--	6.58	
A-11	03/01/12	14.40	7.55	--	6.85	
A-11	05/30/12	14.40	7.42	--	6.98	
A-11	08/25/12	14.40	7.63	--	6.77	
A-11	11/07/12	14.40	7.41	--	6.99	
A-11	02/27/13	14.40	7.42	--	6.98	
A-11	04/08/13	14.40	7.42	--	6.98	
A-11	07/29/13	14.40	7.75	--	6.65	
A-11	10/02/13	14.40	7.66	--	6.74	
A-11	01/21/14	14.40	7.93	--	6.47	
A-11	04/22/14	14.40	7.56	--	6.84	
A-11	07/15/14	14.40	7.91	--	6.49	
A-11	03/17/15	14.40	7.35	--	7.05	
A-11	09/29/15	14.40	7.89	--	6.51	
A-11	03/29/16	14.40	6.91	--	7.49	
A-11	10/11/16	14.40	8.08	--	6.32	
A-11	03/28/17	14.40	6.92	--	7.48	
A-11	10/10/17	14.40	8.06	--	6.34	
A-11	03/28/18	14.40	7.45	--	6.95	
A-11	10/02/18	14.40	8.04	--	6.36	
A-11	04/02/19	14.40	7.47	--	6.93	
A-11	10/01/19	14.40	7.95	--	6.45	
A-11	03/25/20	14.40	7.51	--	6.89	
A-11	10/19/20	14.40	7.87	--	6.53	
A-12	02/11/02	9.10	5.80	--	3.30	
A-12	05/20/02	9.10	8.68	--	0.42	
A-12	08/27/02	9.10	7.04	--	2.06	
A-12	11/04/02	9.10	7.23	--	1.87	
A-12	02/18/03	9.10	6.38	--	2.72	
A-12	06/09/03	9.10	6.83	--	2.27	
A-12	09/15/03	12.92	7.15	--	5.77	
A-12	11/18/03	12.92	6.60	--	6.32	
A-12	02/24/04	12.92	6.12	--	6.80	
A-12	05/10/04	12.92	6.74	--	6.18	
A-12	08/24/04	12.92	6.95	--	5.97	
A-12	12/13/04	12.92	6.57	--	6.35	
A-12	03/08/05	12.92	6.75	Sheen	6.17	
A-12	06/06/05	12.95	6.39	--	6.56	
A-12	09/19/05	12.95	7.09	--	5.86	
A-12	12/12/05	12.95	6.89	--	6.06	
A-12	03/13/06	12.95	6.23	--	6.72	
A-12	06/05/06	12.95	6.60	--	6.35	
A-12	09/11/06	12.95	7.14	--	5.81	
A-12	12/11/06	12.95	6.28	--	6.67	
A-12	12/10/07	12.95	6.43	--	6.52	
A-12	03/03/08	12.95	6.50	--	6.45	
A-12	03/04/09	12.95	6.39	--	6.56	
A-12	06/01/09	12.95	6.86	--	6.09	
A-12	09/21/09	12.95	7.02	--	5.93	
A-12	11/16/09	12.95	6.38	--	6.57	
A-12	03/08/10	12.95	6.00	--	6.95	
A-12	06/07/10	12.95	6.54	--	6.41	
A-12	09/09/10	12.95	6.95	--	6.00	
A-12	11/15/10	12.95	6.60	--	6.35	
A-12	03/01/11	12.95	6.24	--	6.71	
A-12	05/23/11	12.95	6.34	--	6.61	
A-12	08/29/11	12.95	6.87	--	6.08	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-12	12/01/11	12.95	6.66	--	6.29	
A-12	03/01/12	12.95	6.46	--	6.49	
A-12	05/30/12	12.95	6.35	--	6.60	
A-12	08/25/12	12.95	6.57	--	6.38	
A-12	11/07/12	12.95	6.27	--	6.68	
A-12	02/27/13	12.95	6.32	--	6.63	
A-12	04/08/13	12.95	6.28	--	6.67	
A-12	07/29/13	12.95	6.58	--	6.37	
A-12	10/02/13	12.95	6.41	--	6.54	
A-12	01/21/14	12.95	6.67	--	6.28	
A-12	04/22/14	12.95	6.29	--	6.66	
A-12	07/15/14	12.95	6.62	--	6.33	
A-12	03/17/15	12.95	6.13	--	6.82	
A-12	09/29/15	12.95	6.62	--	6.33	
A-12	03/29/16	12.95	5.64	--	7.31	
A-12	10/11/16	12.95	6.90	--	6.05	
A-12	03/28/17	12.95	5.67	--	7.28	
A-12	10/10/17	12.95	6.82	--	6.13	
A-12	03/28/18	12.95	6.28	--	6.67	
A-12	10/02/18	12.95	6.81	--	6.14	
A-12	04/02/19	12.95	6.24	--	6.71	
A-12	10/01/19	12.95	6.72	--	6.23	
A-12	03/25/20	12.95	6.31	--	6.64	
A-12	10/19/20	12.95	6.65	--	6.30	
A-13	03/27/01	--	--	--	--	
A-13						Destroyed during construction activities
A-14	03/27/01	--	--	--	--	
A-14						Destroyed during construction activities
A-14R	02/11/02	12.62	6.90	--	5.72	
A-14R	05/20/02	12.62	9.77	--	2.85	
A-14R	08/27/02	12.62	8.10	--	4.52	
A-14R	11/04/02	12.62	8.30	--	4.32	
A-14R	02/18/03	10.17	7.31	--	2.86	
A-14R	06/09/03	10.17	4.82	--	5.35	
A-14R	09/15/03	14.21	8.20	--	6.01	
A-14R	11/18/03	14.21	6.10	Sheen	8.11	
A-14R	02/24/04	14.21	7.23	--	6.98	
A-14R	05/10/04	14.21	7.89	--	6.32	
A-14R	08/24/04	14.21	8.01	--	6.20	
A-14R	12/13/04	14.21	7.75	--	6.46	
A-14R	03/08/05	14.21	7.87	--	6.34	
A-14R	06/06/05	14.21	7.71	--	6.50	
A-14R	09/19/05	14.21	8.16	0.15	6.17	
A-14R	10/12/05	14.21	8.01	--	6.20	
A-14R	12/12/05	14.21	7.95	--	6.26	
A-14R	03/13/06	14.21	7.26	--	6.95	
A-14R	06/05/06	14.21	7.64	--	6.57	
A-14R	09/11/06	14.21	8.15	--	6.06	
A-14R	12/11/06	14.21	7.30	--	6.91	
A-14R	03/26/07	14.21	7.51	--	6.70	
A-14R	06/18/07	14.21	7.98	--	6.23	
A-14R	09/24/07	14.21	8.18	--	6.03	
A-14R	12/10/07	14.21	7.51	--	6.70	
A-14R	03/03/08	14.21	7.56	--	6.65	
A-14R	06/02/08	14.21	8.02	--	6.19	
A-14R	09/04/08	14.21	7.71	--	6.50	
A-14R	12/04/08	14.21	7.92	--	6.29	
A-14R	03/04/09	14.21	7.62	--	6.59	
A-14R	06/01/09	14.21	7.91	--	6.30	
A-14R	09/21/09	14.21	8.08	--	6.13	
A-14R	11/16/09	14.21	7.57	--	6.64	
A-14R	03/08/10	14.21	7.05	--	7.16	
A-14R	06/07/10	14.21	7.56	--	6.65	
A-14R	09/09/10	14.21	8.05	--	6.16	
A-14R	11/15/10	14.21	7.63	--	6.58	
A-14R	03/01/11	14.21	7.31	--	6.90	
A-14R	05/23/11	14.21	7.40	--	6.81	
A-14R	08/29/11	14.21	7.97	--	6.24	
A-14R	12/01/11	14.21	7.68	--	6.53	
A-14R	03/01/12	14.21	7.42	--	6.79	
A-14R	05/30/12	14.21	7.44	--	6.77	
A-14R	08/25/12	14.21	7.59	--	6.62	
A-14R	11/07/12	14.21	7.33	--	6.88	



**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-14R	02/27/13	14.21	7.38	--	6.83	
A-14R	04/08/13	14.21	7.34	--	6.87	
A-14R	07/29/13	14.21	7.67	--	6.54	
A-14R	10/02/13	14.21	7.51	--	6.70	
A-14R	01/21/14	14.21	7.76	--	6.45	
A-14R	04/22/14	14.21	7.36	--	6.85	
A-14R	07/15/14	14.21	7.76	--	6.45	
A-14R	03/17/15	14.21	7.22	--	6.99	
A-14R	09/29/15	14.21	7.74	--	6.47	
A-14R	03/29/16	14.21	7.33	--	6.88	
A-14R	10/11/16	14.21	7.92	--	6.29	
A-14R	03/28/17	14.21	6.76	--	7.45	
A-14R	10/10/17	14.21	7.93	--	6.28	
A-14R	03/28/18	14.21	7.33	--	6.88	
A-14R	10/02/18	14.21	7.92	--	6.29	
A-14R	04/02/19	14.21	7.39	--	6.82	
A-14R	10/01/19	14.21	7.83	--	6.38	
A-14R	03/25/20	14.21	7.43	--	6.78	
A-14R	10/19/20	14.21	7.76	--	6.45	
A-15	03/27/01	--	--	--	--	
A-15						Destroyed during construction activities
A-16	02/11/02	10.49	7.23	0.01	3.27	
A-16	05/20/02	10.49	9.03	--	1.46	
A-16	08/27/02	10.49	8.41	0.04	2.11	
A-16	11/04/02	10.49	8.81	0.28	1.9	
A-16	02/18/03	10.49	7.51	Sheen	2.98	
A-16	06/09/03	10.49	8.16	--	2.33	
A-16	09/15/03	14.39	8.80	0.01	5.6	
A-16	11/18/03	14.39	7.74	--	6.65	
A-16	02/24/04	14.39	7.54	--	6.85	
A-16	05/10/04	14.39	8.50	0.31	6.14	
A-16	08/24/04	14.39	9.03	0.82	6.02	
A-16	12/13/04	14.39	8.08	Sheen	6.31	
A-16	03/08/05	14.39	7.90	Sheen	6.49	
A-16	06/06/05	14.39	8.05	Sheen	6.34	
A-16	09/19/05	14.39	9.24	0.90	5.87	
A-16	10/12/05	14.39	9.38	1.20	5.97	
A-16	12/12/05	14.39	8.22	--	6.17	
A-16	03/13/06	14.39	7.75	--	6.64	
A-16	06/05/06	14.39	7.98	--	6.41	
A-16	09/11/06	14.39	9.20	0.90	5.91	
A-16	12/11/06	14.39	7.69	Sheen	6.70	
A-16	03/26/07	14.39	7.78	Sheen	6.61	
A-16	06/18/07	14.39	8.45	0.34	6.21	
A-16	09/24/07	14.39	8.45	0.02	5.96	
A-16	12/10/07	14.39	7.65	0.01	6.75	
A-16	03/03/08	14.39	7.88	Sheen	6.51	
A-16	06/02/08	14.39	8.77	0.04	5.65	
A-16	09/04/08	14.39	7.38	0.04	7.04	
A-16	12/04/08	14.39	8.27	--	6.12	
A-16	03/04/09	14.39	7.95	--	6.44	
A-16	06/01/09	14.39	8.50	Sheen	5.89	
A-16	09/21/09	14.39	8.80	0.35	5.87	
A-16	11/16/09	14.39	7.95	Sheen	6.44	
A-16	03/08/10	14.39	7.40	--	6.99	
A-16	06/07/10	14.39	7.91	Sheen	6.48	
A-16	09/09/10	14.39	8.92	0.09	5.54	
A-16	11/15/10	14.39	8.21	Sheen	6.18	
A-16	03/01/11	14.39	7.65	--	6.74	
A-16	05/23/11	14.39	7.79	--	6.60	
A-16	08/29/11	14.39	8.52	0.10	5.95	
A-16	12/01/11	14.39	8.24	Sheen	6.15	
A-16	03/01/12	14.39	7.94	Sheen	6.45	
A-16	05/30/12	14.39	7.67	--	6.72	
A-16	08/25/12	14.39	7.79	--	6.60	
A-16	11/07/12	14.39	7.56	--	6.83	
A-16	02/27/13	14.39	7.66	--	6.73	
A-16	04/08/13	14.39	7.56	--	6.83	
A-16	07/29/13	14.39	7.88	--	6.51	
A-16	10/02/13	14.39	7.46	--	6.93	
A-16	01/21/14	14.39	8.05	--	6.34	
A-16	04/22/14	14.39	7.66	--	6.73	
A-16	07/15/14	14.39	8.04	--	6.35	

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**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-16	03/17/15	14.39	7.55	--	6.84	
A-16	09/29/15	14.39	8.19	0.17	6.34	Absorbent sock placed in well
A-16	12/21/15	14.39	6.98	--	7.41	
A-16	03/29/16	14.39	7.07	--	7.32	
A-16	06/16/16	14.39	7.96	--	6.43	
A-16	09/01/16	14.39	8.01	0.01	6.38	Absorbent sock placed in well
A-16	10/11/16	14.39	8.65	0.40	6.06	Absorbent sock placed in well
A-16	03/28/17	14.39	7.08	--	7.31	
A-16	10/10/17	14.39	8.60	0.44	6.14	Sheen, saturated sock removed prior to gauging
A-16	03/28/18	14.39	7.62	--	6.77	
A-16	10/02/18	14.39	8.64	0.45	6.11	
A-16	04/02/19	14.39	7.64	--	6.75	
A-16	10/01/19	14.39	8.32	0.24	6.26	Absorbent sock placed in well
A-16	03/25/20	14.39	7.69		6.70	
A-16	10/19/20	14.39	8.03	0.01	6.37	
A-17	02/11/02	9.51	6.09	--	3.42	
A-17	05/20/02	9.51	7.92	--	1.59	
A-17	08/27/02	9.51	7.33	--	2.18	
A-17	11/04/02	9.51	8.52	--	0.99	
A-17	02/18/03	9.51	6.51	--	3.00	
A-17	06/09/03	9.51	7.19	--	2.32	
A-17	09/15/03	13.41	7.43	--	5.98	
A-17	11/18/03	13.41	7.85	--	5.56	
A-17	02/24/04	13.41	6.47	--	6.94	
A-17	05/10/04	13.41	7.11	--	6.30	
A-17	08/24/04	13.41	7.12	--	6.29	
A-17	12/13/04	13.41	6.90	--	6.51	
A-17	03/08/05	13.41	7.15	--	6.26	
A-17	06/06/05	13.41	6.89	--	6.52	
A-17	09/19/05	13.41	7.55	--	5.86	
A-17	12/12/05	13.41	7.24	--	6.17	
A-17	03/13/06	13.41	6.50	--	6.91	
A-17	06/05/06	13.41	6.94	--	6.47	
A-17	09/11/06	13.41	8.34	--	5.07	
A-17	12/11/06	13.41	6.79	--	6.62	
A-18	02/11/02	10.72	7.42	--	3.30	
A-18	05/20/02	10.72	9.22	--	1.50	
A-18	08/27/02	10.72	8.59	--	2.13	
A-18	11/04/02	10.72	9.80	--	0.92	
A-18	02/18/03	10.72	8.36	--	2.36	
A-18	06/09/03	10.72	8.36	--	2.36	
A-18	09/15/03	14.74	8.65	--	6.09	
A-18	11/18/03	14.74	8.22	--	6.52	
A-18	02/24/04	14.74	7.06	--	7.68	
A-18	05/10/04	14.74	8.50	--	6.24	
A-18	08/24/04	14.74	8.56	--	6.18	
A-18	12/13/04	14.74	8.23	--	6.51	
A-18	03/08/05	14.74	8.33	--	6.41	
A-18	06/06/05	14.74	8.21	--	6.53	
A-18	09/19/05	14.74	8.67	0.02	6.09	
A-18	10/12/05	14.74	8.55	--	6.19	
A-18	12/12/05	14.74	8.42	--	6.32	
A-18	03/13/06	14.74	7.74	--	7.00	
A-18	06/05/06	14.74	8.14	--	6.60	
A-18	09/11/06	14.74	8.63	--	6.11	
A-18	12/11/06	14.74	7.78	--	6.96	
A-18	12/10/07	14.74	7.81	--	6.93	
A-18	03/03/08	14.74	8.03	--	6.71	
A-18	03/04/09	14.74	8.07	--	6.67	
A-18	06/01/09	14.74	8.34	--	6.40	
A-18	09/21/09	14.74	8.57	--	6.17	
A-18	11/16/09	14.74	8.07	--	6.67	
A-18	03/08/10	14.74	7.54	--	7.20	
A-18	06/07/10	14.74	8.00	--	6.74	
A-18	09/09/10	14.74	8.53	--	6.21	
A-18	11/15/10	14.74	8.11	--	6.63	
A-18	03/01/11	14.74	7.75	--	6.99	
A-18	05/23/11	14.74	7.85	--	6.89	
A-18	08/29/11	14.74	8.44	--	6.30	
A-18	12/01/11	14.74	8.11	--	6.63	
A-18	03/01/12	14.74	7.83	--	6.91	
A-18	05/30/12	14.74	7.75	--	6.99	
A-18	08/25/12	14.74	7.89	--	6.85	

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**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-18	11/07/12	14.74	7.68	--	7.06	
A-18	02/27/13	14.74	7.72	--	7.02	
A-18	04/08/13	14.74	7.05	--	7.69	
A-18	07/29/13	14.74	7.99	--	6.75	
A-18	10/02/13	14.74	7.93	--	6.81	
A-18	01/21/14	14.74	8.27	--	6.47	
A-18	04/22/14	14.74	7.84	--	6.90	
A-18	07/15/14	14.74	8.21	--	6.53	
A-18	03/17/15	14.74	7.7	--	7.04	
A-18	09/29/15	14.74	8.24	--	6.50	
A-18	03/29/16	14.74	7.33	--	7.41	
A-18	10/11/16	14.74	8.40	--	6.34	
A-18	03/28/17	14.74	7.33	--	7.41	
A-18	10/10/17	14.74	8.42	--	6.32	
A-18	03/28/18	14.74	7.79	--	6.95	
A-18	10/02/18	14.74	8.38	--	6.36	
A-18	04/02/19	14.74	7.84	--	6.90	
A-18	10/01/19	14.74	8.28	--	6.46	
A-18	03/25/20	14.74	7.85	--	6.89	
A-18	10/19/20	14.74	8.21	--	6.53	
A-19	02/11/02	10.76	7.52	0.07	3.30	
A-19	05/20/02	10.76	9.19	--	1.57	
A-19	08/27/02	10.76	7.61	Sheen	3.15	
A-19	11/04/02	10.76	8.79	0.01	1.98	
A-19	02/18/03	10.76	7.70	Sheen	3.06	
A-19	06/09/03	10.76	8.35	0.01	2.42	
A-19	09/15/03	14.57	8.71	0.01	5.87	
A-19	11/18/03	14.57	7.69	0.01	6.89	
A-19	02/24/04	14.57	7.81	Sheen	6.76	
A-19	05/10/04	14.57	8.35	Sheen	6.22	
A-19	08/24/04	14.57	8.68	Sheen	5.89	
A-19	12/13/04	14.57	7.98	Sheen	6.59	
A-19	03/08/05	14.57	8.28	--	6.29	
A-19	06/06/05	14.57	7.26	--	7.31	
A-19	09/19/05	14.57	8.66	0.03	5.93	
A-19	10/12/05	14.57	8.55	0.02	6.04	
A-19	12/12/05	14.57	8.46	0.06	6.16	
A-19	03/13/06	14.57	7.65	--	6.92	
A-19	06/05/06	14.57	8.10	--	6.47	
A-19	09/11/06	14.57	8.63	0.03	5.96	
A-19	12/11/06	14.57	7.65	--	6.92	
A-19	03/26/07	14.57	7.89	--	6.68	
A-19	06/18/07	14.57	8.36	--	6.21	
A-19	09/25/07	14.57	8.64	--	5.93	
A-19	12/10/07	14.57	7.82	--	6.75	
A-19	03/03/08	14.57	7.95	--	6.62	
A-19	06/02/08	14.57	9.84	--	4.73	
A-19	09/04/08	14.57	8.30	--	6.27	
A-19	12/04/08	14.57	8.99	--	5.58	
A-19	03/04/09	14.57	7.89	--	6.68	
A-19	06/01/09	14.57	10.47	--	4.10	
A-19	09/21/09	14.57	8.53	--	6.04	
A-19	11/16/09	14.57	7.87	--	6.70	
A-19	03/08/10	14.57	7.45	--	7.12	
A-19	06/07/10	14.57	7.19	--	7.38	
A-19	09/09/10	14.57	8.41	--	6.16	
A-19	11/15/10	14.57	7.94	--	6.63	
A-19	03/01/11	14.57	7.72	--	6.85	
A-19	05/23/11	14.57	7.82	--	6.75	
A-19	08/29/11	14.57	8.39	--	6.18	
A-19	12/01/11	14.57	8.14	--	6.43	
A-19	03/01/12	14.57	7.82	--	6.75	
A-19	05/30/12	14.57	7.75	--	6.82	
A-19	08/25/12	14.57	7.88	--	6.69	
A-19	11/07/12	14.57	7.22	--	7.35	
A-19	02/27/13	14.57	7.68	--	6.89	
A-19	04/08/13	14.57	7.68	--	6.89	
A-19	07/29/13	14.57	7.93	--	6.64	
A-19	10/02/13	14.57	7.78	--	6.79	
A-19	01/21/14	14.57	8.86	--	5.71	
A-19	04/22/14	14.57	7.72	--	6.85	
A-19	07/15/14	14.57	8.01	--	6.56	
A-19	03/17/15	14.57	7.61	--	6.96	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-19	09/28/15	14.57	8.16	--	6.41	
A-19	03/29/16	14.57	7.19	--	7.38	
A-19	10/11/16	14.57	8.35	--	6.22	
A-19	03/28/17	14.57	7.29	--	7.28	
A-19	10/10/17	14.57	8.34	--	6.23	
A-19	03/28/18	14.57	7.76	--	6.81	
A-19	10/02/18	14.57	8.30	--	6.27	
A-19	04/02/19	14.57	7.76	--	6.81	
A-19	10/01/19	14.57	8.25	--	6.32	
A-19	03/25/20	14.57	7.79	--	6.78	
A-19	10/19/20	14.57	8.14	--	6.43	
A-20	02/11/02	10.30	7.16	--	3.14	
A-20	05/20/02	10.30	9.76	--	0.54	
A-20	08/27/02	10.30	5.19	--	5.11	
A-20	11/04/02	10.30	8.39	--	1.91	
A-20	02/18/03	10.30	7.38	--	2.92	
A-20	06/09/03	10.30	7.95	--	2.35	
A-20	09/15/03	14.19	8.25	--	5.94	
A-20	11/18/03	14.19	7.70	--	6.49	
A-20	02/24/04	14.19	7.29	0.02	6.92	
A-20	05/10/04	14.19	7.99	--	6.20	
A-20	08/24/04	14.19	8.18	--	6.01	
A-20	12/13/04	14.19	7.65	--	6.54	
A-20	03/08/05	14.19	7.89	--	6.30	
A-20	06/06/05	14.19	7.81	--	6.38	
A-20	09/19/05	14.19	8.25	0.01	5.95	
A-20	10/12/05	14.19	8.12	--	6.07	
A-20	12/12/05	14.19	8.00	--	6.19	
A-20	03/13/06	14.19	7.25	--	6.94	
A-20	06/05/06	14.19	7.72	--	6.47	
A-20	09/11/06	14.19	8.22	--	5.97	
A-20	12/11/06	14.19	7.28	--	6.91	
A-20	03/26/07	14.19	7.51	--	6.68	
A-20	06/18/07	14.19	7.98	--	6.21	
A-20	09/25/07	14.19	8.19	--	6.00	
A-20	12/10/07	14.19	7.45	--	6.74	
A-20	03/03/08	14.19	7.55	--	6.64	
A-20	06/02/08	14.19	8.48	--	5.71	
A-20	09/04/08	14.19	7.92	--	6.27	
A-20	12/04/08	14.19	7.99	--	6.20	
A-20	03/04/09	14.19	7.19	--	7.00	
A-20	06/01/09	14.19	8.38	--	5.81	
A-20	09/21/09	14.19	8.11	--	6.08	
A-20	11/16/09	14.19	7.43	--	6.76	
A-20	03/08/10	14.19	7.15	--	7.04	
A-20	06/07/10	14.19	7.54	--	6.65	
A-20	09/09/10	14.19	8.03	--	6.16	
A-20	11/15/10	14.19	7.51	--	6.68	
A-20	03/01/11	14.19	7.34	--	6.85	
A-20	05/23/11	14.19	7.45	--	6.74	
A-20	08/29/11	14.19	8.03	--	6.16	
A-20	12/01/11	14.19	7.70	--	6.49	
A-20	03/01/12	14.19	7.41	--	6.78	
A-20	05/30/12	14.19	7.30	--	6.89	
A-20	08/25/12	14.19	7.46	--	6.73	
A-20	11/07/12	14.19	6.61	--	7.58	
A-20	02/27/13	14.19	7.21	--	6.98	
A-20	04/08/13	14.19	6.96	--	7.23	
A-20	07/29/13	14.19	7.46	--	6.73	
A-20	10/02/13	14.19	7.40	--	6.79	
A-20	01/21/14	14.19	7.77	--	6.42	
A-20	04/22/14	14.19	7.38	--	6.81	
A-20	07/15/14	14.19	7.66	--	6.53	
A-20	03/17/15	14.19	7.27	--	6.92	
A-20	09/28/15	14.19	7.81	--	6.38	
A-20	03/29/16	14.19	6.96	--	7.23	
A-20	10/11/16	14.19	7.97	--	6.22	
A-20	03/28/17	14.19	7.11	--	7.08	
A-20	10/10/17	14.19	7.93	--	6.26	
A-20	03/28/18	14.19	7.40	--	6.79	
A-20	10/02/18	14.19	7.96	--	6.23	
A-20	04/02/19	14.19	7.45	--	6.74	
A-20	10/01/19	14.19	8.17	--	6.02	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-20	03/25/20	14.19	7.42	--	6.77	
A-20	10/19/20	14.19	7.78	--	6.41	
A-21	02/11/02	10.40	7.18	--	3.22	
A-21	05/20/02	10.40	9.88	Sheen	0.52	
A-21	08/27/02	10.40	8.28	--	2.12	
A-21	11/04/02	10.40	8.50	--	1.90	
A-21	02/18/03	10.40	7.47	--	2.93	
A-21	06/09/03	10.40	8.01	--	2.39	
A-21	09/15/03	14.35	8.65	--	5.70	
A-21	11/18/03	14.35	7.86	--	6.49	
A-21	02/24/04	14.35	7.43	--	6.92	
A-21	05/10/04	14.35	8.10	--	6.25	
A-21	08/24/04	14.35	8.29	--	6.06	
A-21	12/13/04	14.35	7.75	--	6.60	
A-21	03/08/05	14.35	8.00	--	6.35	
A-21	06/06/05	14.35	7.90	--	6.45	
A-21	09/19/05	14.35	8.24	--	6.11	
A-21	12/12/05	14.35	8.15	--	6.20	
A-21	03/13/06	14.35	7.38	--	6.97	
A-21	06/05/06	14.35	7.21	--	7.14	
A-21	09/11/06	14.35	8.31	--	6.04	
A-21	12/11/06	14.35	7.44	--	6.91	
A-21	03/26/07	14.35	7.64	--	6.71	
A-21	06/18/07	14.35	8.15	--	6.20	
A-21	09/25/07	14.35	8.30	--	6.05	
A-21	12/10/07	14.35	7.62	--	6.73	
A-21	03/03/08	14.35	7.67	--	6.68	
A-21	06/02/08	14.35	8.18	--	6.17	
A-21	09/04/08	14.35	8.09	--	6.26	
A-21	12/04/08	14.35	8.07	--	6.28	
A-21	03/04/09	14.35	7.51	--	6.84	
A-21	06/01/09	14.35	8.03	--	6.32	
A-21	09/21/09	14.35	8.27	--	6.08	
A-21	11/16/09	14.35	7.68	--	6.67	
A-21	03/08/10	14.35	7.26	--	7.09	
A-21	06/07/10	14.35	7.66	--	6.69	
A-21	09/09/10	14.35	8.19	--	6.16	
A-21	11/15/10	14.35	7.73	--	6.62	
A-21	03/01/11	14.35	7.42	--	6.93	
A-21	05/23/11	14.35	7.56	--	6.79	
A-21	08/29/11	14.35	8.11	--	6.24	
A-21	12/01/11	14.35	7.81	--	6.54	
A-21	03/01/12	14.35	7.53	--	6.82	
A-21	05/30/12	14.35	7.37	--	6.98	
A-21	08/25/12	14.35	7.49	--	6.86	
A-21	11/07/12	14.35	7.04	--	7.31	
A-21	02/27/13	14.35	7.32	--	7.03	
A-21	04/08/13	14.35	7.23	--	7.12	
A-21	07/29/13	14.35	7.59	--	6.76	
A-21	10/02/13	14.35	7.57	--	6.78	
A-21	01/21/14	14.35	8.71	--	5.64	
A-21	04/22/14	14.35	7.59	--	6.76	
A-21	07/15/14	14.35	7.82	--	6.53	
A-21	03/17/15	14.35	7.4	--	6.95	
A-21	09/28/15	14.35	7.91	--	6.44	
A-21	03/29/16	14.35	6.94	--	7.41	
A-21	10/11/16	14.35	8.11	--	6.24	
A-21	03/28/17	14.35	7.11	--	7.24	
A-21	10/10/17	14.35	8.08	--	6.27	
A-21	03/28/18	14.35	7.48	--	6.87	
A-21	10/02/18	14.35	8.06	--	6.29	
A-21	04/02/19	14.35	7.54	--	6.81	
A-21	10/01/19	14.35	7.96	--	6.39	
A-21	03/25/20	14.35	7.53	--	6.82	
A-21	10/19/20	14.35	7.89	--	6.46	
A-22	09/21/01	10.69	--	--	--	
A-22					Destroyed	
A-22R	02/11/02	10.22	7.10	0.13	3.22	
A-22R	05/20/02	10.22	9.72	0.08	0.56	
A-22R	08/27/02	10.22	8.20	0.16	2.15	
A-22R	11/04/02	10.22	8.30	0.15	2.04	
A-22R	02/18/03	10.22	7.14	0.02	3.10	
A-22R	06/09/03	10.22	7.82	--	2.40	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-22R	09/15/03	14.11	8.40	0.01	5.72	
A-22R	11/18/03	14.11	7.70	0.05	6.45	
A-22R	02/24/04	14.11	7.01	Sheen	7.10	
A-22R	05/10/04	14.11	7.68	<0.01	6.43	
A-22R	08/24/04	14.11	7.90	0.18	6.35	
A-22R	12/13/04	14.11	7.40	Sheen	6.71	
A-22R	03/08/05	14.11	7.08	--	7.03	
A-22R	06/06/05	14.11	7.21	--	6.90	
A-22R	09/19/05	14.11	8.11	0.01	6.01	
A-22R	10/12/05	14.11	8.22	0.20	6.05	
A-22R	12/12/05	14.11	7.87	--	6.24	
A-22R	03/13/06	14.11	7.15	--	6.96	
A-22R	06/05/06	14.11	7.75	--	6.36	
A-22R	09/11/06	14.11	8.16	--	5.95	
A-22R	12/11/06	14.11	7.14	--	6.97	
A-22R	03/26/07	14.11	7.34	--	6.77	
A-22R	06/18/07	14.11	7.86	--	6.25	
A-22R	12/10/07	14.11	7.38	--	6.73	
A-22R	03/03/08	14.11	7.47	--	6.64	
A-22R	06/02/08	14.11	8.90	--	5.21	
A-22R	09/04/08	14.11	--	--	--	Not Measured-Sock in well
A-22R	12/04/08	14.11	--	--	--	Not Measured-Sock in well
A-22R	03/04/09	14.11	--	--	--	Not Measured-Sock in well
A-22R	06/01/09	14.11	--	--	--	Not Measured-Sock in well
A-22R	09/21/09	14.11	--	--	--	Not Measured-Sock in well
A-22R	11/16/09	14.11	7.36	--	6.75	
A-22R	03/08/10	14.11	6.95	--	7.16	
A-22R	06/07/10	14.11	7.52	--	6.59	
A-22R	09/09/10	14.11	7.94	--	6.17	
A-22R	11/15/10	14.11	7.92	--	6.19	
A-22R	03/01/11	14.11	7.21	--	6.90	
A-22R	05/23/11	14.11	7.35	--	6.76	
A-22R	08/29/11	14.11	7.87	--	6.24	
A-22R	12/01/11	14.11	7.75	--	6.36	
A-22R	03/01/12	14.11	7.37	--	6.74	
A-22R	05/30/12	14.11	7.48	--	6.63	
A-22R	08/25/12	14.11	7.62	--	6.49	
A-22R	11/07/12	14.11	7.18	--	6.93	
A-22R	02/27/13	14.11	7.38	--	6.73	
A-22R	04/08/13	14.11	7.31	--	6.80	
A-22R	07/29/13	14.11	7.64	--	6.47	
A-22R	10/02/13	14.11	7.01	--	7.10	
A-22R	01/21/14	14.11	7.63	--	6.48	
A-22R	04/22/14	14.11	7.11	--	7.00	
A-22R	07/15/14	14.11	7.46	--	6.65	
A-22R	03/17/15	14.11	7.04	--	7.07	
A-22R	09/28/15	14.11	7.52	--	6.59	
A-22R	03/29/16	14.11	6.59	--	7.52	
A-22R	10/11/16	14.11	7.92	--	6.19	
A-22R	03/28/17	14.11	6.67	--	7.44	
A-22R	10/10/17	14.11	7.82	--	6.29	
A-22R	03/28/18	14.11	7.31	--	6.8	
A-22R	10/02/18	14.11	7.79	--	6.32	
A-22R	04/02/19	14.11	7.17	--	6.94	
A-22R	10/01/19	14.11	7.74	--	6.37	
A-22R	03/25/20	14.11	7.29	--	6.82	
A-22R	10/19/20	14.11	7.65	--	6.46	
A-23	06/14/01	--	--	--	--	
A-23						Destroyed during construction activities
A-23R	02/11/02	11.73	8.53	--	3.20	
A-23R	05/20/02	11.73	10.23	--	1.50	
A-23R	08/27/02	11.73	6.63	--	5.10	
A-23R	11/04/02	11.73	9.81	--	1.92	
A-23R	02/18/03	11.73	8.75	--	2.98	
A-23R	06/09/03	11.73	9.35	--	2.38	
A-23R	09/15/03	15.57	10.03	--	5.54	
A-23R	11/18/03	15.57	7.85	--	7.72	
A-23R	02/24/04	15.57	8.05	--	7.52	
A-23R	05/10/04	15.57	8.69	--	6.88	
A-23R	08/24/04	15.57	7.69	--	7.88	
A-23R	12/13/04	15.57	9.22	--	6.35	
A-23R	03/08/05	15.57	9.38	--	6.19	
A-23R	06/07/05	15.57	9.35	--	6.22	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-23R	09/20/05	15.57	9.68	--	5.89	
A-23R	12/12/05	15.57	9.20	--	6.37	
A-23R	03/13/06	15.57	8.69	--	6.88	
A-23R	06/08/06	15.57	9.13	--	6.44	
A-23R	09/11/06	15.57	10.03	--	5.54	
A-23R	12/11/06	15.57	8.72	--	6.85	
A-23R	03/26/07	15.57	8.94	--	6.63	
A-23R	06/18/07	15.57	9.37	--	6.20	
A-23R	09/25/07	--	--	--	--	Not Measured-Inaccessible
A-23R	12/10/07	15.57	8.91	--	6.66	
A-23R	03/03/08	15.57	9.00	--	6.57	
A-23R	06/02/08	15.57	9.22	--	6.35	
A-23R	09/04/08	15.57	--	--	--	Not Measured-Inaccessible
A-23R	12/04/08	15.57	9.34	--	6.23	
A-23R	03/04/09	15.57	9.81	--	5.76	
A-23R	06/01/09	15.57	9.26	--	6.31	
A-23R	09/21/09	15.57	9.51	--	6.06	
A-23R	11/16/09	15.57	8.94	--	6.63	
A-23R	03/08/10	15.57	8.48	--	7.09	
A-23R	06/07/10	15.57	8.95	--	6.62	
A-23R	09/09/10	15.57	9.45	--	6.12	
A-23R	11/16/10	15.57	9.01	--	6.56	
A-23R	03/01/11	15.57	8.68	--	6.89	
A-23R	05/24/11	15.57	8.85	--	6.72	
A-23R	08/29/11	15.57	9.41	--	6.16	
A-23R	12/01/11	15.57	9.09	--	6.48	
A-23R	03/01/12	15.57	8.79	--	6.78	
A-23R	05/30/12	15.57	8.73	--	6.84	
A-23R	08/25/12	15.57	--	--	--	Inaccessible due to site access issues
A-23R	11/07/12	15.57	8.52	--	7.05	
A-23R	02/27/13	15.57	8.45	--	7.12	
A-23R	04/08/13	15.57	8.63	--	6.94	
A-23R	07/29/13	15.57	8.92	--	6.65	
A-23R	10/02/13	15.57	8.81	--	6.76	
A-23R	01/21/14	15.57	9.16	--	6.41	
A-23R	04/22/14	15.57	5.74	--	9.83	
A-23R	07/15/14	15.57	9.11	--	6.46	
A-23R	03/17/15	15.57	6.33	--	9.24	
A-23R	09/28/15	15.57	9.19	--	6.38	
A-23R	03/29/16	15.57	8.33	--	7.24	
A-23R	10/11/16	15.57	9.28	--	6.29	
A-23R	03/28/17	15.57	8.30	--	7.27	
A-23R	10/10/17	15.57	9.34	--	6.23	
A-23R	03/28/18	15.57	8.79	--	6.78	
A-23R	10/02/18	15.57	9.21	--	6.36	
A-23R	--	15.57	--	--	--	Not Measured-Inaccessible
A-23R	10/03/19	15.57	9.23	--	6.34	Gauged when accessed for sampling
A-23R	03/25/20	15.57	--	--	--	Not Measured-Inaccessible
A-23R	10/19/20	15.57	9.13	--	6.44	
A-24	10/06/00	--	--	--	--	
A-24						Destroyed during construction activities
A-25	02/11/02	10.12	6.78	--	3.34	
A-25	05/20/02	10.12	8.56	--	1.56	
A-25	08/27/02	10.12	7.99	--	2.13	
A-25	11/04/02	10.12	8.18	--	1.94	
A-25	02/18/03	10.12	7.08	--	3.04	
A-25	06/09/03	10.12	8.71	--	1.41	
A-25	09/15/03	13.90	8.05	--	5.85	
A-25	11/18/03	13.90	7.50	Sheen	6.40	
A-25	02/24/04	13.90	7.00	--	6.90	
A-25	05/10/04	13.90	7.75	--	6.15	
A-25	08/24/04	13.90	7.82	--	6.08	
A-25	12/13/04	13.90	7.46	--	6.44	
A-25	03/08/05	13.90	7.70	--	6.20	
A-25	06/06/05	13.90	7.53	--	6.37	
A-25	09/19/05	13.90	8.07	0.01	5.84	
A-25	10/12/05	13.90	7.95	--	5.95	
A-25	12/12/05	13.90	7.79	--	6.11	
A-25	03/13/06	13.90	6.98	--	6.92	
A-25	06/05/06	13.90	7.43	--	6.47	
A-25	09/11/06	13.90	8.10	--	5.80	
A-25	12/11/06	13.90	7.05	--	6.85	
A-25	12/10/07	13.90	7.23	--	6.67	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-25	03/03/08	13.90	7.36	--	6.54	
A-25	03/04/09	13.90	7.37	--	6.53	
A-25	06/01/09	13.90	7.81	--	6.09	
A-25	09/21/09	13.90	8.00	--	5.90	
A-25	11/16/09	13.90	7.16	--	6.74	
A-25	03/08/10	13.90	6.83	--	7.07	
A-25	06/07/10	13.90	7.36	--	6.54	
A-25	09/09/10	13.90	7.97	--	5.93	
A-25	11/15/10	13.90	7.44	Sheen	6.46	
A-25	03/01/11	13.90	7.04	--	6.86	
A-25	05/23/11	13.90	7.18	--	6.72	
A-25	08/29/11	13.90	7.81	--	6.09	
A-25	12/01/11	13.90	7.52	--	6.38	
A-25	03/01/12	13.90	7.75	--	6.15	
A-25	05/30/12	13.90	7.30	--	6.60	
A-25	08/25/12	13.90	7.56	--	6.34	
A-25	11/07/12	13.90	7.11	--	6.79	
A-25	02/27/13	13.90	7.18	--	6.72	
A-25	04/08/13	13.90	7.08	--	6.82	
A-25	07/29/13	13.90	7.52	--	6.38	
A-25	10/02/13	13.90	7.23	--	6.67	
A-25	01/21/14	13.90	7.51	--	6.39	
A-25	04/22/14	13.90	7.03	--	6.87	
A-25	07/15/14	13.90	7.51	--	6.39	
A-25	03/17/15	13.90	6.87	--	7.03	
A-25	09/29/15	13.90	7.55	--	6.35	
A-25	03/29/16	13.90	6.36	--	7.54	
A-25	10/11/16	13.90	7.77	--	6.13	
A-25	03/28/17	13.90	6.30	--	7.60	
A-25	10/10/17	13.90	7.75	--	6.15	
A-25	03/28/18	13.90	7.10	--	6.80	
A-25	10/02/18	13.90	7.69	--	6.21	
A-25	04/02/19	13.90	7.06	--	6.84	
A-25	10/01/19	13.90	7.67	--	6.23	
A-25	03/25/20	13.90	7.13	--	6.77	
A-25	10/19/20	13.90	7.56	--	6.34	
A-26	03/27/01	--	--	--	--	
A-26				Destroyed during construction activities of utility trench		
A-26R	02/11/02	10.39	7.13	0.02	3.28	
A-26R	05/20/02	10.39	9.79	--	0.60	
A-26R	08/27/02	10.39	8.23	0.02	2.18	
A-26R	11/04/02	10.39	8.41	0.04	2.01	
A-26R	02/18/03	10.39	7.29	--	3.10	
A-26R	06/09/03	10.39	7.92	--	2.47	
A-26R	09/15/03	14.19	8.31	--	5.88	
A-26R	11/18/03	14.19	7.64	Sheen	6.55	
A-26R	02/24/04	14.19	7.17	--	7.02	
A-26R	05/10/04	14.19	7.93	--	6.26	
A-26R	08/24/04	14.19	8.10	--	6.09	
A-26R	12/13/04	14.19	7.55	--	6.64	
A-26R	03/08/05	14.19	7.80	--	6.39	
A-26R	06/06/05	14.19	7.18	--	7.01	
A-26R	09/19/05	14.19	8.25	0.01	5.95	
A-26R	10/12/05	14.19	8.20	--	5.99	
A-26R	12/12/05	14.19	7.98	--	6.21	
A-26R	03/13/06	14.19	7.21	--	6.98	
A-26R	06/05/06	14.19	7.66	--	6.53	
A-26R	09/11/06	14.19	8.25	--	5.94	
A-26R	12/11/06	14.19	7.22	--	6.97	
A-26R	12/10/07	14.19	7.48	--	6.71	
A-26R	03/03/08	14.19	7.58	--	6.61	
A-26R	03/04/09	14.19	7.56	--	6.63	
A-26R	06/01/09	14.19	--	--	--	Not Measured-Inaccessible
A-26R	09/21/09	14.19	8.21	--	5.98	
A-26R	11/16/09	14.19	7.48	--	6.71	
A-26R	03/08/10	14.19	7.04	--	7.15	
A-26R	06/07/10	14.19	7.57	--	6.62	
A-26R	09/09/10	14.19	8.17	--	6.02	
A-26R	11/15/10	14.19	7.69	--	6.50	
A-26R	03/01/11	14.19	7.28	--	6.91	
A-26R	05/23/11	14.19	7.40	--	6.79	
A-26R	08/29/11	14.19	7.99	--	6.20	
A-26R	12/01/11	14.19	7.81	--	6.38	



**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-26R	03/01/12	14.19	7.47	--	6.72	
A-26R	05/30/12	14.19	7.55	--	6.64	
A-26R	08/25/12	14.19	7.73	--	6.46	
A-26R	11/07/12	14.19	7.37	--	6.82	
A-26R	02/27/13	14.19	7.42	--	6.77	
A-26R	04/08/13	14.19	7.34	--	6.85	
A-26R	07/29/13	14.19	7.69	--	6.50	
A-26R	10/02/13	14.19	7.41	--	6.78	
A-26R	01/21/14	14.19	7.69	--	6.50	
A-26R	04/22/14	14.19	7.23	--	6.96	
A-26R	07/15/14	14.19	7.71	--	6.48	
A-26R	03/17/15	14.19	7.09	--	7.1	
A-26R	09/28/15	14.19	7.62	--	6.57	
A-26R	03/29/16	14.19	6.56	--	7.63	
A-26R	10/11/16	14.19	7.99	--	6.20	
A-26R	03/28/17	14.19	6.62	--	7.57	
A-26R	10/10/17	14.19	7.93	--	6.26	
A-26R	03/28/18	14.19	7.36	--	6.83	
A-26R	10/02/18	14.19	7.91	--	6.28	
A-26R	04/02/19	14.19	7.25	--	6.94	
A-26R	10/01/19	14.19	7.85	--	6.34	
A-26R	03/25/20	14.19	7.35	--	6.84	
A-26R	10/19/20	14.19	7.75	--	6.44	
A-27	02/11/02	13.45	10.05	--	3.40	
A-27	05/20/02	13.45	12.84	--	0.61	
A-27	08/27/02	13.45	11.31	--	2.14	
A-27	11/04/02	13.45	11.46	--	1.99	
A-27	02/18/03	13.45	10.32	--	3.13	
A-27	06/09/03	13.45	10.97	--	2.48	
A-27	09/15/03	17.22	11.38	--	5.84	
A-27	11/18/03	17.22	10.75	--	6.47	
A-27	02/24/04	17.22	10.15	--	7.07	
A-27	05/10/04	17.22	8.00	--	9.22	
A-27	08/24/04	17.22	11.15	--	6.07	
A-27	12/13/04	17.22	7.80	--	9.42	
A-27	03/08/05	17.22	10.83	--	6.39	
A-27	06/06/05	17.22	10.80	--	6.42	
A-27	09/19/05	17.22	11.32	--	5.90	
A-27	12/12/05	17.22	11.01	--	6.21	
A-27	03/13/06	17.22	10.17	--	7.05	
A-27	06/05/06	17.22	10.69	--	6.53	
A-27	09/11/06	17.22	11.30	--	5.92	
A-27	12/11/06	17.22	10.16	--	7.06	
A-27	03/26/07	17.22	10.41	--	6.81	
A-27	06/18/07	17.22	11.00	--	6.22	
A-27	09/24/07	17.22	11.20	--	6.02	
A-27	12/10/07	17.22	10.41	--	6.81	
A-27	03/03/08	17.22	10.54	--	6.68	
A-27	06/02/08	17.22	11.06	--	6.16	
A-27	09/04/08	17.22	11.50	--	5.72	
A-27	12/04/08	17.22	11.05	--	6.17	
A-27	03/04/09	17.22	10.64	--	6.58	
A-27	06/01/09	17.22	10.87	--	6.35	
A-27	09/21/09	17.22	11.25	--	5.97	
A-27	11/16/09	17.22	10.50	--	6.72	
A-27	03/08/10	17.22	10.01	--	7.21	
A-27	06/07/10	17.22	10.54	--	6.68	
A-27	09/09/10	17.22	11.19	--	6.03	
A-27	11/15/10	17.22	10.61	--	6.61	
A-27	03/01/11	17.22	10.20	--	7.02	
A-27	05/23/11	17.22	10.30	--	6.92	
A-27	08/29/11	17.22	11.03	--	6.19	
A-27	12/01/11	17.22	10.72	--	6.50	
A-27	03/01/12	17.22	10.44	--	6.78	
A-27	05/30/12	17.22	10.47	--	6.75	
A-27	08/25/12	17.22	10.78	--	6.44	
A-27	11/07/12	17.22	10.33	--	6.89	
A-27	02/27/13	17.22	10.28	--	6.94	
A-27	04/08/13	17.22	10.24	--	6.98	
A-27	06/21/13	17.22	10.68	--	6.54	Baseline monitoring event
A-27	07/29/13	17.22	10.69	--	6.53	
A-27	08/26/13	17.22	10.71	--	6.51	Two-month monitoring event
A-27	10/02/13	17.22	10.40	--	6.82	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-27	01/21/14	17.22	10.63	--	6.59	
A-27	04/22/14	17.22	10.11	--	7.11	
A-27	07/15/14	17.22	10.68	--	6.54	
A-27	03/17/15	17.22	9.96	--	7.26	
A-27	09/28/15	17.22	10.68	--	6.54	
A-27	03/29/16	17.22	9.37	--	7.85	
A-27	10/11/16	17.22	10.99	--	6.23	
A-27	03/28/17	17.22	9.36	--	7.86	
A-27	10/10/17	17.22	10.95	--	6.27	
A-27	03/28/18	17.22	10.23	--	6.99	
A-27	10/02/18	17.22	10.92	--	6.30	
A-27	04/02/19	17.22	10.23	--	6.99	
A-27	10/01/19	17.22	10.86	--	6.36	
A-27	03/25/20	17.22	10.23	--	6.99	
A-27	10/19/20	17.22	10.74	--	6.48	
A-28	06/14/01	--	--	--	--	
A-28						Destroyed during construction activities
A-28R	02/11/02	11.19	7.72	--	3.47	
A-28R	05/20/02	11.19	9.51	--	1.68	
A-28R	08/27/02	11.19	8.97	--	2.22	
A-28R	11/04/02	11.19	9.20	--	1.99	
A-28R	02/18/03	11.19	8.20	--	2.99	
A-28R	06/09/03	11.19	8.67	--	2.52	
A-28R	09/15/03	14.93	9.05	--	5.88	
A-28R	11/18/03	14.93	8.45	--	6.48	
A-28R	02/24/04	14.93	7.91	--	7.02	
A-28R	05/10/04	14.93	8.66	--	6.27	
A-28R	08/24/04	14.93	7.90	--	7.03	
A-28R	12/13/04	14.93	8.58	--	6.35	
A-28R	03/08/05	14.93	8.67	--	6.26	
A-28R	06/06/05	14.93	8.47	--	6.46	
A-28R	09/19/05	14.93	8.99	--	5.94	
A-28R	12/12/05	14.93	7.71	--	7.22	
A-28R	03/13/06	14.93	7.79	--	7.14	
A-28R	06/05/06	14.93	9.13	--	5.80	
A-28R	09/11/06	14.93	9.00	--	5.93	
A-28R	12/11/06	14.93	7.89	--	7.04	
A-28R	03/26/07	14.93	8.05	--	6.88	
A-28R	06/18/07	14.93	8.64	--	6.29	
A-28R	09/24/07	14.93	8.81	--	6.12	
A-28R	12/10/07	14.93	8.01	--	6.92	
A-28R	03/03/08	14.93	8.17	--	6.76	
A-28R	06/02/08	14.93	8.64	--	6.29	
A-28R	09/04/08	14.93	8.73	--	6.20	
A-28R	12/04/08	14.93	8.69	--	6.24	
A-28R	03/04/09	14.93	8.29	--	6.64	
A-28R	06/01/09	14.93	8.51	--	6.42	
A-28R	09/21/09	14.93	8.92	--	6.01	
A-28R	11/16/09	14.93	8.21	--	6.72	
A-28R	03/08/10	14.93	7.61	--	7.32	
A-28R	06/07/10	14.93	8.14	--	6.79	
A-28R	09/09/10	14.93	8.73	--	6.20	
A-28R	11/15/10	14.93	8.22	--	6.71	
A-28R	03/01/11	14.93	7.80	--	7.13	
A-28R	05/23/11	14.93	7.89	--	7.04	
A-28R	08/29/11	14.93	8.70	--	6.23	
A-28R	12/01/11	14.93	8.32	--	6.61	
A-28R	03/01/12	14.93	7.95	--	6.98	
A-28R	05/30/12	14.93	8.04	--	6.89	
A-28R	08/25/12	14.93	8.35	--	6.58	
A-28R	11/07/12	14.93	7.89	--	7.04	
A-28R	02/27/13	14.93	7.78	--	7.15	
A-28R	04/08/13	14.93	7.67	--	7.26	
A-28R	07/29/13	14.93	8.20	--	6.73	
A-28R	10/02/13	14.93	7.88	--	7.05	
A-28R	01/21/14	14.93	8.20	--	6.73	
A-28R	04/22/14	14.93	7.59	--	7.34	
A-28R	07/15/14	14.93	8.35	--	6.58	
A-28R	03/17/15	14.93	7.26	--	7.67	
A-28R	09/28/15	14.93	8.33	--	6.60	
A-28R	03/29/16	14.93	6.91	--	8.02	
A-28R	10/11/16	14.93	8.66	--	6.27	
A-28R	03/28/17	14.93	6.90	--	8.03	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
A-28R	10/10/17	14.93	8.63	--	6.30	
A-28R	03/28/18	14.93	7.78	--	7.15	
A-28R	10/02/18	14.93	8.61	--	6.32	
A-28R	04/02/19	14.93	7.67	--	7.26	
A-28R	10/01/19	14.93	8.50	--	6.43	
A-28R	03/25/20	14.93	7.70	--	7.23	
A-28R	10/19/20	14.93	8.33	--	6.60	
A-29	03/27/01	--	--	--	--	
A-29						Destroyed during construction activities of utility trench
A-29R	02/11/02	10.12	6.78	--	3.34	
A-29R	05/20/02	10.12	8.53	--	1.59	
A-29R	08/27/02	10.12	7.92	--	2.20	
A-29R	11/04/02	10.12	8.09	--	2.03	
A-29R	02/18/03	10.12	7.05	--	3.07	
A-29R	02/19/03	10.12	7.05	--	3.07	
A-29R	06/09/03	10.12	7.61	--	2.51	
A-29R	09/15/03	13.85	8.00	--	5.85	
A-29R	11/18/03	13.85	7.50	--	6.35	
A-29R	02/24/04	13.85	6.97	--	6.88	
A-29R	05/10/04	13.85	7.66	--	6.19	
A-29R	08/24/04	13.85	7.43	--	6.42	
A-29R	12/13/04	13.85	7.46	--	6.39	
A-29R	03/08/05	13.85	7.65	--	6.20	
A-29R	06/06/05	13.85	7.51	--	6.34	
A-29R	09/19/05	13.85	8.02	--	5.83	
A-29R	12/12/05	13.85	7.75	--	6.10	
A-29R	03/13/06	13.85	--	--	--	Not Measured-Inaccessible
A-29R	06/05/06	13.85	7.44	--	6.41	
A-29R	09/11/06	13.85	8.00	--	5.85	
A-29R	12/11/06	13.85	7.07	--	6.78	
A-29R	03/26/07	13.85	7.25	--	6.60	
A-29R	06/18/07	13.85	7.58	--	6.27	
A-29R	09/24/07	13.85	8.03	--	5.82	
A-29R	12/10/07	13.85	7.21	--	6.64	
A-29R	06/02/08	13.85	8.46	--	5.39	
A-29R	09/04/08	13.85	7.82	--	6.03	
A-29R	12/04/08	13.85	7.78	--	6.07	
A-29R	05/23/11	13.85	7.22	--	6.63	
3	02/11/02	9.78	5.71	--	4.07	Casing Damaged
3	05/20/02	9.78	7.97	--	1.81	Casing Damaged
3	08/27/02	9.78	7.57	--	2.21	Casing Damaged
3	11/04/02	9.78	7.82	--	1.96	Casing Damaged
3	02/18/03	9.78	6.02	--	3.76	Casing Damaged
3	06/09/03	9.78	7.16	--	2.62	Casing Damaged
3	06/11/03	--	--	--	--	
3						Abandoned
4	02/11/02	7.97	3.86	--	4.11	
4	05/20/02	7.97	6.07	--	1.90	
4	08/27/02	7.97	5.17	--	2.80	
4	11/04/02	7.97	5.40	--	2.57	
4	02/18/03	7.97	3.78	--	4.19	
4	02/19/03	7.97	3.78	--	4.19	
4	06/09/03	7.97	4.75	--	3.22	
4	09/15/03	11.01	5.37	--	5.64	Casing Broken
4	11/18/03	11.01	4.33	--	6.68	Casing Broken
4	02/24/04	11.01	3.91	--	7.10	Casing Broken
4	05/10/04	11.01	4.75	--	6.26	Casing Broken
4	08/24/04	11.01	4.94	--	6.07	Casing Broken
4	12/13/04	11.01	4.17	--	6.84	Casing Broken
4	03/08/05	11.01	3.80	--	7.21	Casing Broken
4	06/06/05	11.01	4.63	--	6.38	Casing Broken
4	09/19/05	11.01	--	--	--	Not Measured-Casing Broken
4	12/12/05	11.01	4.76	--	6.25	Casing Broken
4	03/13/06	11.01	3.82	--	7.19	Casing Broken
4	06/05/06	11.01	--	--	--	Not Measured-Casing Broken
4	09/11/06	11.01	--	--	--	Not Measured-Casing Broken
4	12/11/06	11.01	--	--	--	Not Measured-Casing Broken
5	02/11/02	8.30	3.73	--	4.57	Casing Damaged
5	05/20/02	8.30	5.89	--	2.41	Casing Damaged
5	08/27/02	8.30	5.40	--	2.90	Casing Damaged
5	11/04/02	8.30	5.74	--	2.56	Casing Damaged
5	02/18/03	8.30	4.20	--	4.10	Casing Damaged
5	06/11/03	--	--	--	--	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
5					Abandoned	
6	02/11/02	9.15	4.50	--	4.65	
6	05/20/02	9.15	6.88	--	2.27	
6	08/27/02	9.15	6.65	--	2.50	
6	11/04/02	9.15	6.99	--	2.16	
6	02/18/03	9.15	5.14	--	4.01	
6	06/09/03	9.15	6.24	--	2.91	
6	09/15/03	12.76	6.95	--	5.81	
6	11/18/03	12.76	5.56	--	7.20	
6	02/24/04	12.76	5.31	--	7.45	
6	05/10/04	12.76	6.24	--	6.52	
6	08/24/04	12.76	6.41	--	6.35	
6	12/13/04	12.76	4.28	--	8.48	
6	03/08/05	12.76	6.28	--	6.48	
6	06/06/05	12.76	5.94	--	6.82	
6	09/19/05	12.76	6.87	--	5.89	
6	12/12/05	12.76	6.13	--	6.63	
6	03/13/06	12.76	5.13	--	7.63	
6	06/05/06	12.76	5.68	--	7.08	
6	09/11/06	12.76	6.78	--	5.98	
6	12/11/06	12.76	5.52	--	7.24	
7	01/13/97	9.09	3.90	--	5.19	
7	10/06/00	9.09	6.80	--	2.29	
7	12/18/00	9.09	6.02	--	3.07	
7	03/27/01	9.09	6.44	--	2.65	
7	06/14/01	9.09	6.49	--	2.60	
7	09/21/01	9.09	6.91	--	2.18	
7	02/11/02	9.09	5.23	--	3.86	
7	05/20/02	9.09	7.31	--	1.78	
7	08/27/02	9.09	6.85	--	2.24	
7	11/04/02	9.09	7.07	--	2.02	
7	02/18/03	9.09	7.74	--	1.35	
7	06/09/03	9.09	6.45	--	2.64	
7	09/15/03	12.72	7.04	--	5.68	
7	11/18/03	12.72	6.11	--	6.61	
7	02/24/04	12.72	5.96	--	6.76	
7	05/10/04	12.72	6.62	--	6.10	
7	08/24/04	12.72	6.56	--	6.16	
7	12/13/04	12.72	6.00	--	6.72	
7	03/08/05	12.72	5.66	--	7.06	
7	06/06/05	12.72	6.45	--	6.27	
7	09/19/05	12.72	7.04	--	5.68	
7	12/12/05	12.72	6.69	--	6.03	
7	03/13/06	12.72	5.07	--	7.65	
7	06/05/06	12.72	7.40	--	5.32	
7	09/11/06	12.72	6.98	--	5.74	
7	12/11/06	12.72	5.62	--	7.10	
8	02/11/02	9.42	5.20	--	4.22	
8	05/20/02	9.42	7.52	--	1.90	Casing Tilted
8	08/27/02	9.42	7.12	--	2.30	Casing Tilted
8	11/04/02	9.42	7.25	--	2.17	Casing Tilted
8	02/18/03	9.42	5.79	--	3.63	Casing Tilted
8	06/11/03	--	--	--	--	
8					Abandoned	
9	02/11/02	9.36	4.26	--	5.10	
9	05/20/02	9.36	6.76	--	2.60	
9	08/27/02	9.36	6.38	--	2.98	
9	11/04/02	9.36	7.00	--	2.36	
9	02/18/03	9.36	4.94	--	4.42	
9	06/09/03	9.36	6.11	--	3.25	
9	09/15/03	12.89	6.96	--	5.93	
9	11/18/03	12.89	5.51	--	7.38	
9	02/24/04	12.89	5.19	--	7.70	
9	05/10/04	12.89	6.18	--	6.71	
9	08/24/04	12.89	3.46	--	9.43	
9	12/13/04	12.89	5.48	--	7.41	
9	03/08/05	12.89	6.36	--	6.53	
9	06/06/05	12.89	5.82	--	7.07	
9	09/19/05	12.89	6.87	--	6.02	
9	12/12/05	12.89	6.15	--	6.74	
9	03/13/06	12.89	5.02	--	7.87	
9	06/05/06	12.89	5.51	--	7.38	
9	09/11/06	12.89	6.80	--	6.09	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
9	12/11/06	12.89	4.79	--	8.10	
10	02/11/02	9.57	4.39	--	5.18	
10	05/20/02	9.57	6.98	--	2.59	
10	08/27/02	9.57	6.95	--	2.62	
10	11/04/02	9.57	7.29	--	2.28	
10	02/18/03	9.57	5.05	--	4.52	
10	06/09/03	9.57	6.34	--	3.23	
10	09/15/03	13.20	7.21	--	5.99	
10	11/18/03	13.20	5.62	--	7.58	
10	02/24/04	13.20	5.21	--	7.99	
10	05/10/04	13.20	6.47	--	6.73	
10	08/24/04	13.20	6.61	--	6.59	
10	12/13/04	13.20	5.48	--	7.72	
10	03/08/05	13.20	6.41	--	6.79	
10	06/06/05	13.20	6.09	--	7.11	
10	09/19/05	13.20	7.17	--	6.03	
10	12/12/05	13.20	6.29	--	6.91	
10	03/13/06	13.20	5.15	--	8.05	
10	06/05/06	13.20	5.70	--	7.50	
10	09/11/06	13.20	7.06	--	6.14	
10	12/11/06	13.20	4.88	--	8.32	
11	02/11/02	8.57	3.01	--	5.56	
11	05/20/02	8.57	5.61	--	2.96	
11	08/27/02	8.57	5.76	--	2.81	
11	11/04/02	8.57	6.03	--	2.54	
11	02/18/03	8.57	3.57	--	5.00	
11	06/09/03	8.57	4.98	--	3.59	
11	09/15/03	12.08	6.00	--	6.08	
11	11/18/03	12.08	2.38	--	9.70	
11	02/24/04	12.08	3.70	--	8.38	
11	05/10/04	12.08	5.07	--	7.01	
11	08/24/04	12.08	5.02	--	7.06	
11	12/13/04	12.08	4.12	--	7.96	
11	03/08/05	12.08	4.99	--	7.09	
11	06/06/05	12.08	4.74	--	7.34	
11	09/19/05	12.08	5.93	--	6.15	
11	12/12/05	12.08	4.95	--	7.13	
11	03/13/06	12.08	3.64	--	8.44	
11	06/05/06	12.08	4.32	--	7.76	
11	09/11/06	12.08	5.82	--	6.26	
11	12/11/06	12.08	3.91	--	8.17	
11	06/21/13	12.08	4.57	--	7.51	Baseline monitoring event
11	07/29/13	12.08	4.99	--	7.09	
11	08/26/13	12.08	4.99	--	7.09	Two-month monitoring event
11	10/02/13	12.08	3.96	--	8.12	
11	01/21/14	12.08	4.60	--	7.48	
11	04/22/14	12.08	3.29	--	8.79	
11	07/15/14	12.08	4.90	--	7.18	
11	03/17/15	12.08	2.41	--	9.67	
11	09/28/15	12.08	5.15	--	6.93	
11	03/29/16	12.08	2.91	--	9.17	
11	10/11/16	12.08	5.03	--	7.05	
11	03/28/17	12.08	2.58	--	9.50	
11	10/10/17	12.08	5.19	--	6.89	
11	03/28/18	12.08	3.94	--	8.14	
11	10/02/18	12.08	5.32	--	6.76	
11	04/02/19	12.08	4.33	--	7.75	
11	10/01/19	12.08	5.02	--	7.06	
11	03/25/20	12.08	3.86	--	8.22	
11	10/19/20	12.08	4.79	--	7.29	
12	02/11/02	9.06	3.57	0.04	5.52	
12	05/20/02	9.06	6.14	0.04	2.95	Casing Damaged
12	08/27/02	9.06	3.41	0.01	5.66	Casing Damaged
12	11/04/02	9.06	3.80	0.01	5.27	Casing Damaged
12	02/18/03	9.06	0.80	Sheen	8.26	Casing Damaged
12	06/09/03	9.06	2.99	Sheen	6.07	Casing Damaged
12	09/15/03	9.79	--	--	--	Not Measured-Not Located
12	11/18/03	9.79	--	--	--	Not Measured-surface water covering well
12	02/24/04	9.79	1.20	0.03	8.61	
12	05/10/04	9.79	2.80	--	6.99	
12	08/24/04	9.79	2.51	Sheen	7.28	
12	12/13/04	9.79	1.12	--	8.67	
12	03/08/05	9.79	2.87	--	6.92	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
12	06/06/05	9.79	5.16	--	4.63	
12	09/19/05	9.79	3.49	0.01	6.31	
12	12/12/05	9.79	2.40	--	7.39	
12	03/13/06	9.79	1.00	--	8.79	
12	06/05/06	9.79	1.27	--	8.52	
12	09/11/06	9.79	3.63	--	6.16	
12	12/11/06	9.79	1.31	--	8.48	
12	03/26/07	9.79	1.40	--	8.39	
12	06/18/07	9.79	2.74	--	7.05	
12	09/24/07	9.79	3.43	--	6.36	
12	12/10/07	9.79	1.88	Sheen	7.91	
12	03/03/08	9.79	2.04	Sheen	7.75	
12	06/02/08	9.79	2.98	--	6.81	
12	09/04/08	9.79	3.74	--	6.05	
12	12/04/08	9.79	2.79	Sheen	7.00	
12	03/04/09	9.79	2.25	Sheen	7.54	
12	06/01/09	9.79	2.31	Sheen	7.48	
12	09/21/09	9.79	3.30	Sheen	6.49	
12	11/16/09	9.79	1.62	Sheen	8.17	
12	03/08/10	9.79	1.34	Sheen	8.45	
12	06/07/10	9.79	1.62	Sheen	8.17	
12	09/09/10	9.79	3.28	Sheen	6.51	
12	11/15/10	9.79	1.92	--	7.87	
12	03/01/11	9.79	1.35	Sheen	8.44	
12	05/23/11	9.79	2.15	Sheen	7.64	
12	08/29/11	9.79	3.03	0.03	6.78	
12	12/01/11	9.79	2.13	--	7.66	
12	03/01/12	9.79	1.65	Sheen	8.14	
12	05/30/12	9.79	1.63	Sheen	8.16	
12	08/25/12	9.79	2.89	--	6.90	
12	11/07/12	9.79	1.46	--	8.33	
12	02/27/13	9.79	1.43	--	8.36	
12	04/08/13	9.79	0.24	--	9.55	
12	06/21/13	9.79	2.84	--	6.95	Baseline monitoring event
12	07/29/13	9.79	3.95	--	5.84	
12	08/26/13	9.79	1.91	--	7.88	Two-month monitoring event
12	10/02/13	9.79	1.14	--	8.65	
12	01/21/14	9.79	2.11	--	7.68	
12	04/22/14	9.79	0.88	Sheen	8.91	
12	07/15/14	9.79	2.61	--	7.18	
12	03/17/15	9.79	0.07	--	9.72	
12	09/28/15	9.79	2.55	--	7.24	
12	03/30/16	9.79	0.70	--	9.09	Gauged on March 30, 2016
12	10/11/16	9.79	2.18	--	7.61	
12	03/28/17	9.79	0.12	--	9.67	
12	10/10/17	9.79	2.57	--	7.22	
12	03/28/18	9.79	1.44	--	8.35	
12	10/02/18	9.79	2.79	--	7.00	
12	04/02/19	9.79	1.95	--	7.84	
12	10/01/19	9.79	2.09	--	7.70	
12	03/25/20	9.79	1.50	--	8.29	
12	10/19/20	9.79	2.35	--	7.44	
13	02/11/02	9.77	5.06	--	4.71	
13	05/20/02	9.77	7.30	--	2.47	
13	08/27/02	9.77	7.15	--	2.62	
13	11/04/02	--	--	--	--	Not Measured-Recently destroyed
13	06/11/03	--	--	--	--	
13					Abandoned	
14	06/11/03	--	--	--	--	
14					Abandoned	
15	02/11/02	8.69	3.45	--	5.24	Casing Damaged
15	05/20/02	8.69	6.12	--	2.57	Casing Broken
15	08/27/02	8.69	5.94	--	2.75	Casing Broken
15	11/04/02	8.69	6.25	--	2.44	Casing Broken
15	02/18/03	8.69	3.71	--	4.98	Casing Broken
15	06/11/03	--	--	--	--	
15					Abandoned	
16	02/11/02	9.73	4.50	--	5.23	
16	05/20/02	9.73	7.12	--	2.61	
16	08/27/02	9.73	7.14	--	2.59	
16	11/04/02	9.73	7.46	--	2.27	
16	02/18/03	9.73	5.12	--	4.61	
16	06/09/03	9.73	6.51	--	3.22	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
16	09/15/03	13.29	7.37	--	5.92	
16	11/18/03	13.29	5.60	--	7.69	
16	02/24/04	13.29	5.46	--	7.83	
16	05/10/04	13.29	6.42	--	6.87	
16	08/24/04	13.29	6.81	--	6.48	
16	12/13/04	13.29	5.94	--	7.35	
16	03/08/05	13.29	6.51	--	6.78	
16	06/06/05	13.29	6.24	--	7.05	
16	09/19/05	13.29	7.30	--	5.99	
16	12/12/05	13.29	6.46	--	6.83	
16	03/13/06	13.29	5.20	--	8.09	
16	06/05/06	13.29	5.76	--	7.53	
16	09/11/06	13.29	7.21	--	6.08	
16	12/11/06	13.29	4.88	--	8.41	
17	02/11/02	11.48	6.39	--	5.09	
17	05/20/02	11.48	8.61	--	2.87	
17	08/27/02	11.48	8.68	--	2.80	
17	11/04/02	11.48	9.06	--	2.42	
17	02/18/03	11.48	6.92	--	4.56	
17	06/09/03	11.48	7.95	--	3.53	
17	09/15/03	15.06	8.89	--	6.17	
17	11/18/03	15.06	8.51	--	6.55	
17	02/24/04	15.06	6.45	--	8.61	
17	05/10/04	15.06	7.90	--	7.16	
17	08/24/04	15.06	8.45	--	6.61	
17	12/13/04	15.06	7.83	--	7.23	
17	03/08/05	15.06	7.81	--	7.25	
17	06/06/05	15.06	7.73	--	7.33	
17	09/19/05	15.06	8.75	--	6.31	
17	12/12/05	15.06	8.03	--	7.03	
17	03/13/06	15.06	6.57	--	8.49	
17	06/05/06	15.06	6.22	--	8.84	
17	09/11/06	15.06	8.68	--	6.38	
17	12/11/06	15.06	6.53	--	8.53	
19	02/11/02	9.13	3.75	--	5.38	
19	05/20/02	9.13	6.10	--	3.03	
19	08/27/02	9.13	6.28	--	2.85	
19	11/04/02	9.13	6.66	--	2.47	
19	02/18/03	9.13	4.33	--	4.80	
19	06/09/03	9.13	5.41	--	3.72	
19	09/15/03	12.74	6.51	--	6.23	
19	11/18/03	12.74	3.67	--	9.07	
19	02/24/04	12.74	4.25	--	8.49	
19	05/10/04	12.74	5.48	--	7.26	
19	08/24/04	12.74	5.87	--	6.87	
19	12/13/04	12.74	5.15	--	7.59	
19	03/08/05	12.74	5.45	--	7.29	
19	06/06/05	12.74	5.24	--	7.50	
19	09/19/05	12.74	6.36	--	6.38	
19	12/12/05	12.74	5.60	--	7.14	
19	03/13/06	12.74	4.02	--	8.72	
19	06/05/06	12.74	4.89	--	7.85	
19	09/11/06	12.74	6.31	--	6.43	
19	12/11/06	12.74	3.78	--	8.96	
20	02/11/02	8.88	3.15	--	5.73	
20	05/20/02	8.88	5.67	--	3.21	
20	08/27/02	8.88	5.91	--	2.97	
20	11/04/02	8.88	6.32	--	2.56	
20	02/18/03	8.88	3.77	--	5.11	
20	06/09/03	8.88	5.04	--	3.84	
20	09/15/03	12.49	6.16	--	6.33	
20	11/18/03	12.49	5.10	--	7.39	
20	02/24/04	12.49	3.81	--	8.68	
20	05/10/04	12.49	5.12	--	7.37	
20	08/24/04	12.49	5.45	--	7.04	
20	12/13/04	12.49	4.64	--	7.85	
20	03/08/05	12.49	5.11	--	7.38	
20	06/06/05	12.49	4.90	--	7.59	
20	09/19/05	12.49	6.08	--	6.41	
20	12/12/05	12.49	5.32	--	7.17	
20	03/13/06	12.49	3.64	--	8.85	
20	06/05/06	12.49	4.44	--	8.05	
20	09/11/06	12.49	5.98	--	6.51	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
20	12/11/06	12.49	3.47	--	9.02	
21	02/11/02	9.42	3.58	--	5.84	
21	05/20/02	9.42	6.18	--	3.24	
21	08/27/02	9.42	6.43	--	2.99	
21	11/04/02	9.42	6.81	--	2.61	
21	02/18/03	9.42	4.18	--	5.24	
21	06/09/03	9.42	5.56	--	3.86	
21	09/15/03	13.04	6.68	--	6.36	
21	11/18/03	13.04	5.03	--	8.01	
21	02/24/04	13.04	4.30	--	8.74	
21	05/10/04	13.04	6.56	--	6.48	
21	08/24/04	13.04	6.04	--	7.00	
21	12/13/04	13.04	5.02	--	8.02	
21	03/08/05	13.04	5.62	--	7.42	
21	06/06/05	13.04	5.43	--	7.61	
21	09/19/05	13.04	6.63	--	6.41	
21	12/12/05	13.04	5.70	--	7.34	
21	03/13/06	13.04	4.19	--	8.85	
21	06/05/06	13.04	4.96	--	8.08	
21	09/11/06	13.04	6.50	--	6.54	
21	12/11/06	13.04	3.99	--	9.05	
22	02/11/02	9.57	3.72	--	5.85	
22	05/20/02	9.57	6.21	--	3.36	
22	08/27/02	9.57	6.55	--	3.02	
22	11/04/02	9.57	6.89	--	2.68	
22	02/18/03	9.57	4.27	--	5.30	
22	06/09/03	9.57	5.60	--	3.97	
22	09/15/03	13.19	6.75	--	6.44	
22	11/18/03	13.19	5.07	--	8.12	
22	02/24/04	13.19	4.39	--	8.80	
22	05/10/04	13.19	5.75	--	7.44	
22	08/24/04	13.19	6.23	--	6.96	
22	12/13/04	13.19	5.04	--	8.15	
22	03/08/05	13.19	5.77	--	7.42	
22	06/06/05	13.19	5.55	--	7.64	
22	09/19/05	13.19	6.75	--	6.44	
22	12/12/05	13.19	5.80	--	7.39	
22	03/13/06	13.19	4.35	--	8.84	
22	06/05/06	13.19	5.04	--	8.15	
22	09/11/06	13.19	6.66	--	6.53	
22	12/11/06	13.19	4.11	--	9.08	
23	02/11/02	8.94	3.51	--	5.43	
23	05/20/02	8.94	5.93	--	3.01	
23	08/27/02	8.94	5.93	--	3.01	
23	11/04/02	8.94	6.29	--	2.65	
23	02/18/03	8.94	4.04	--	4.90	
23	06/09/03	8.94	5.26	--	3.68	
23	09/15/03	12.55	6.19	--	6.36	
23	11/18/03	12.55	6.11	--	6.44	
23	02/24/04	12.55	4.20	--	8.35	
23	05/10/04	12.55	5.35	--	7.20	
23	08/24/04	12.55	5.78	--	6.77	
23	12/13/04	12.55	4.73	--	7.82	
23	03/08/05	12.55	5.37	--	7.18	
23	06/06/05	12.55	5.16	--	7.39	
23	09/19/05	12.55	6.46	--	6.09	
23	12/12/05	12.55	5.40	--	7.15	
23	03/13/06	12.55	4.03	--	8.52	
23	06/05/06	12.55	4.79	--	7.76	
23	09/11/06	12.55	6.13	--	6.42	
23	12/11/06	12.55	4.01	--	8.54	
24	06/11/03	--	--	--	--	
24					Abandoned	
25	02/11/02	9.48	3.76	--	5.72	
25	05/20/02	9.48	6.19	--	3.29	
25	08/27/02	9.48	6.33	--	3.15	
25	11/04/02	9.48	6.74	--	2.74	Casing Tilted
25	02/18/03	9.48	4.13	--	5.35	Casing Tilted
25	06/11/03	--	--	--	--	
25					Abandoned	
26	02/11/02	9.43	3.70	--	5.73	
26	05/20/02	9.43	--	--	--	Not Measured-Dry
26	08/27/02	9.43	6.02	--	3.41	



**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
26	11/04/02	9.43	5.97	--	3.46	
26	02/18/03	9.43	5.11	--	4.32	
26	06/09/03	9.43	6.02	--	3.41	
26	09/15/03	13.87	6.01	--	7.86	
26	11/18/03	13.87	4.32	--	9.55	
26	02/24/04	13.87	5.14	--	8.73	
26	05/10/04	13.87	6.05	--	7.82	
26	08/24/04	13.87	5.19	--	8.68	
26	12/13/04	13.87	5.99	--	7.88	
26	03/08/05	13.87	6.02	--	7.85	
26	06/06/05	13.87	6.02	--	7.85	
26	09/19/05	13.87	4.51	--	9.36	
26	12/12/05	13.87	6.05	--	7.82	
26	03/13/06	13.87	5.00	--	8.87	
26	06/05/06	13.87	5.78	--	8.09	
26	09/11/06	13.87	7.01	--	6.86	
26	12/11/06	13.87	4.81	--	9.06	
27	02/11/02	9.20	3.57	--	5.63	
27	05/20/02	9.20	6.00	--	3.20	
27	08/27/02	9.20	6.21	--	2.99	
27	11/04/02	9.20	6.63	--	2.57	
27	02/18/03	9.20	4.03	--	5.17	
27	06/09/03	9.01	5.22	--	3.79	
27	09/15/03	12.65	6.36	--	6.29	
27	11/18/03	12.65	5.84	--	6.81	
27	02/24/04	12.65	4.04	--	8.61	
27	05/10/04	12.65	5.31	--	7.34	
27	08/24/04	12.65	5.71	--	6.94	
27	12/13/04	12.65	4.91	--	7.74	
27	03/08/05	12.65	5.28	--	7.37	
27	06/06/05	12.65	5.13	--	7.52	
27	09/19/05	12.65	6.22	--	6.43	
27	12/12/05	12.65	5.40	--	7.25	
27	03/13/06	12.65	3.82	--	8.83	
27	06/05/06	12.65	4.66	--	7.99	
27	09/11/06	12.65	6.16	--	6.49	
27	12/11/06	12.65	3.60	--	9.05	
MW-1	02/11/02	9.37	4.60	--	4.77	
MW-1	05/20/02	9.37	6.75	--	2.62	
MW-1	08/27/02	9.37	6.51	--	2.86	
MW-1	11/04/02	9.37	6.90	--	2.47	
MW-1	02/18/03	9.37	5.10	--	4.27	
MW-1	06/09/03	9.37	5.94	--	3.43	
MW-1	09/15/03	13.21	6.72	--	6.49	
MW-1	11/18/03	13.21	5.91	--	7.30	
MW-1	02/24/04	13.21	5.05	--	8.16	
MW-1	05/10/04	13.21	6.06	--	7.15	
MW-1	08/24/04	13.21	6.45	--	6.76	
MW-1	12/13/04	13.21	5.63	--	7.58	
MW-1	03/08/05	13.21	6.09	--	7.12	
MW-1	06/06/05	13.21	6.93	--	6.28	
MW-1	09/19/05	13.21	6.74	--	6.47	
MW-1	12/12/05	13.21	6.16	--	7.05	
MW-1	03/13/06	13.21	4.96	--	8.25	
MW-1	06/05/06	13.21	5.72	--	7.49	
MW-1	09/11/06	13.21	6.72	--	6.49	
MW-1	12/11/06	13.21	5.20	--	8.01	
MW-1	03/26/07	13.21	5.24	--	7.97	
MW-1	06/18/07	13.21	5.98	--	7.23	
MW-1	09/25/07	13.21	6.72	--	6.49	
MW-1	12/10/07	13.21	5.34	--	7.87	
MW-1	03/03/08	13.21	5.70	--	7.51	
MW-1	06/02/08	13.21	6.30	--	6.91	
MW-1	09/04/08	13.21	6.48	--	6.73	
MW-1	12/04/08	13.21	6.33	--	6.88	
MW-1	03/04/09	13.21	--	--	--	Not Measured-Inaccessible
MW-1	06/01/09	13.21	6.00	--	7.21	
MW-1	09/21/09	13.21	6.75	--	6.46	
MW-1	11/16/09	13.21	5.62	--	7.59	
MW-1	03/08/10	13.21	5.05	--	8.16	
MW-1	06/07/10	13.21	5.48	--	7.73	
MW-1	09/09/10	13.21	6.55	--	6.66	
MW-1	11/15/10	13.21	5.71	--	7.50	

**Appendix D**  
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**Kinder Morgan Liquids Terminals, LLC**  
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**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-1	03/01/11	13.21	4.97	--	8.24	
MW-1	05/23/11	13.21	5.04	--	8.17	
MW-1	08/29/11	13.21	6.35	--	6.86	
MW-1	12/01/11	13.21	5.80	--	7.41	
MW-1	03/01/12	13.21	5.59	--	7.62	
MW-1	05/30/12	13.21	5.55	--	7.66	
MW-1	08/25/12	13.21	6.25	--	6.96	
MW-1	11/07/12	13.21	5.58	--	7.63	
MW-1	02/27/13	13.21	5.24	--	7.97	
MW-1	04/08/13	13.21	5.12	--	8.09	
MW-1	07/29/13	13.21	6.19	--	7.02	
MW-1	10/02/13	13.21	5.83	--	7.38	
MW-1	01/21/14	13.21	5.96	--	7.25	
MW-1	04/22/14	13.21	5.05	--	8.16	
MW-1	07/15/14	13.21	5.90	--	7.31	
MW-1	03/17/15	13.21	4.73	--	8.48	
MW-1	09/28/15	13.21	6.30	--	6.91	
MW-1	03/29/16	13.21	4.18	--	9.03	
MW-1	10/11/16	13.21	6.35	--	6.86	
MW-1	03/28/17	13.21	3.67	--	9.54	
MW-1	10/10/17	13.21	6.03	--	7.18	
MW-1	03/28/18	13.21	5.08	--	8.13	
MW-1	10/02/18	13.21	6.44	--	6.77	
MW-1	04/02/19	13.21	6.35	--	6.86	
MW-1	10/01/19	13.21	6.21	--	7.00	
MW-1	03/25/20	13.21	5.07	--	8.14	
MW-1	10/19/20	13.21	5.89	--	7.32	
MW-2	02/11/02	11.33	6.13	--	5.20	
MW-2	05/20/02	11.33	8.40	--	2.93	
MW-2	08/27/02	11.33	8.50	--	2.83	
MW-2	11/04/02	11.33	8.85	--	2.48	
MW-2	02/18/03	11.33	6.10	--	5.23	
MW-2	06/09/03	11.33	7.68	--	3.65	
MW-2	09/15/03	15.22	8.71	--	6.51	
MW-2	11/18/03	15.22	7.60	--	7.62	
MW-2	02/24/04	15.22	6.56	--	8.66	
MW-2	05/10/04	15.22	7.78	--	7.44	
MW-2	08/24/04	15.22	8.33	--	6.89	
MW-2	12/13/04	15.22	7.69	--	7.53	
MW-2	03/08/05	15.22	7.72	--	7.50	
MW-2	06/06/05	15.22	7.61	--	7.61	
MW-2	09/19/05	15.22	8.58	--	6.64	
MW-2	12/12/05	15.22	7.86	--	7.36	
MW-2	03/13/06	15.22	6.38	--	8.84	
MW-2	06/05/06	15.22	7.39	--	7.83	
MW-2	09/11/06	15.22	8.50	--	6.72	
MW-2	12/11/06	15.22	6.37	--	8.85	
MW-2	03/26/07	15.22	6.71	--	8.51	
MW-2	06/18/07	15.22	7.68	--	7.54	
MW-2	09/24/07	15.22	8.84	--	6.38	
MW-2	12/10/07	15.22	6.85	--	8.37	
MW-2	03/03/08	15.22	7.14	--	8.08	
MW-2	06/02/08	15.22	7.91	--	7.31	
MW-2	09/04/08	15.22	8.33	--	6.89	
MW-2	12/04/08	15.22	8.01	--	7.21	
MW-2	03/04/09	15.22	7.43	--	7.79	
MW-2	06/01/09	15.22	7.54	--	7.68	
MW-2	09/21/09	15.22	8.52	--	6.70	
MW-2	11/16/09	15.22	7.28	--	7.94	
MW-2	03/08/10	15.22	6.42	--	8.80	
MW-2	06/07/10	15.22	7.00	--	8.22	
MW-2	09/09/10	15.22	8.26	--	6.96	
MW-2	11/15/10	15.22	7.21	--	8.01	
MW-2	03/01/11	15.22	6.26	--	8.96	
MW-2	05/23/11	15.22	6.39	--	8.83	
MW-2	08/29/11	15.22	8.01	--	7.21	
MW-2	12/01/11	15.22	7.56	--	7.66	
MW-2	03/01/12	15.22	7.03	--	8.19	
MW-2	05/30/12	15.22	6.97	--	8.25	
MW-2	08/25/12	15.22	7.88	--	7.34	
MW-2	11/07/12	15.22	7.34	--	7.88	
MW-2	02/27/13	15.22	6.59	--	8.63	
MW-2	04/08/13	15.22	6.36	--	8.86	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-2	07/29/13	15.22	7.82	--	7.40	
MW-2	10/02/13	15.22	7.44	--	7.78	
MW-2	01/21/14	15.22	7.55	--	7.67	
MW-2	04/22/14	15.22	6.21	--	9.01	
MW-2	07/15/14	15.22	7.47	--	7.75	
MW-2	03/17/15	15.22	5.35	--	9.87	
MW-2	09/28/15	15.22	7.99	--	7.23	
MW-2	03/29/16	15.22	5.29	--	9.93	
MW-2	10/11/16	15.22	8.20	--	7.02	
MW-2	03/28/17	15.22	4.51	--	10.71	
MW-2	10/10/17	15.22	8.12	--	7.1	
MW-2	03/28/18	15.22	6.47	--	8.75	
MW-2	10/02/18	15.22	8.29	--	6.93	
MW-2	04/02/19	15.22	6.81	--	8.41	
MW-2	10/01/19	15.22	8.08	--	7.14	
MW-2	03/25/20	15.22	6.43	--	8.79	
MW-2	10/19/20	15.22	7.63	--	7.59	
MW-3	02/11/02	7.49	1.82	--	5.67	
MW-3	05/20/02	7.49	4.27	--	3.22	
MW-3	08/27/02	7.49	4.50	--	2.99	
MW-3	11/04/02	7.49	4.92	--	2.57	
MW-3	02/18/03	7.49	2.38	--	5.11	
MW-3	06/09/03	7.49	3.67	--	3.82	
MW-3	09/15/03	11.39	4.81	--	6.58	
MW-3	11/18/03	11.39	2.97	--	8.42	
MW-3	02/24/04	11.39	2.45	--	8.94	
MW-3	05/10/04	11.39	3.64	--	7.75	
MW-3	08/24/04	11.39	4.14	--	7.25	
MW-3	12/13/04	11.39	3.22	--	8.17	
MW-3	03/08/05	11.39	3.70	--	7.69	
MW-3	06/06/05	11.39	3.51	--	7.88	
MW-3	09/19/05	11.39	4.65	--	6.74	
MW-3	12/12/05	11.39	3.81	--	7.58	
MW-3	03/13/06	11.39	2.43	--	8.96	
MW-3	06/05/06	11.39	3.05	--	8.34	
MW-3	09/11/06	11.39	4.58	--	6.81	
MW-3	12/11/06	11.39	2.00	--	9.39	
MW-3	03/26/07	11.39	2.46	--	8.93	
MW-3	06/18/07	11.39	3.81	--	7.58	
MW-3	09/24/07	11.39	4.58	--	6.81	
MW-3	12/10/07	11.39	2.53	--	8.86	
MW-3	03/03/08	11.39	3.10	--	8.29	
MW-3	06/02/08	11.39	3.88	--	7.51	
MW-3	09/04/08	11.39	4.27	--	7.12	
MW-3	12/04/08	11.39	3.99	--	7.40	
MW-3	03/04/09	11.39	3.28	--	8.11	
MW-3	06/01/09	11.39	3.48	--	7.91	
MW-3	09/21/09	11.39	4.51	--	6.88	
MW-3	11/16/09	11.39	2.97	--	8.42	
MW-3	03/08/10	11.39	2.32	--	9.07	
MW-3	06/07/10	11.39	2.86	--	8.53	
MW-3	09/09/10	11.39	4.23	--	7.16	
MW-3	11/15/10	11.39	2.99	--	8.40	
MW-3	03/01/11	11.39	1.86	--	9.53	
MW-3	05/23/11	11.39	2.03	--	9.36	
MW-3	08/29/11	11.39	4.02	--	7.37	
MW-3	12/01/11	11.39	3.27	--	8.12	
MW-3	03/01/12	11.39	2.99	--	8.40	
MW-3	05/30/12	11.39	2.93	--	8.46	
MW-3	08/25/12	11.39	3.90	--	7.49	
MW-3	11/07/12	11.39	3.10	--	8.29	
MW-3	02/27/13	11.39	2.23	--	9.16	
MW-3	04/08/13	11.39	2.04	--	9.35	
MW-3	07/29/13	11.39	3.78	--	7.61	
MW-3	10/02/13	11.39	3.06	--	8.33	
MW-3	01/21/14	11.39	3.43	--	7.96	
MW-3	04/22/14	11.39	2.06	--	9.33	
MW-3	07/15/14	11.39	3.51	--	7.88	
MW-3	03/17/15	11.39	1.30	--	10.09	
MW-3	09/28/15	11.39	4.02	--	7.37	
MW-3	03/29/16	11.39	1.47	--	9.92	
MW-3	10/11/16	11.39	4.01	--	7.38	
MW-3	03/28/17	11.39	0.65	--	10.74	

**Appendix D**  
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**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-3	10/10/17	11.39	4.09	--	7.30	
MW-3	03/28/18	11.39	2.44	--	8.95	
MW-3	10/02/18	11.39	4.48	--	6.91	
MW-3	04/02/19	11.39	2.88	--	8.51	
MW-3	10/01/19	11.39	4.00	--	7.39	
MW-3	03/25/20	11.39	2.44	--	8.95	
MW-3	10/19/20	11.39	3.57	--	7.82	
MW-4	02/11/02	10.44	5.24	--	5.20	
MW-4	05/20/02	10.44	7.60	--	2.84	
MW-4	08/27/02	10.44	7.40	--	3.04	
MW-4	11/04/02	10.44	7.90	0.15	2.66	
MW-4	02/18/03	10.44	5.79	--	4.65	
MW-4	06/09/03	10.44	6.81	--	3.63	
MW-4	09/15/03	14.69	7.70	0.01	7.00	
MW-4	11/18/03	14.69	6.71	Sheen	7.98	
MW-4	02/24/04	14.69	5.82	Sheen	8.87	
MW-4	05/10/04	14.69	6.93	Sheen	7.76	
MW-4	08/24/04	14.69	7.24	--	7.45	
MW-4	12/13/04	14.69	6.45	Sheen	8.24	
MW-4	03/08/05	14.69	6.94	--	7.75	
MW-4	06/06/05	14.69	6.71	--	7.98	
MW-4	09/19/05	14.69	7.67	--	7.02	
MW-4	12/12/05	14.69	6.97	--	7.72	
MW-4	03/13/06	14.69	5.77	--	8.92	
MW-4	06/05/06	14.69	6.42	--	8.27	
MW-4	09/11/06	14.69	7.61	--	7.08	
MW-4	12/11/06	14.69	5.81	--	8.88	
MW-4	03/26/07	14.69	5.96	--	8.73	
MW-4	06/18/07	14.69	6.99	--	7.70	
MW-4	09/25/07	14.69	7.46	--	7.23	
MW-4	12/10/07	14.69	5.93	--	8.76	
MW-4	03/03/08	14.69	6.44	--	8.25	
MW-4	06/02/08	14.69	7.37	--	7.32	
MW-4	09/04/08	14.69	7.20	--	7.49	
MW-4	12/04/08	14.69	7.77	--	6.92	
MW-4	03/04/09	14.69	6.68	--	8.01	
MW-4	06/01/09	14.69	6.78	--	7.91	
MW-4	09/21/09	14.69	7.56	--	7.13	
MW-4	11/16/09	14.69	6.34	--	8.35	
MW-4	03/08/10	14.69	5.86	--	8.83	
MW-4	06/07/10	14.69	6.27	--	8.42	
MW-4	09/09/10	14.69	7.40	--	7.29	
MW-4	11/15/10	14.69	6.39	--	8.30	
MW-4	03/01/11	14.69	5.70	--	8.99	
MW-4	05/23/11	14.69	5.74	--	8.95	
MW-4	08/29/11	14.69	7.25	--	7.44	
MW-4	12/01/11	14.69	6.52	--	8.17	
MW-4	03/01/12	14.69	6.38	--	8.31	
MW-4	05/30/12	14.69	6.33	--	8.36	
MW-4	08/25/12	14.69	7.05	--	7.64	
MW-4	11/07/12	14.69	6.31	--	8.38	
MW-4	02/27/13	14.69	6.02	--	8.67	
MW-4	04/08/13	14.69	5.74	--	8.95	
MW-4	07/29/13	14.69	7.02	--	7.67	
MW-4	10/02/13	14.69	6.53	--	8.16	
MW-4	01/21/14	14.69	6.75	--	7.94	
MW-4	04/22/14	14.69	5.84	--	8.85	
MW-4	07/15/14	14.69	6.85	--	7.84	
MW-4	03/17/15	14.69	5.21	--	9.48	
MW-4	09/28/15	14.69	7.05	--	7.64	
MW-4	03/29/16	14.69	4.31	--	10.38	
MW-4	10/11/16	14.69	7.21	--	7.48	
MW-4	03/28/17	14.69	4.55	--	10.14	
MW-4	10/10/17	14.69	7.16	--	7.53	
MW-4	03/28/18	14.69	5.93	--	8.76	
MW-4	10/02/18	14.69	7.40	--	7.29	
MW-4	04/02/19	14.69	6.26	--	8.43	
MW-4	10/01/19	14.69	7.14	--	7.55	
MW-4	03/25/20	14.69	6.02	--	8.67	
MW-4	10/19/20	14.69	6.79	--	7.9	
MW-5	02/11/02	7.10	1.50	--	5.60	
MW-5	05/20/02	7.10	4.06	--	3.04	
MW-5	08/27/02	7.10	4.23	--	2.87	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-5	11/04/02	7.10	4.63	--	2.47	
MW-5	02/18/03	7.10	1.98	--	5.12	
MW-5	06/09/03	7.10	3.47	--	3.63	
MW-5	09/15/03	11.13	4.49	--	6.64	
MW-5	11/18/03	11.13	2.81	--	8.32	
MW-5	02/24/04	11.13	2.11	--	9.02	
MW-5	05/10/04	11.13	3.50	--	7.63	
MW-5	08/24/04	11.13	3.71	--	7.42	
MW-5	12/13/04	11.13	2.75	--	8.38	
MW-5	03/08/05	11.13	3.53	--	7.60	
MW-5	06/06/05	11.13	3.22	--	7.91	
MW-5	09/19/05	11.13	4.33	--	6.80	
MW-5	12/12/05	11.13	3.43	--	7.70	
MW-5	03/13/06	11.13	2.10	--	9.03	
MW-5	06/05/06	11.13	2.59	--	8.54	
MW-5	09/11/06	11.13	4.33	--	6.80	
MW-5	12/11/06	11.13	1.70	--	9.43	
MW-5	03/26/07	11.13	2.22	--	8.91	
MW-5	06/18/07	11.13	--	--	--	Not Measured-No Access due to construction
MW-5	09/24/07	11.13	4.28	--	6.85	
MW-5	12/10/07	11.13	2.06	--	9.07	
MW-5	03/03/08	11.13	2.81	--	8.32	
MW-5	06/02/08	11.13	3.36	--	7.77	
MW-5	09/04/08	11.13	3.91	--	7.22	
MW-5	12/04/08	11.13	3.64	--	7.49	
MW-5	03/04/09	11.13	2.98	--	8.15	
MW-5	06/01/09	11.13	3.21	--	7.92	
MW-5	09/21/09	11.13	4.23	--	6.90	
MW-5	11/16/09	11.13	2.50	--	8.63	
MW-5	03/08/10	11.13	2.11	--	9.02	
MW-5	06/07/10	11.13	2.55	--	8.58	
MW-5	09/09/10	11.13	3.93	--	7.20	
MW-5	11/15/10	11.13	2.55	--	8.58	
MW-5	03/01/11	11.13	1.63	--	9.50	
MW-5	05/23/11	11.13	2.00	--	9.13	
MW-5	08/29/11	11.13	3.82	--	7.31	
MW-5	12/01/11	11.13	2.80	--	8.33	
MW-5	03/01/12	11.13	2.66	--	8.47	
MW-5	05/30/12	11.13	2.73	--	8.40	
MW-5	08/25/12	11.13	3.54	--	7.59	
MW-5	11/07/12	11.13	2.56	--	8.57	
MW-5	02/27/13	11.13	2.20	--	8.93	
MW-5	04/08/13	11.13	1.69	--	9.44	
MW-5	07/29/13	11.13	3.41	--	7.72	
MW-5	10/02/13	11.13	2.51	--	8.62	
MW-5	01/21/14	11.13	3.11	--	8.02	
MW-5	04/22/14	11.13	1.79	--	9.34	
MW-5	07/15/14	11.13	3.29	--	7.84	
MW-5	03/17/15	11.13	1.04	--	10.09	
MW-5	09/28/15	11.13	3.65	--	7.48	
MW-5	03/29/16	11.13	1.26	--	9.87	
MW-5	10/11/16	11.13	3.56	--	7.57	
MW-5	03/28/17	11.13	0.96	--	10.17	
MW-5	10/10/17	11.13	3.70	--	7.43	Biofilm
MW-5	03/28/18	11.13	2.31	--	8.82	
MW-5	10/02/18	11.13	3.88	--	7.25	
MW-5	04/02/19	11.13	2.71	--	8.42	
MW-5	10/01/19	11.13	3.53	--	7.60	
MW-5	03/25/20	11.13	2.21	--	8.92	
MW-5	10/19/20	11.13	3.25	--	7.88	
MW-6	02/11/02	11.15	6.35	--	4.8	
MW-6	05/20/02	11.15	8.48	--	2.67	
MW-6	08/27/02	11.15	8.45	--	2.7	
MW-6	11/04/02	11.15	8.80	--	2.35	
MW-6	02/18/03	11.15	6.85	--	4.30	
MW-6	06/09/03	11.15	7.74	--	3.41	
MW-6	09/15/03	15.17	8.65	--	6.52	
MW-6	11/18/03	15.17	7.60	--	7.57	
MW-6	02/24/04	15.17	6.61	--	8.56	
MW-6	05/10/04	15.17	7.76	--	7.41	
MW-6	08/24/04	15.17	8.28	--	6.89	
MW-6	12/13/04	15.17	7.67	--	7.50	
MW-6	03/08/05	15.17	7.70	--	7.47	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-6	06/06/05	15.17	7.55	--	7.62	
MW-6	09/19/05	15.17	8.48	--	6.69	
MW-6	12/12/05	15.17	7.89	--	7.28	
MW-6	03/13/06	15.17	6.46	--	8.71	
MW-6	06/05/06	15.17	7.25	--	7.92	
MW-6	09/11/06	15.17	8.43	--	6.74	
MW-6	12/11/06	15.17	6.50	--	8.67	
MW-6	03/26/07	15.17	6.61	--	8.56	
MW-6	06/18/07	15.17	7.76	--	7.41	
MW-6	09/24/07	15.17	8.43	--	6.74	
MW-6	12/10/07	15.17	6.93	--	8.24	
MW-6	03/03/08	15.17	7.09	--	8.08	
MW-6	06/02/08	15.17	7.88	--	7.29	
MW-6	09/04/08	15.17	8.19	--	6.98	
MW-6	12/04/08	15.17	7.95	--	7.22	
MW-6	03/04/09	15.17	7.41	--	7.76	
MW-6	06/01/09	15.17	7.54	--	7.63	
MW-6	09/21/09	15.17	8.42	--	6.75	
MW-6	11/16/09	15.17	7.30	--	7.87	
MW-6	03/08/10	15.17	6.45	--	8.72	
MW-6	06/07/10	15.17	7.09	--	8.08	
MW-6	09/09/10	15.17	8.10	--	7.07	
MW-6	11/15/10	15.17	7.21	--	7.96	
MW-6	03/01/11	15.17	6.24	--	8.93	
MW-6	05/23/11	15.17	6.42	--	8.75	
MW-6	08/29/11	15.17	7.92	--	7.25	
MW-6	12/01/11	15.17	7.45	--	7.72	
MW-6	03/01/12	15.17	6.97	--	8.20	
MW-6	05/30/12	15.17	6.91	--	8.26	
MW-6	08/25/12	15.17	7.09	--	8.08	
MW-6	11/07/12	15.17	7.12	--	8.05	
MW-6	02/27/13	15.17	6.59	--	8.58	
MW-6	04/08/13	15.17	6.22	--	8.95	
MW-6	07/29/13	15.17	7.34	--	7.83	
MW-6	10/02/13	15.17	6.98	--	8.19	
MW-6	01/21/14	15.17	7.21	--	7.96	
MW-6	04/22/14	15.17	6.71	--	8.46	
MW-6	07/15/14	15.17	7.39	--	7.78	
MW-6	03/17/15	15.17	5.72	--	9.45	
MW-6	09/28/15	15.17	7.68	--	7.49	
MW-6	03/29/16	15.17	5.38	--	9.79	
MW-6	10/11/16	15.17	7.94	--	7.23	
MW-6	03/28/17	15.17	4.97	--	10.20	
MW-6	10/10/17	15.17	7.89	--	7.28	
MW-6	03/28/18	15.17	6.93	--	8.24	
MW-6	10/02/18	15.17	8.00	--	7.17	
MW-6	04/02/19	15.17	6.77	--	8.40	
MW-6	10/01/19	15.17	7.81	--	7.36	
MW-6	03/25/20	15.17	6.34	--	8.83	
MW-6	10/19/20	15.17	7.57	--	7.60	
MW-7	02/11/02	6.78	1.49	--	5.29	
MW-7	05/20/02	6.78	3.91	--	2.87	
MW-7	08/27/02	6.78	4.03	--	2.75	
MW-7	11/04/02	6.78	4.44	--	2.34	
MW-7	02/18/03	6.78	1.82	Sheen	4.96	
MW-7	06/09/03	6.78	3.29	--	3.49	
MW-7	09/15/03	10.62	4.30	--	6.32	
MW-7	11/18/03	10.62	2.83	--	7.79	
MW-7	02/24/04	10.62	2.16	--	8.46	
MW-7	05/10/04	10.62	3.32	--	7.30	
MW-7	08/24/04	10.62	3.31	--	7.31	
MW-7	12/13/04	10.62	2.27	--	8.35	
MW-7	03/08/05	10.62	3.23	--	7.39	
MW-7	06/06/05	10.62	3.03	--	7.59	
MW-7	09/19/05	10.62	4.16	Sheen	6.46	
MW-7	12/12/05	10.62	3.17	--	7.45	
MW-7	03/13/06	10.62	1.88	--	8.74	
MW-7	06/05/06	10.62	2.34	--	8.28	
MW-7	09/11/06	10.62	4.10	--	6.52	
MW-7	12/11/06	10.62	1.72	--	8.90	
MW-7	03/26/07	10.62	2.00	--	8.62	
MW-7	06/18/07	10.62	3.34	--	7.28	
MW-7	09/24/07	10.62	4.00	--	6.62	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-7	12/10/07	10.62	1.12	Sheen	9.50	
MW-7	03/03/08	10.62	2.49	Sheen	8.13	
MW-7	06/02/08	10.62	3.41	Sheen	7.21	
MW-7	09/04/08	10.62	3.60	--	7.02	
MW-7	12/04/08	10.62	3.36	--	7.26	
MW-7	03/04/09	10.62	2.90	--	7.72	
MW-7	06/01/09	10.62	3.08	Sheen	7.54	
MW-7	09/21/09	10.62	1.91	--	8.71	
MW-7	11/16/09	10.62	2.54	Sheen	8.08	
MW-7	03/08/10	10.62	2.31	--	8.31	
MW-7	06/07/10	10.62	2.67	--	7.95	
MW-7	09/09/10	10.62	3.79	--	6.83	
MW-7	11/15/10	10.62	2.58	--	8.04	
MW-7	03/01/11	10.62	2.51	--	8.11	
MW-7	05/23/11	10.62	2.24	--	8.38	
MW-7	08/29/11	10.62	3.87	--	6.75	
MW-7	12/01/11	10.62	2.67	--	7.95	
MW-7	03/01/12	10.62	2.80	--	7.82	
MW-7	05/30/12	10.62	2.82	--	7.80	
MW-7	08/25/12	10.62	3.35	--	7.27	
MW-7	11/07/12	10.62	2.23	--	8.39	
MW-7	02/27/13	10.62	2.33	--	8.29	
MW-7	04/08/13	10.62	1.88	--	8.74	
MW-7	06/21/13	10.62	3.10	--	7.52	Baseline monitoring event
MW-7	07/29/13	10.62	3.16	--	7.46	
MW-7	08/26/13	10.62	2.82	--	7.80	Two-month monitoring event
MW-7	10/02/13	10.62	2.08	--	8.54	
MW-7	01/21/14	10.62	2.78	--	7.84	
MW-7	04/22/14	10.62	1.45	--	9.17	
MW-7	07/15/14	10.62	3.02	--	7.60	
MW-7	03/17/15	10.62	0.76	--	9.86	
MW-7	09/28/15	10.62	3.59	--	7.03	
MW-7	03/29/16	10.62	1.10	--	9.52	
MW-7	10/11/16	10.62	2.95	--	7.67	
MW-7	03/28/17	10.62	0.70	--	9.92	
MW-7	10/10/17	10.62	3.49	--	7.13	
MW-7	03/28/18	10.62	2.06	--	8.56	
MW-7	10/02/18	10.62	3.50	--	7.12	
MW-7	04/02/19	10.62	2.52	--	8.10	
MW-7	10/01/19	10.62	3.18	--	7.44	
MW-7	03/25/20	10.62	2.03	--	8.59	
MW-7	10/19/20	10.62	3.05	--	7.57	
MW-8	02/11/02	6.42	1.38	--	5.04	
MW-8	05/20/02	6.42	3.87	0.01	2.56	
MW-8	08/27/02	6.42	5.83	--	0.59	
MW-8	11/04/02	6.42	4.23	--	2.19	
MW-8	02/18/03	6.42	1.37	--	5.05	
MW-8	06/09/03	6.42	3.33	--	3.09	
MW-8	09/15/03	10.63	4.10	--	6.53	
MW-8	11/18/03	10.63	2.25	--	8.38	
MW-8	02/24/04	10.63	2.15	--	8.48	
MW-8	05/10/04	10.63	3.37	--	7.26	
MW-8	08/24/04	10.63	3.51	--	7.12	
MW-8	12/13/04	10.63	2.40	--	8.23	
MW-8	03/08/05	10.63	3.25	--	7.38	
MW-8	06/06/05	10.63	3.01	--	7.62	
MW-8	09/19/05	10.63	4.05	--	6.58	
MW-8	12/12/05	10.63	3.20	--	7.43	
MW-8	03/13/06	10.63	2.22	--	8.41	
MW-8	06/05/06	10.63	2.59	--	8.04	
MW-8	09/11/06	10.63	3.96	--	6.67	
MW-8	12/11/06	10.63	1.81	--	8.82	
MW-8	03/26/07	10.63	4.01	--	6.62	
MW-8	06/18/07	10.63	4.55	--	6.08	
MW-8	09/24/07	10.63	5.05	--	5.58	
MW-8	12/10/07	10.63	4.18	--	6.45	
MW-8	03/03/08	10.63	4.25	--	6.38	
MW-8	06/02/08	10.63	4.65	--	5.98	
MW-8	09/04/08	10.63	4.69	--	5.94	
MW-8	12/04/08	10.63	--	--	--	Not Measured-Inaccessible
MW-8	03/04/09	10.63	3.36	--	7.27	
MW-8	06/01/09	10.63	3.67	--	6.96	
MW-8	09/21/09	10.63	4.42	--	6.21	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-8	11/16/09	10.63	2.85	--	7.78	
MW-8	03/08/10	10.63	2.65	--	7.98	
MW-8	06/07/10	10.63	3.10	--	7.53	
MW-8	09/09/10	10.63	4.29	--	6.34	
MW-8	11/15/10	10.63	3.12	--	7.51	
MW-8	03/01/11	10.63	2.22	--	8.41	
MW-8	05/23/11	10.63	2.76	--	7.87	
MW-8	08/29/11	10.63	4.22	--	6.41	
MW-8	12/01/11	10.63	3.11	--	7.52	
MW-8	03/01/12	10.63	3.18	--	7.45	
MW-8	05/30/12	10.63	3.27	--	7.36	
MW-8	08/25/12	10.63	4.02	--	6.61	
MW-8	11/07/12	10.63	2.93	--	7.70	
MW-8	02/27/13	10.63	2.98	--	7.65	
MW-8	04/08/13	10.63	2.41	--	8.22	
MW-8	07/29/13	10.63	3.98	--	6.65	
MW-8	10/02/13	10.63	2.86	--	7.77	
MW-8	01/21/14	10.63	3.56	--	7.07	
MW-8	04/22/14	10.63	2.68	--	7.95	
MW-8	07/15/14	10.63	3.83	--	6.80	
MW-8	03/17/15	10.63	1.62	--	9.01	
MW-8	09/28/15	10.63	3.99	--	6.64	
MW-8	03/29/16	10.63	1.95	--	8.68	
MW-8	10/11/16	10.63	4.05	--	6.58	
MW-8	03/28/17	10.63	1.55	--	9.08	
MW-8	10/10/17	10.63	4.23	--	6.40	
MW-8	03/28/18	10.63	3.05	--	7.58	
MW-8	10/02/18	10.63	4.29	--	6.34	
MW-8	04/02/19	10.63	3.36	--	7.27	
MW-8	10/01/19	10.63	4.06	--	6.57	
MW-8	03/25/20	10.63	3.18	--	7.45	
MW-8	10/19/20	10.63	3.71	--	6.92	
MW-9	02/11/02	6.14	2.03	0.02	4.13	
MW-9	05/20/02	6.14	4.16	0.01	1.99	
MW-9	08/27/02	6.14	5.85	0.01	0.30	
MW-9	11/04/02	6.14	4.07	0.01	2.08	
MW-9	02/18/03	6.14	2.35	0.01	3.8	
MW-9	06/09/03	6.14	3.53	--	2.61	
MW-9	09/15/03	9.75	3.99	Sheen	5.76	
MW-9	11/18/03	9.75	2.95	Sheen	6.80	
MW-9	02/24/04	9.75	2.41	Sheen	7.34	
MW-9	05/10/04	9.75	3.36	--	6.39	
MW-9	08/24/04	9.75	3.46	--	6.29	
MW-9	12/13/04	9.75	2.73	--	7.02	
MW-9	03/08/05	9.75	3.24	--	6.51	
MW-9	06/06/05	9.75	3.13	--	6.62	
MW-9	09/19/05	9.75	3.91	--	5.84	
MW-9	12/12/05	9.75	3.27	--	6.48	
MW-9	03/13/06	9.75	2.30	--	7.45	
MW-9	06/05/06	9.75	2.74	--	7.01	
MW-9	09/11/06	9.75	3.85	--	5.90	
MW-9	12/11/06	9.75	2.09	--	7.66	
MW-9	03/26/07	9.75	2.44	--	7.31	
MW-9	06/18/07	9.75	2.44	--	7.31	
MW-9	09/24/07	9.75	3.88	--	5.87	
MW-9	12/10/07	9.75	2.24	Sheen	7.51	
MW-9	03/03/08	9.75	2.82	Sheen	6.93	
MW-9	06/02/08	9.75	3.52	--	6.23	
MW-9	09/04/08	9.75	3.54	--	6.21	
MW-9	12/04/08	9.75	3.34	--	6.41	
MW-9	03/04/09	9.75	2.89	--	6.86	
MW-9	06/01/09	9.75	3.19	--	6.56	
MW-9	09/21/09	9.75	3.76	Sheen	5.99	
MW-9	11/16/09	9.75	2.63	--	7.12	
MW-9	03/08/10	9.75	2.31	Sheen	7.44	
MW-9	06/07/10	9.75	2.72	Sheen	7.03	
MW-9	09/09/10	9.75	3.69	Sheen	6.06	
MW-9	11/15/10	9.75	2.71	Sheen	7.04	
MW-9	03/01/11	9.75	2.39	Sheen	7.36	
MW-9	05/23/11	9.75	2.58	Sheen	7.17	
MW-9	08/29/11	9.75	3.57	--	6.18	
MW-9	12/01/11	9.75	2.90	--	6.85	
MW-9	03/01/12	9.75	2.96	--	6.79	



**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-9	05/30/12	9.75	2.66	--	7.09	
MW-9	08/25/12	9.75	3.28	--	6.47	
MW-9	11/07/12	9.75	2.49	--	7.26	
MW-9	02/27/13	9.75	2.71	--	7.04	
MW-9	04/08/13	9.75	2.02	--	7.73	
MW-9	06/21/13	9.75	3.01	--	6.74	Baseline monitoring event
MW-9	07/29/13	9.75	3.19	--	6.56	
MW-9	08/26/13	9.75	3.11	--	6.64	Two-month monitoring event
MW-9	10/02/13	9.75	2.40	--	7.35	
MW-9	01/21/14	9.75	2.85	--	6.90	
MW-9	04/22/14	9.75	2.07	--	7.68	
MW-9	07/15/14	9.75	3.06	--	6.69	
MW-9	03/17/15	9.75	0.87	--	8.88	
MW-9	09/28/15	9.75	3.20	--	6.55	
MW-9	03/29/16	9.75	1.28	--	8.47	
MW-9	10/11/16	9.75	3.29	--	6.46	
MW-9	03/28/17	9.75	1.09	--	8.66	
MW-9	10/10/17	9.75	3.39	--	6.36	
MW-9	03/28/18	9.75	2.40	--	7.35	
MW-9	10/02/18	9.75	3.49	--	6.26	
MW-9	04/02/19	9.75	2.60	--	7.15	
MW-9	10/01/19	9.75	3.24	--	6.51	
MW-9	03/25/20	9.75	2.36	--	7.39	
MW-9	10/19/20	9.75	3.02	--	6.73	
MW-10D	03/27/01	--	--	--	--	Not Measured-Damaged
MW-10D	09/24/07	9.75	3.88	--	5.87	
MW-10D						Destroyed during construction activities in 2000
MW-11D	02/11/02	6.81	3.75	--	3.06	
MW-11D	05/20/02	6.81	5.27	0.02	1.56	
MW-11D	08/27/02	6.81	4.70	0.01	2.12	
MW-11D	11/04/02	6.81	4.93	--	1.88	
MW-11D	02/18/03	6.81	3.59	--	3.22	
MW-11D	06/09/03	6.81	4.55	--	2.26	
MW-11D	09/15/03	10.78	4.91	--	5.87	
MW-11D	11/18/03	10.78	4.28	--	6.50	
MW-11D	02/24/04	10.78	3.71	--	7.07	
MW-11D	05/10/04	10.78	4.35	--	6.43	
MW-11D	08/24/04	10.78	4.13	--	6.65	
MW-11D	12/13/04	10.78	4.26	--	6.52	
MW-11D	03/08/05	10.78	4.58	--	6.20	
MW-11D	06/06/05	10.78	4.43	--	6.35	
MW-11D	09/19/05	10.78	4.89	--	5.89	
MW-11D	12/12/05	10.78	4.64	--	6.14	
MW-11D	03/13/06	10.78	3.84	--	6.94	
MW-11D	06/05/06	10.78	4.31	--	6.47	
MW-11D	09/11/06	10.78	4.91	--	5.87	
MW-11D	12/11/06	10.78	3.63	--	7.15	
MW-12	02/11/02	--	--	--	--	
MW-12						Destroyed during construction activities
MW-12R	02/11/02	11.15	6.12	--	5.03	
MW-12R	05/20/02	11.15	8.36	--	2.79	
MW-12R	08/27/02	11.15	8.19	--	2.96	
MW-12R	11/04/02	11.15	8.56	--	2.59	
MW-12R	02/18/03	11.15	7.85	--	3.30	
MW-12R	06/09/03	11.15	7.67	--	3.48	
MW-12R	09/15/03	15.47	8.45	--	7.02	
MW-12R	11/18/03	15.47	7.87	--	7.60	
MW-12R	02/24/04	15.47	6.98	--	8.49	
MW-12R	05/10/04	15.47	7.79	--	7.68	
MW-12R	08/24/04	15.47	8.11	--	7.36	
MW-12R	12/13/04	15.47	7.54	--	7.93	
MW-12R	03/08/05	15.47	7.93	--	7.54	
MW-12R	06/06/05	15.47	6.41	--	9.06	
MW-12R	09/19/05	15.47	8.41	--	7.06	
MW-12R	12/12/05	15.47	7.92	--	7.55	
MW-12R	03/13/06	15.47	6.85	--	8.62	
MW-12R	06/05/06	15.47	7.43	--	8.04	
MW-12R	09/11/06	15.47	8.39	--	7.08	
MW-12R	12/11/06	15.47	6.95	--	8.52	
MW-12R	03/26/07	15.47	7.02	--	8.45	
MW-12R	06/18/07	15.47	7.84	--	7.63	
MW-12R	09/25/07	15.47	8.38	--	7.09	
MW-12R	12/10/07	15.47	7.02	--	8.45	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-12R	03/03/08	15.47	7.11	--	8.36	
MW-12R	06/02/08	15.47	7.98	--	7.49	
MW-12R	09/04/08	15.47	8.13	--	7.34	
MW-12R	12/04/08	15.47	7.98	--	7.49	
MW-12R	03/04/09	15.47	7.54	--	7.93	
MW-12R	06/01/09	15.47	7.71	--	7.76	
MW-12R	09/21/09	15.47	8.39	--	7.08	
MW-12R	11/16/09	15.47	7.40	--	8.07	
MW-12R	03/08/10	15.47	6.86	--	8.61	
MW-12R	06/07/10	15.47	7.23	--	8.24	
MW-12R	09/09/10	15.47	8.22	--	7.25	
MW-12R	11/15/10	15.47	7.40	--	8.07	
MW-12R	03/01/11	15.47	6.76	--	8.71	
MW-12R	05/23/11	15.47	6.87	--	8.60	
MW-12R	08/29/11	15.47	8.07	--	7.40	
MW-12R	12/01/11	15.47	7.51	--	7.96	
MW-12R	03/01/12	15.47	7.31	--	8.16	
MW-12R	05/30/12	15.47	7.30	--	8.17	
MW-12R	08/25/12	15.47	7.89	--	7.58	
MW-12R	11/07/12	15.47	7.34	--	8.13	
MW-12R	02/27/13	15.47	7.02	--	8.45	
MW-12R	04/08/13	15.47	6.88	--	8.59	
MW-12R	07/29/13	15.47	7.84	--	7.63	
MW-12R	10/02/13	15.47	7.42	--	8.05	
MW-12R	01/21/14	15.47	7.70	--	7.77	
MW-12R	04/22/14	15.47	6.90	--	8.57	
MW-12R	07/15/14	15.47	7.73	--	7.74	
MW-12R	03/17/15	15.47	6.49	--	8.98	
MW-12R	09/28/15	15.47	7.96	--	7.51	
MW-12R	03/29/16	15.47	5.98	--	9.49	
MW-12R	10/11/16	15.47	8.04	--	7.43	
MW-12R	03/28/17	15.47	5.81	--	9.66	
MW-12R	10/10/17	15.47	8.05	--	7.42	
MW-12R	03/28/18	15.47	7.00	--	8.47	
MW-12R	10/02/18	15.47	8.22	--	7.25	
MW-12R	04/02/19	15.47	7.30	--	8.17	
MW-12R	10/01/19	15.47	8.00	--	7.47	
MW-12R	03/25/20	15.47	7.08	--	8.39	
MW-12R	10/19/20	15.47	7.74	--	7.73	
MW-13	02/11/02	--	--	--	--	
MW-13						Destroyed during construction activities
MW-13R	02/11/02	10.99	5.95	--	5.04	
MW-13R	05/20/02	10.99	8.08	--	2.91	
MW-13R	08/27/02	10.99	7.93	--	3.06	
MW-13R	11/04/02	10.99	8.30	--	2.69	
MW-13R	02/18/03	10.99	6.55	--	4.44	
MW-13R	06/09/03	10.99	7.37	--	3.62	
MW-13R	09/15/03	15.15	8.19	--	6.96	
MW-13R	11/18/03	15.15	7.56	--	7.59	
MW-13R	02/24/04	15.15	6.50	--	8.65	
MW-13R	05/10/04	15.15	7.45	--	7.70	
MW-13R	08/24/04	15.15	8.13	--	7.02	
MW-13R	12/13/04	15.15	7.10	--	8.05	
MW-13R	03/08/05	15.15	7.62	--	7.53	
MW-13R	06/06/05	15.15	7.37	--	7.78	
MW-13R	09/19/05	15.15	8.22	--	6.93	
MW-13R	12/12/05	15.15	7.61	--	7.54	
MW-13R	03/13/06	15.15	6.50	--	8.65	
MW-13R	06/05/06	15.15	7.03	--	8.12	
MW-13R	09/11/06	15.15	8.13	--	7.02	
MW-13R	12/11/06	15.15	6.60	--	8.55	
MW-13R	03/26/07	15.15	6.60	--	8.55	
MW-13R	06/18/07	15.15	7.53	--	7.62	
MW-13R	09/25/07	15.15	8.10	--	7.05	
MW-13R	12/10/07	15.15	6.74	--	8.41	
MW-13R	03/03/08	15.15	7.45	--	7.70	
MW-13R	06/02/08	15.15	7.70	--	7.45	
MW-13R	09/04/08	15.15	7.86	--	7.29	
MW-13R	12/04/08	15.15	7.72	--	7.43	
MW-13R	03/04/09	15.15	7.30	--	7.85	
MW-13R	06/01/09	15.15	7.43	--	7.72	
MW-13R	09/21/09	15.15	8.12	--	7.03	
MW-13R	11/16/09	15.15	7.07	--	8.08	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-13R	03/08/10	15.15	6.57	--	8.58	
MW-13R	06/07/10	15.15	6.95	--	8.20	
MW-13R	09/09/10	15.15	7.94	--	7.21	
MW-13R	11/15/10	15.15	7.12	--	8.03	
MW-13R	03/01/11	15.15	6.42	--	8.73	
MW-13R	05/23/11	15.15	6.52	--	8.63	
MW-13R	08/29/11	15.15	7.79	--	7.36	
MW-13R	12/01/11	15.15	7.21	--	7.94	
MW-13R	03/01/12	15.15	6.99	--	8.16	
MW-13R	05/25/12	--	--	--	--	
MW-13R						Abandoned on 5/25/2012
MW-14	02/11/02	7.55	1.65	--	5.90	
MW-14	05/20/02	7.55	4.46	--	3.09	
MW-14	08/27/02	7.55	4.58	--	2.97	
MW-14	11/04/02	7.55	5.95	--	1.60	
MW-14	02/18/03	7.55	2.60	--	4.95	
MW-14	06/09/03	7.55	3.86	--	3.69	
MW-14	09/15/03	11.44	5.11	--	6.33	
MW-14	11/18/03	11.44	3.30	--	8.14	
MW-14	02/24/04	11.44	2.55	--	8.89	
MW-14	05/10/04	11.44	3.92	--	7.52	
MW-14	08/24/04	11.44	4.23	--	7.21	
MW-14	12/13/04	11.44	3.28	--	8.16	
MW-14	03/08/05	11.44	3.71	--	7.73	
MW-14	06/06/05	11.44	3.37	--	8.07	
MW-14	09/19/05	11.44	4.79	--	6.65	
MW-14	12/12/05	11.44	3.72	--	7.72	
MW-14	03/13/06	11.44	2.40	--	9.04	
MW-14	06/05/06	11.44	3.07	--	8.37	
MW-14	09/11/06	11.44	4.90	--	6.54	
MW-14	12/11/06	11.44	2.02	--	9.42	
MW-14	03/26/07	11.44	2.61	--	8.83	
MW-14	06/18/07	11.44	3.91	--	7.53	
MW-14	09/24/07	11.44	4.64	--	6.80	
MW-14	12/10/07	11.44	2.44	--	9.00	
MW-14	03/03/08	11.44	3.19	--	8.25	
MW-14	06/02/08	11.44	3.82	--	7.62	
MW-14	09/04/08	11.44	4.22	--	7.22	
MW-14	12/04/08	11.44	4.04	--	7.40	
MW-14	03/04/09	11.44	3.37	--	8.07	
MW-14	06/01/09	11.44	3.61	--	7.83	
MW-14	09/21/09	11.44	4.59	--	6.85	
MW-14	11/16/09	11.44	2.82	--	8.62	
MW-14	03/08/10	11.44	2.48	--	8.96	
MW-14	06/07/10	11.44	2.99	--	8.45	
MW-14	09/09/10	11.44	4.33	--	7.11	
MW-14	11/15/10	11.44	3.01	--	8.43	
MW-14	03/01/11	11.44	2.03	--	9.41	
MW-14	05/23/11	11.44	2.36	--	9.08	
MW-14	08/29/11	11.44	4.20	--	7.24	
MW-14	12/01/11	11.44	3.17	--	8.27	
MW-14	03/01/12	11.44	3.05	--	8.39	
MW-14	05/30/12	11.44	3.09	--	8.35	
MW-14	08/25/12	11.44	4.04	--	7.40	
MW-14	11/07/12	11.44	2.92	--	8.52	
MW-14	02/27/13	11.44	2.66	--	8.78	
MW-14	04/08/13	11.44	2.18	--	9.26	
MW-14	07/29/13	11.44	3.90	--	7.54	
MW-14	10/02/13	11.44	3.08	--	8.36	
MW-14	01/21/14	11.44	5.59	--	5.85	
MW-14	04/22/14	11.44	2.19	--	9.25	
MW-14	07/15/14	11.44	3.71	--	7.73	
MW-14	03/17/15	11.44	1.47	--	9.97	
MW-14	09/28/15	11.44	4.06	--	7.38	
MW-14	03/29/16	11.44	1.67	--	9.77	
MW-14	10/11/16	11.44	4.01	--	7.43	
MW-14	03/28/17	11.44	1.42	--	10.02	
MW-14	10/10/17	11.44	4.01	--	7.43	No LNAPL/sheen
MW-14	03/28/18	11.44	2.69	--	8.75	
MW-14	10/02/18	11.44	4.36	--	7.08	
MW-14	04/02/19	11.44	3.11	--	8.33	
MW-14	10/01/19	11.44	3.98	--	7.46	
MW-14	03/25/20	11.44	2.56	--	8.88	

**Appendix D**  
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**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-14	10/19/20	11.44	3.65	--	7.79	
MW-15	02/11/02	9.03	3.94	--	5.09	
MW-15	05/20/02	9.03	6.18	--	2.85	
MW-15	08/27/02	9.03	6.10	--	2.93	
MW-15	11/04/02	9.03	6.48	--	2.55	
MW-15	02/18/03	9.03	4.50	--	4.53	
MW-15	06/09/03	9.03	5.49	--	3.54	
MW-15	09/15/03	12.86	6.35	--	6.51	
MW-15	11/18/03	12.86	5.49	--	7.37	
MW-15	02/24/04	12.86	4.67	--	8.19	
MW-15	05/10/04	12.86	5.56	Sheen	7.30	
MW-15	08/24/04	12.86	6.10	--	6.76	
MW-15	12/13/04	12.86	4.34	--	8.52	
MW-15	03/08/05	12.86	5.58	--	7.28	
MW-15	06/06/05	12.86	5.42	--	7.44	
MW-15	09/19/05	12.86	6.34	--	6.52	
MW-15	12/12/05	12.86	5.63	--	7.23	
MW-15	03/13/06	12.86	4.33	--	8.53	
MW-15	06/05/06	12.86	5.15	--	7.71	
MW-15	09/11/06	12.86	6.30	--	6.56	
MW-15	12/11/06	12.86	4.43	--	8.43	
MW-15	03/26/07	12.86	4.60	--	8.26	
MW-15	06/18/07	12.86	5.61	--	7.25	
MW-15	06/02/08	12.86	5.80	--	7.06	
MW-15	09/04/08	12.86	6.02	--	6.84	
MW-15	12/04/08	12.86	5.82	--	7.04	
MW-16	02/11/02	11.19	6.19	--	5.00	
MW-16	05/20/02	11.19	8.23	--	2.96	
MW-16	08/27/02	11.19	8.32	--	2.87	
MW-16	11/04/02	11.19	8.72	--	2.47	
MW-16	02/18/03	11.19	7.65	--	3.54	
MW-16	06/09/03	11.19	7.46	--	3.73	
MW-16	09/15/03	15.23	8.55	--	6.68	
MW-16	11/18/03	15.23	7.69	--	7.54	
MW-16	02/24/04	15.23	6.40	--	8.83	
MW-16	05/10/04	15.23	7.60	--	7.63	
MW-16	08/24/04	15.23	8.21	--	7.02	
MW-16	12/13/04	15.23	7.80	--	7.43	
MW-16	03/08/05	15.23	7.55	--	7.68	
MW-16	06/06/05	15.23	7.38	--	7.85	
MW-16	09/19/05	15.23	8.40	--	6.83	
MW-16	12/12/05	15.23	7.69	--	7.54	
MW-16	03/13/06	15.23	6.16	--	9.07	
MW-16	06/05/06	15.23	7.22	--	8.01	
MW-16	09/11/06	15.23	8.32	--	6.91	
MW-16	12/11/06	15.23	6.40	--	8.83	
MW-16	03/26/07	15.23	6.53	--	8.70	
MW-16	06/18/07	15.23	7.60	--	7.63	
MW-16	09/24/07	15.23	8.36	--	6.87	
MW-16	12/10/07	15.23	6.85	--	8.38	
MW-16	03/03/08	15.23	6.95	--	8.28	
MW-16	06/02/08	15.23	7.62	--	7.61	
MW-16	09/04/08	15.23	8.07	--	7.16	
MW-16	12/04/08	15.23	7.82	--	7.41	
MW-16	03/04/09	15.23	7.47	--	7.76	
MW-16	06/01/09	15.23	7.37	--	7.86	
MW-16	09/21/09	15.23	8.33	--	6.90	
MW-16	11/16/09	15.23	7.30	--	7.93	
MW-16	03/08/10	15.23	6.34	--	8.89	
MW-16	06/07/10	15.23	6.87	--	8.36	
MW-16	09/09/10	15.23	8.04	--	7.19	
MW-16	11/15/10	15.23	7.14	--	8.09	
MW-16	03/01/11	15.23	6.12	--	9.11	
MW-16	05/23/11	15.23	6.22	--	9.01	
MW-16	08/29/11	15.23	7.97	--	7.26	
MW-16	12/01/11	15.23	7.45	--	7.78	
MW-16	03/01/12	15.23	6.81	--	8.42	
MW-16	05/30/12	15.23	6.71	--	8.52	
MW-16	08/25/12	15.23	7.57	--	7.66	
MW-16	11/07/12	15.23	7.20	--	8.03	
MW-16	02/27/13	15.23	6.18	--	9.05	
MW-16	04/08/13	15.23	6.28	--	8.95	
MW-16	07/29/13	15.23	7.31	--	7.92	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-16	10/02/13	15.23	7.21	--	8.02	
MW-16	01/21/14	15.23	7.19	--	8.04	
MW-16	04/22/14	15.23	6.12	--	9.11	
MW-16	07/15/14	15.23	7.22	--	8.01	
MW-16	03/17/15	15.23	5.78	--	9.45	
MW-16	09/28/15	15.23	7.71	--	7.52	
MW-16	03/29/16	15.23	5.02	--	10.21	
MW-16	10/11/16	15.23	8.06	--	7.17	
MW-16	03/28/17	15.23	4.66	--	10.57	
MW-16	10/10/17	15.23	7.89	--	7.34	
MW-16	03/28/18	15.23	6.28	--	8.95	
MW-16	10/02/18	15.23	8.06	--	7.17	
MW-16	04/02/19	15.23	6.60	--	8.63	
MW-16	10/01/19	15.23	7.87	--	7.36	
MW-16	03/25/20	15.23	6.22	--	9.01	
MW-16	10/19/20	15.23	7.56	--	7.67	
MW-17	02/11/02	11.43	6.13	--	5.30	
MW-17	05/20/02	11.43	8.38	--	3.05	
MW-17	08/27/02	11.43	8.50	--	2.93	
MW-17	11/04/02	11.43	8.91	--	2.52	
MW-17	02/18/03	11.43	6.70	--	4.73	
MW-17	06/09/03	11.43	7.71	--	3.72	
MW-17	09/15/03	15.38	8.71	--	6.67	
MW-17	11/18/03	15.38	11.83	--	3.55	
MW-17	02/24/04	15.38	7.20	--	8.18	
MW-17	05/10/04	15.38	7.77	--	7.61	
MW-17	08/24/04	15.38	8.36	--	7.02	
MW-17	12/13/04	15.38	7.85	--	7.53	
MW-17	03/08/05	15.38	7.65	--	7.73	
MW-17	06/06/05	15.38	7.55	--	7.83	
MW-17	09/19/05	15.38	8.56	--	6.82	
MW-17	12/12/05	15.38	7.85	--	7.53	
MW-17	03/13/06	15.38	6.30	--	9.08	
MW-17	06/05/06	15.38	7.44	--	7.94	
MW-17	09/11/06	15.38	8.52	--	6.86	
MW-17	12/11/06	15.38	6.49	--	8.89	
MW-17	05/23/11	15.38	6.30	--	9.08	
MW-17	08/29/11	15.38	6.30	--	9.08	
MW-18	02/11/02	11.29	5.97	--	5.32	
MW-18	05/20/02	11.29	8.20	--	3.09	
MW-18	08/27/02	11.29	7.34	--	3.95	
MW-18	11/04/02	11.29	8.73	--	2.56	
MW-18	02/18/03	11.29	6.45	--	4.84	
MW-18	06/09/03	11.29	7.59	--	3.70	
MW-18	09/15/03	15.49	8.65	--	6.84	
MW-18	11/18/03	15.49	7.68	--	7.81	
MW-18	02/24/04	15.49	6.38	--	9.11	
MW-18	05/10/04	15.49	7.65	--	7.84	
MW-18	08/24/04	15.49	8.17	--	7.32	
MW-18	12/13/04	15.49	7.61	--	7.88	
MW-18	03/08/05	15.49	7.47	--	8.02	
MW-18	06/06/05	15.49	7.41	--	8.08	
MW-18	09/19/05	15.49	8.43	--	7.06	
MW-18	12/12/05	15.49	7.70	--	7.79	
MW-18	03/13/06	15.49	6.23	--	9.26	
MW-18	06/05/06	15.49	7.31	--	8.18	
MW-18	09/11/06	15.49	8.34	--	7.15	
MW-18	12/11/06	15.49	6.34	--	9.15	
MW-18	03/26/07	15.49	6.59	--	8.90	
MW-18	06/18/07	15.49	7.66	--	7.83	
MW-18	09/24/07	15.49	8.40	--	7.09	
MW-18	12/10/07	15.49	6.68	--	8.81	
MW-18	03/03/08	15.49	6.98	--	8.51	
MW-18	06/02/08	15.49	7.70	--	7.79	
MW-18	09/04/08	15.49	8.11	--	7.38	
MW-18	12/04/08	15.49	7.84	--	7.65	
MW-18	03/04/09	15.49	7.34	--	8.15	
MW-18	06/01/09	15.49	7.36	--	8.13	
MW-18	09/21/09	15.49	8.40	--	7.09	
MW-18	11/16/09	15.49	7.18	--	8.31	
MW-18	03/08/10	15.49	6.23	--	9.26	
MW-18	06/07/10	15.49	6.89	--	8.60	
MW-18	09/09/10	15.49	8.11	--	7.38	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-18	11/15/10	15.49	7.12	--	8.37	
MW-18	03/01/11	15.49	6.11	--	9.38	
MW-18	05/23/11	15.49	6.25	--	9.24	
MW-18	08/29/11	15.49	7.87	--	7.62	
MW-18	12/01/11	15.49	7.38	--	8.11	
MW-18	03/01/12	15.49	6.88	--	8.61	
MW-18	05/30/12	15.49	6.75	--	8.74	
MW-18	08/25/12	15.49	--	--	--	Inaccessible due to truck parked on top
MW-18	11/07/12	15.49	7.21	--	8.28	
MW-18	02/27/13	15.49	6.43	--	9.06	
MW-18	04/08/13	15.49	6.39	--	9.10	
MW-18	07/29/13	15.49	7.63	--	7.86	
MW-18	10/02/13	15.49	7.39	--	8.10	
MW-18	01/21/14	15.49	7.35	--	8.14	
MW-18	04/22/14	15.49	0.20	--	15.29	
MW-18	07/15/14	15.49	7.31	--	8.18	
MW-18	03/17/15	15.49	5.62	--	9.87	
MW-18	09/28/15	15.49	7.84	--	7.65	
MW-18	03/29/16	15.49	5.06	--	10.43	
MW-18	10/11/16	15.49	8.14	--	7.35	
MW-18	03/28/17	15.49	4.49	--	11	
MW-18	10/10/17	15.49	7.99	--	7.50	
MW-18	03/28/18	15.49	6.33	--	9.16	
MW-18	10/02/18	15.49	8.17	--	7.32	
MW-18	04/02/19	15.49	6.67	--	8.82	
MW-18	10/01/19	15.49	7.97	--	7.52	
MW-18	03/25/20	15.49	6.33	--	9.16	
MW-18	10/19/20	15.49	7.52	--	7.97	
MW-19	02/11/02	7.16	1.63	--	5.53	
MW-19	05/20/02	7.16	4.08	Sheen	3.08	
MW-19	08/27/02	7.16	4.25	--	2.91	
MW-19	11/04/02	7.16	4.65	--	2.51	
MW-19	02/18/03	7.16	2.14	--	5.02	
MW-19	06/09/03	7.16	3.45	--	3.71	
MW-19	09/15/03	11.39	4.50	--	6.89	
MW-19	11/18/03	11.39	2.51	--	8.88	
MW-19	02/24/04	11.39	2.36	--	9.03	
MW-19	05/10/04	11.39	3.41	--	7.98	
MW-19	08/24/04	11.39	8.13	--	3.26	
MW-19	12/13/04	11.39	2.98	--	8.41	
MW-19	03/08/05	11.39	3.40	--	7.99	
MW-19	06/06/05	11.39	3.24	--	8.15	
MW-19	09/19/05	11.39	--	--	--	Not Measured-Inaccessible, under pipe stockpile
MW-19	12/12/05	11.39	--	--	--	Not Measured-Inaccessible, under pipe stockpile
MW-19	03/13/06	11.39	--	--	--	Not Measured-Inaccessible, under pipe stockpile
MW-19	06/05/06	11.39	2.91	--	8.48	
MW-19	09/11/06	11.39	4.72	--	6.67	
MW-19	12/11/06	11.39	2.00	--	9.39	
MW-19	03/26/07	11.39	2.22	--	9.17	
MW-19	06/18/07	11.39	3.56	--	7.83	
MW-19	09/24/07	11.39	4.31	--	7.08	
MW-19	12/10/07	11.39	2.38	--	9.01	
MW-19	03/03/08	11.39	2.98	--	8.41	
MW-19	06/02/08	11.39	3.67	--	7.72	
MW-19	09/04/08	11.39	3.98	--	7.41	
MW-19	12/04/08	11.39	3.68	--	7.71	
MW-19	03/04/09	11.39	3.03	--	8.36	
MW-19	06/01/09	11.39	3.23	--	8.16	
MW-19	09/21/09	11.39	4.23	--	7.16	
MW-19	11/16/09	11.39	2.85	--	8.54	
MW-19	03/08/10	11.39	2.25	--	9.14	
MW-19	06/07/10	11.39	2.67	--	8.72	
MW-19	09/09/10	11.39	3.97	--	7.42	
MW-19	11/15/10	11.39	2.75	--	8.64	
MW-19	03/01/11	11.39	1.82	--	9.57	
MW-19	05/23/11	11.39	2.02	--	9.37	
MW-19	08/29/11	11.39	3.77	--	7.62	
MW-19	12/01/11	11.39	3.03	--	8.36	
MW-19	03/01/12	11.39	2.82	--	8.57	
MW-19	05/30/12	11.39	2.79	--	8.60	
MW-19	08/25/12	11.39	3.62	--	7.77	
MW-19	11/07/12	11.39	2.77	--	8.62	
MW-19	02/27/13	11.39	2.18	--	9.21	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-19	04/08/13	11.39	1.82	--	9.57	
MW-19	06/21/13	11.39	3.05	--	8.34	Baseline monitoring event
MW-19	07/29/13	11.39	3.56	--	7.83	
MW-19	08/26/13	11.39	3.45	--	7.94	Two-month monitoring event
MW-19	10/02/13	11.39	2.72	--	8.67	
MW-19	01/21/14	11.39	3.12	--	8.27	
MW-19	04/22/14	11.39	1.81	--	9.58	
MW-19	07/15/14	11.39	3.30	--	8.09	
MW-19	03/17/15	11.39	1.11	--	10.28	
MW-19	09/28/15	11.39	3.69	--	7.70	
MW-19	03/29/16	11.39	1.18	--	10.21	
MW-19	10/11/16	11.39	3.59	--	7.80	
MW-19	03/28/17	11.39	0.65	--	10.74	
MW-19	10/10/17	11.39	3.69	--	7.70	
MW-19	03/28/18	11.39	2.22	--	9.17	
MW-19	10/02/18	11.39	3.81	--	7.58	
MW-19	04/02/19	11.39	2.59	--	8.80	
MW-19	10/01/19	11.39	3.54	--	7.85	
MW-19	03/25/20	11.39	2.11	--	9.28	
MW-19	10/19/20	11.39	3.32	--	8.07	
MW-20	02/11/02	7.37	1.73	--	5.64	
MW-20	05/20/02	7.37	4.25	--	3.12	
MW-20	08/27/02	7.37	4.31	--	3.06	
MW-20	11/04/02	7.37	4.04	--	3.33	
MW-20	02/18/03	7.37	--	--	--	Not Measured-Overflowed when well cap removed
MW-20	06/09/03	7.37	--	--	--	Not Measured-Overflowed when well cap removed
MW-20	09/15/03	11.72	--	--	--	Not Measured-Overflowed when well cap removed
MW-20	11/18/03	11.72	--	--	--	Not Measured-Overflowed when well cap removed
MW-20	02/24/04	11.72	--	--	--	Not Measured-Overflowed when well cap removed
MW-20	05/10/04	11.72	--	--	--	Not Measured-Overflowed when well cap removed
MW-20	08/24/04	11.72	4.04	--	7.68	
MW-20	12/13/04	11.72	2.29	--	9.43	
MW-20	03/08/05	11.72	3.64	--	8.08	
MW-20	06/06/05	11.72	3.43	--	8.29	
MW-20	09/19/05	11.72	4.55	--	7.17	
MW-20	12/12/05	11.72	3.67	--	8.05	
MW-20	03/13/06	11.72	2.21	--	9.51	
MW-20	06/05/06	11.72	3.00	--	8.72	
MW-20	09/11/06	11.72	4.49	--	7.23	
MW-20	12/11/06	11.72	2.36	--	9.36	
MW-20	03/26/07	11.72	2.49	--	9.23	
MW-20	06/18/07	11.72	4.44	--	7.28	
MW-20	09/24/07	11.72	4.61	--	7.11	
MW-20	12/10/07	11.72	2.56	--	9.16	
MW-20	03/03/08	11.72	2.97	--	8.75	
MW-20	06/02/08	11.72	3.90	--	7.82	
MW-20	09/04/08	11.72	4.14	--	7.58	
MW-20	12/04/08	11.72	3.89	--	7.83	
MW-20	03/04/09	11.72	4.99	--	6.73	
MW-20	06/01/09	11.72	3.46	--	8.26	
MW-20	09/21/09	11.72	4.42	--	7.30	
MW-20	11/16/09	11.72	2.91	--	8.81	
MW-20	03/08/10	11.72	2.40	--	9.32	
MW-20	06/07/10	11.72	2.76	--	8.96	
MW-20	09/09/10	11.72	4.22	--	7.50	
MW-20	11/15/10	11.72	3.03	--	8.69	
MW-20	03/01/11	11.72	2.18	--	9.54	
MW-20	05/23/11	11.72	2.11	--	9.61	
MW-20	08/29/11	11.72	4.05	--	7.67	
MW-20	12/01/11	11.72	3.08	--	8.64	
MW-20	03/01/12	11.72	3.09	--	8.63	
MW-20	05/30/12	11.72	2.89	--	8.83	
MW-20	08/25/12	11.72	3.88	--	7.84	
MW-20	11/07/12	11.72	2.98	--	8.74	
MW-20	02/27/13	11.72	2.60	--	9.12	
MW-20	04/08/13	11.72	2.23	--	9.49	
MW-20	07/29/13	11.72	4.93	--	6.79	
MW-20	10/02/13	11.72	4.64	--	7.08	
MW-20	01/21/14	11.72	3.44	--	8.28	
MW-20	04/22/14	11.72	2.33	--	9.39	
MW-20	07/15/14	11.72	3.51	--	8.21	
MW-20	03/17/15	11.72	1.49	--	10.23	
MW-20	09/28/15	11.72	3.95	--	7.77	

**Appendix D**  
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**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-20	03/29/16	11.72	1.65	--	10.07	
MW-20	10/11/16	11.72	3.87	--	7.85	
MW-20	03/28/17	11.72	0.98	--	10.74	
MW-20	10/10/17	11.72	4.03	--	7.69	
MW-20	03/28/18	11.72	2.69	--	9.03	
MW-20	10/02/18	11.72	4.25	--	7.47	
MW-20	04/02/19	11.72	3.25	--	8.47	
MW-20	10/01/19	11.72	3.97	--	7.75	
MW-20	03/25/20	11.72	2.75	--	8.97	
MW-20	10/19/20	11.72	3.50	--	8.22	
MW-21	02/11/02	10.53	3.80	0.46	7.10	
MW-21	05/20/02	10.53	5.98	0.43	4.89	
MW-21	08/27/02	10.53	3.95	0.43	6.92	
MW-21	11/04/02	10.53	4.95	0.01	5.59	Product recovery pump in well
MW-21	02/18/03	10.53	3.59	0.01	6.95	Product recovery pump in well
MW-21	06/09/03	10.53	3.53	Sheen	7.00	Product recovery pump in well
MW-21	09/15/03	9.41	3.98	0.01	5.44	Product recovery pump in well
MW-21	11/18/03	9.41	3.08	Sheen	6.33	Product recovery pump in well
MW-21	02/24/04	9.41	2.47	Sheen	6.94	Product recovery pump in well
MW-21	05/10/04	9.41	3.65	Sheen	5.76	Product recovery pump in well
MW-21	08/24/04	9.41	3.81	Sheen	5.60	Product recovery pump in well
MW-21	12/13/04	9.41	3.24	Sheen	6.17	
MW-21	03/08/05	9.41	3.72	--	5.69	
MW-21	06/06/05	9.41	3.58	Sheen	5.83	
MW-21	09/19/05	9.41	4.19	--	5.22	
MW-21	12/12/05	9.41	4.04	--	5.37	
MW-21	03/13/06	9.41	2.48	--	6.93	
MW-21	06/05/06	9.41	3.27	--	6.14	
MW-21	09/11/06	9.41	3.90	0.08	5.57	
MW-21	12/11/06	9.41	2.34	0.04	7.10	
MW-21	03/26/07	9.41	2.87	--	6.54	
MW-21	06/18/07	9.41	3.75	--	5.66	
MW-21	09/24/07	9.41	3.81	Sheen	5.60	
MW-21	12/10/07	9.41	2.14	--	7.27	
MW-21	03/03/08	9.41	3.18	--	6.23	
MW-21	06/02/08	9.41	3.63	Sheen	5.78	
MW-21	09/04/08	9.41	3.60	--	5.81	
MW-21	12/04/08	9.41	3.48	Sheen	5.93	
MW-21	03/04/09	9.41	2.84	Sheen	6.57	
MW-21	06/01/09	9.41	3.34	--	6.07	
MW-21	09/21/09	9.41	3.74	Sheen	5.67	
MW-21	11/16/09	9.41	2.59	--	6.82	
MW-21	03/08/10	9.41	2.23	--	7.18	
MW-21	06/07/10	9.41	--	--	--	Not Measured
MW-21	09/09/10	9.41	3.66	--	5.75	
MW-21	11/15/10	9.41	2.79	--	6.62	
MW-21	03/01/11	9.41	2.21	--	7.20	
MW-21	05/23/11	9.41	2.47	--	6.94	
MW-21	08/29/11	9.41	3.53	--	5.88	
MW-21	12/01/11	9.41	2.77	Sheen	6.64	
MW-21	03/01/12	9.41	2.27	Sheen	7.14	
MW-21	05/30/12	9.41	2.86	--	6.55	
MW-21	08/25/12	9.41	3.20	--	6.21	
MW-21	11/07/12	9.41	2.53	--	6.88	
MW-21	02/27/13	9.41	2.61	--	6.80	
MW-21	04/08/13	9.41	1.99	--	7.42	
MW-21	07/29/13	9.41	3.31	--	6.10	
MW-21	10/02/13	9.41	2.49	--	6.92	
MW-21	01/21/14	9.41	3.02	--	6.39	
MW-21	04/22/14	9.41	2.37	--	7.04	
MW-21	07/15/14	9.41	3.12	--	6.29	
MW-21	03/17/15	9.41	1.74	--	7.67	
MW-21	09/28/15	9.41	3.23	--	6.18	
MW-21	03/29/16	9.41	1.62	--	7.79	
MW-21	10/11/16	9.41	3.00	--	6.41	
MW-21	03/28/17	9.41	1.28	--	8.13	
MW-21	10/10/17	9.41	3.41	--	6.00	
MW-21	03/28/18	9.41	2.49	--	6.92	
MW-21	10/02/18	9.41	3.41	--	6.00	
MW-21	04/02/19	9.41	2.65	--	6.76	
MW-21	10/01/19	9.41	3.25	--	6.16	
MW-21	03/25/20	9.41	2.55	--	6.86	
MW-21	10/19/20	9.41	2.99	--	6.42	



**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-22	02/11/02	12.39	7.18	--	5.21	
MW-22	05/20/02	12.39	9.44	--	2.95	
MW-22	08/27/02	12.39	9.55	--	2.84	
MW-22	11/04/02	12.39	9.91	--	2.48	
MW-22	02/18/03	12.39	7.75	--	4.64	
MW-22	06/09/03	12.39	8.71	--	3.68	
MW-22	09/15/03	16.32	9.75	--	6.57	
MW-22	11/18/03	16.32	8.55	--	7.77	
MW-22	02/24/04	16.32	7.56	--	8.76	
MW-22	05/10/04	16.32	8.76	--	7.56	
MW-22	08/24/04	16.32	9.25	--	7.07	
MW-22	12/13/04	16.32	8.70	--	7.62	
MW-22	03/08/05	16.32	8.72	--	7.60	
MW-22	06/06/05	16.32	8.58	--	7.74	
MW-22	09/19/05	16.32	9.61	--	6.71	
MW-22	12/12/05	16.32	8.90	--	7.42	
MW-22	03/13/06	16.32	4.37	--	11.95	
MW-22	06/05/06	16.32	8.31	--	8.01	
MW-22	09/11/06	16.32	9.54	--	6.78	
MW-22	12/11/06	16.32	7.44	--	8.88	
MW-22	03/26/07	16.32	7.68	--	8.64	
MW-22	06/18/07	16.32	8.78	--	7.54	
MW-22	09/24/07	16.32	9.55	--	6.77	
MW-22	12/10/07	16.32	7.84	--	8.48	
MW-22	03/03/08	16.32	8.12	--	8.20	
MW-22	06/02/08	16.32	8.85	--	7.47	
MW-22	09/04/08	16.32	9.22	--	7.10	
MW-22	12/04/08	16.32	9.00	--	7.32	
MW-22	03/04/09	16.32	8.43	--	7.89	
MW-22	06/01/09	16.32	8.56	--	7.76	
MW-22	09/21/09	16.32	9.51	--	6.81	
MW-22	11/16/09	16.32	8.31	--	8.01	
MW-22	03/08/10	16.32	7.40	--	8.92	
MW-22	06/07/10	16.32	8.00	--	8.32	
MW-22	09/09/10	16.32	9.22	--	7.10	
MW-22	11/15/10	16.32	8.20	--	8.12	
MW-22	03/01/11	16.32	7.18	--	9.14	
MW-22	05/23/11	16.32	7.35	--	8.97	
MW-22	08/29/11	16.32	9.01	--	7.31	
MW-22	12/01/11	16.32	8.48	--	7.84	
MW-22	03/01/12	16.32	7.98	--	8.34	
MW-22	05/30/12	16.32	7.92	--	8.40	
MW-22	08/25/12	16.32	8.79	--	7.53	
MW-22	11/07/12	16.32	8.24	--	8.08	
MW-22	02/27/13	16.32	7.42	--	8.90	
MW-22	04/08/13	16.32	7.28	--	9.04	
MW-22	07/29/13	16.32	8.59	--	7.73	
MW-22	10/02/13	16.32	8.29	--	8.03	
MW-22	01/21/14	16.32	8.39	--	7.93	
MW-22	04/22/14	16.32	7.22	--	9.10	
MW-22	07/15/14	16.32	8.45	--	7.87	
MW-22	03/17/15	16.32	6.65	--	9.67	
MW-22	09/28/15	16.32	8.88	--	7.44	
MW-22	03/29/16	16.32	6.41	--	9.91	
MW-22	10/12/16	16.32	9.04	--	7.28	Re-gauged on 10/12/16
MW-22	03/28/17	16.32	5.87	--	10.45	
MW-22	10/10/17	16.32	9.05	--	7.27	
MW-22	03/28/18	16.32	7.46	--	8.86	
MW-22	10/02/18	16.32	9.22	--	7.10	
MW-22	04/02/19	16.32	7.81	--	8.51	
MW-22	10/01/19	16.32	8.98	--	7.34	
MW-22	03/25/20	16.32	7.41	--	8.91	
MW-22	10/19/20	16.32	8.68	--	7.64	
MW-23	11/18/03	14.15	7.66	Sheen	6.49	
MW-23	02/24/04	14.15	7.18	Sheen	6.97	
MW-23	05/10/04	14.15	7.89	<0.01	6.26	
MW-23	08/24/04	14.15	8.89	--	5.26	
MW-23	12/13/04	14.15	7.49	Sheen	6.66	
MW-23	03/08/05	14.15	7.57	Sheen	6.58	
MW-23	06/06/05	14.15	7.72	Sheen	6.43	
MW-23	09/19/05	14.15	8.17	0.17	6.12	
MW-23	10/12/05	14.15	8.10	Sheen	6.05	
MW-23	12/12/05	14.15	7.93	--	6.22	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-23	03/13/06	14.15	7.17	--	6.98	
MW-23	06/05/06	14.15	7.62	--	6.53	
MW-23	09/11/06	14.15	8.22	0.02	5.95	
MW-23	12/11/06	14.15	7.17	--	6.98	
MW-23	03/26/07	14.15	7.41	--	6.74	
MW-23	06/18/07	14.15	7.90	--	6.25	
MW-23	09/25/07	14.15	8.14	Sheen	6.01	
MW-23	12/10/07	14.15	7.38	Sheen	6.77	
MW-23	03/03/08	14.15	7.49	Sheen	6.66	
MW-23	06/02/08	14.15	8.71	Sheen	5.44	
MW-23	09/04/08	14.15	8.04	--	6.11	
MW-23	12/04/08	14.15	8.05	--	6.10	
MW-23	03/04/09	14.15	7.48	--	6.67	
MW-23	06/01/09	14.15	7.98	--	6.17	
MW-23	09/21/09	14.15	8.13	--	6.02	
MW-23	11/16/09	14.15	7.50	Sheen	6.65	
MW-23	03/08/10	14.15	7.01	--	7.14	
MW-23	06/07/10	14.15	7.49	Sheen	6.66	
MW-23	09/09/10	14.15	8.02	Sheen	6.13	
MW-23	11/15/10	14.15	7.60	--	6.55	
MW-23	03/01/11	14.15	7.26	Sheen	6.89	
MW-23	05/23/11	14.15	7.38	Sheen	6.77	
MW-23	08/29/11	14.15	7.91	Sheen	6.24	
MW-23	12/01/11	14.15	7.58	--	6.57	
MW-23	03/01/12	14.15	7.35	--	6.80	
MW-23	05/30/12	14.15	7.29	--	6.86	
MW-23	08/25/12	14.15	7.41	--	6.74	
MW-23	11/07/12	14.15	7.19	--	6.96	
MW-23	02/27/13	14.15	7.23	--	6.92	
MW-23	04/08/13	14.15	7.15	--	7.00	
MW-23	07/29/13	14.15	7.47	--	6.68	
MW-23	10/02/13	14.15	7.34	--	6.81	
MW-23	01/21/14	14.15	7.72	--	6.43	
MW-23	04/22/14	14.15	7.25	--	6.90	
MW-23	07/15/14	14.15	7.60	--	6.55	
MW-23	03/17/15	14.15	7.11	--	7.04	
MW-23	09/29/15	14.15	7.65	--	6.50	
MW-23	03/29/16	14.15	6.69	--	7.46	
MW-23	10/11/16	14.15	7.88	--	6.27	
MW-23	03/28/17	14.15	6.80	--	7.35	
MW-23	10/10/17	14.15	7.89	--	6.26	
MW-23	03/28/18	14.15	7.29	--	6.86	
MW-23	10/02/18	14.15	7.81	--	6.34	
MW-23	04/02/19	14.15	7.25	--	6.90	
MW-23	10/01/19	14.15	7.75	--	6.40	
MW-23	03/25/20	14.15	7.29	--	6.86	
MW-23	10/19/20	14.15	7.66	--	6.49	
MW-24	11/18/03	14.34	7.65	Sheen	6.69	
MW-24	02/24/04	14.34	7.07	Sheen	7.27	
MW-24	05/10/04	14.34	7.73	0.02	6.63	
MW-24	08/24/04	14.34	7.90	0.10	6.52	
MW-24	12/13/04	14.34	7.47	Sheen	6.87	
MW-24	03/08/05	14.34	7.57	Sheen	6.77	
MW-24	06/06/05	14.34	7.24	0.02	7.12	
MW-24	09/19/05	14.34	8.39	0.29	6.18	
MW-24	10/12/05	14.34	8.45	0.47	6.27	
MW-24	12/12/05	14.34	8.01	0.11	6.42	
MW-24	03/13/06	14.34	7.19	--	7.15	
MW-24	06/05/06	14.34	7.59	--	6.75	
MW-24	09/11/06	14.34	8.31	0.20	6.19	
MW-24	12/11/06	14.34	7.37	--	6.97	
MW-24	03/26/07	14.34	7.42	--	6.92	
MW-24	06/18/07	14.34	7.89	--	6.45	
MW-24	09/25/07	14.34	8.00	Sheen	6.34	
MW-24	12/10/07	14.34	7.42	--	6.92	
MW-24	03/03/08	14.34	7.51	Sheen	6.83	
MW-24	06/02/08	14.34	8.92	--	5.42	
MW-24	09/04/08	14.34	7.99	--	6.35	
MW-24	12/04/08	14.34	7.96	--	6.38	
MW-24	03/04/09	14.34	7.51	--	6.83	
MW-24	06/01/09	14.34	7.87	Sheen	6.47	
MW-24	09/21/09	14.34	8.09	--	6.25	
MW-24	11/16/09	14.34	7.46	Sheen	6.88	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-24	03/08/10	14.34	7.03	--	7.31	
MW-24	06/07/10	14.34	7.51	Sheen	6.83	
MW-24	09/09/10	14.34	8.01	Sheen	6.33	
MW-24	11/15/10	14.34	7.61	Sheen	6.73	
MW-24	03/01/11	14.34	7.26	Sheen	7.08	
MW-24	05/23/11	14.34	7.37	--	6.97	
MW-24	08/29/11	14.34	7.92	Sheen	6.42	
MW-24	12/01/11	14.34	7.73	--	6.61	
MW-24	03/01/12	14.34	7.39	--	6.95	
MW-24	05/30/12	14.34	7.41	--	6.93	
MW-24	08/25/12	14.34	7.59	--	6.75	
MW-24	11/07/12	14.34	7.26	--	7.08	
MW-24	02/27/13	14.34	7.34	--	7.00	
MW-24	04/08/13	14.34	7.27	--	7.07	
MW-24	07/29/13	14.34	7.58	--	6.76	
MW-24	10/02/13	14.34	7.34	--	7.00	
MW-24	01/21/14	14.34	7.66	--	6.68	
MW-24	04/22/14	14.34	7.20	--	7.14	
MW-24	07/15/14	14.34	7.59	--	6.75	
MW-24	03/17/15	14.34	7.06	--	7.28	
MW-24	09/29/15	14.34	7.65	--	6.69	
MW-24	03/29/16	14.34	6.61	--	7.73	
MW-24	10/11/16	14.34	7.91	--	6.43	
MW-24	03/28/17	14.34	6.71	--	7.63	
MW-24	10/10/17	14.34	7.88	--	6.46	
MW-24	03/28/18	14.34	7.30	--	7.04	
MW-24	10/02/18	14.34	7.80	--	6.54	
MW-24	04/02/19	14.34	7.22	--	7.12	
MW-24	10/01/19	14.34	7.76	--	6.58	
MW-24	03/25/20	14.34	7.29	--	7.05	
MW-24	10/19/20	14.34	7.66	--	6.68	
MW-25	11/18/03	13.05	7.50	Sheen	5.55	
MW-25	02/24/04	13.05	6.48	Sheen	6.57	
MW-25	05/10/04	13.05	7.61	--	5.44	
MW-25	08/24/04	13.05	7.11	--	5.94	
MW-25	12/13/04	13.05	7.49	--	5.56	
MW-25	03/08/05	13.05	7.61	--	5.44	
MW-25	06/06/05	13.05	7.47	--	5.58	
MW-25	09/19/05	13.05	7.93	--	5.12	
MW-25	12/12/05	13.05	7.71	--	5.34	
MW-25	03/13/06	13.05	7.02	--	6.03	
MW-25	06/05/06	13.05	7.38	--	5.67	
MW-25	09/11/06	13.05	7.88	--	5.17	
MW-25	12/11/06	13.05	7.03	--	6.02	
MW-25	06/18/07	13.05	6.77	--	6.28	
MW-25	03/03/08	13.05	7.28	--	5.77	
MW-25	06/02/08	13.05	7.71	--	5.34	
MW-25	09/04/08	13.05	7.33	--	5.72	
MW-25	12/04/08	13.05	--	--	--	Not Measured
MW-25	06/01/09	13.05	7.60	--	5.45	
MW-25	06/07/10	13.05	7.31	--	5.74	
MW-25	05/23/11	13.05	7.13	--	5.92	
MW-25	04/22/14	13.05	7.09	--	5.96	
MW-25	03/17/15	13.05	6.92	--	6.13	
MW-25	09/29/15	13.05	7.49	--	5.56	
MW-25	03/29/16	13.05	6.38	--	6.67	
MW-25	10/11/16	13.05	7.65	--	5.40	
MW-25	03/28/17	13.05	6.44	--	6.61	
MW-25	10/10/17	13.05	7.65	--	5.40	
MW-25	03/28/18	13.05	7.03	--	6.02	
MW-25	10/02/18	13.05	7.68	--	5.37	
MW-25	04/02/19	13.05	7.07	--	5.98	
MW-25	10/01/19	13.05	7.54	--	5.51	
MW-25	03/25/20	13.05	7.11	--	5.94	
MW-25	10/19/20	13.05	7.47	--	5.58	
E-1	02/11/02	9.04	3.65	--	5.39	
E-1	05/20/02	9.04	4.59	--	4.45	
E-1	08/27/02	9.04	--	--	--	Not Measured-Dry
E-1	11/04/02	--	--	--	--	Not Measured-Dry/Damaged
E-1	06/11/03	--	--	--	--	Not Measured-Damaged
E-1	05/30/12	13.05	7.12	--	5.93	
E-1					Abandoned	
SF-01	12/18/00	--	--	--	--	

**Appendix D**  
**Historical Groundwater Elevation Data**  
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**Harbor Island Terminal**  
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Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
SF-01						Abandoned
SF-01R	02/11/02	10.68	7.11	--	3.57	
SF-01R	05/20/02	10.68	9.07	Sheen	1.61	
SF-01R	08/27/02	10.68	8.44	0.01	2.25	
SF-01R	11/04/02	10.68	9.63	--	1.05	
SF-01R	02/18/03	10.68	7.72	--	2.96	
SF-01R	06/09/03	10.68	8.30	--	2.38	
SF-01R	09/15/03	14.74	8.60	--	6.14	
SF-01R	11/18/03	14.74	7.45	--	7.29	
SF-01R	02/24/04	14.74	7.76	--	6.98	
SF-01R	05/10/04	14.74	8.11	--	6.63	
SF-01R	08/24/04	14.74	8.49	--	6.25	
SF-01R	12/13/04	14.74	--	--	--	Inaccessible, under construction trailer
SF-01R	03/08/05	14.74	8.16	--	6.58	
SF-01R	06/06/05	14.74	8.16	--	6.58	
SF-01R	09/19/05	14.74	--	--	--	Inaccessible, under construction trailer
SF-01R	12/12/05	14.74	8.39	--	6.35	
SF-01R	03/13/06	14.74	7.70	--	7.04	
SF-01R	06/05/06	14.74	8.09	--	6.65	
SF-01R	09/11/06	14.74	8.60	--	6.14	
SF-01R	12/11/06	14.74	7.73	--	7.01	
SH-02	02/11/02					Destroyed during construction activities
SH-02R	02/11/02	9.35	5.45	--	3.90	
SH-02R	05/20/02	9.35	6.49	--	2.86	
SH-02R	08/27/02	9.35	6.27	--	3.08	
SH-02R	11/04/02	9.35	6.62	--	2.73	
SH-02R	02/18/03	9.35	4.85	--	4.50	
SH-02R	06/09/03	9.35	4.75	--	4.60	
SH-02R	09/15/03	13.40	6.50	--	6.90	
SH-02R	11/18/03	13.40	6.03	--	7.37	
SH-02R	02/24/04	13.40	4.62	--	8.78	
SH-02R	05/10/04	13.40	5.88	--	7.52	
SH-02R	08/24/04	13.40	6.21	--	7.19	
SH-02R	12/13/04	13.40	5.14	--	8.26	
SH-02R	03/08/05	13.40	5.90	--	7.50	
SH-02R	06/06/05	13.40	5.72	--	7.68	
SH-02R	09/19/05	13.40	6.56	--	6.84	
SH-02R	12/12/05	13.40	5.94	--	7.46	
SH-02R	03/13/06	13.40	4.80	--	8.60	
SH-02R	06/05/06	13.40	5.41	--	7.99	
SH-02R	09/11/06	13.40	6.54	--	6.86	
SH-02R	12/11/06	13.40	4.82	--	8.58	
SH-02R	03/26/07	13.40	4.98	--	8.42	
SH-02R	06/18/07	13.40	5.94	--	7.46	
SH-02R	09/25/07	13.40	6.54	--	6.86	
SH-02R	12/10/07	13.40	5.13	--	8.27	
SH-02R	03/03/08	13.40	5.45	--	7.95	
SH-02R	06/02/08	13.40	6.10	--	7.30	
SH-02R	09/04/08	13.40	6.19	--	7.21	
SH-02R	12/04/08	13.40	6.08	--	7.32	
SH-02R	03/04/09	13.40	5.63	--	7.77	
SH-02R	06/01/09	13.40	5.79	--	7.61	
SH-02R	09/21/09	13.40	6.49	--	6.91	
SH-02R	11/16/09	13.40	5.37	--	8.03	
SH-02R	03/08/10	13.40	4.88	--	8.52	
SH-02R	06/07/10	13.40	5.25	--	8.15	
SH-02R	09/09/10	13.40	6.31	--	7.09	
SH-02R	11/15/10	13.40	5.42	--	7.98	
SH-02R	03/01/11	13.40	4.71	--	8.69	
SH-02R	05/23/11	13.40	4.78	--	8.62	
SH-02R	08/29/11	13.40	6.16	--	7.24	
SH-02R	12/01/11	13.40	5.50	--	7.90	
SH-02R	03/01/12	13.40	5.34	--	8.06	
SH-02R	05/30/12	13.40	5.32	--	8.08	
SH-02R	08/25/12	13.40	6.03	--	7.37	
SH-02R	11/07/12	13.40	5.37	--	8.03	
SH-02R	02/27/13	13.40	5.01	--	8.39	
SH-02R	04/08/13	13.40	4.77	--	8.63	
SH-02R	07/29/13	13.40	5.98	--	7.42	
SH-02R	10/02/13	13.40	5.54	--	7.86	
SH-02R	01/21/14	13.40	5.76	--	7.64	
SH-02R	04/22/14	13.40	4.76	--	8.64	
SH-02R	07/15/14	13.40	5.78	--	7.62	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
SH-02R	03/17/15	13.40	4.43	--	8.97	
SH-02R	09/28/15	13.40	6.00	--	7.40	
SH-02R	03/29/16	13.40	3.96	--	9.44	
SH-02R	10/11/16	13.40	6.11	--	7.29	
SH-02R	03/28/17	13.40	3.65	--	9.75	
SH-02R	10/10/17	13.40	6.09	--	7.31	
SH-02R	03/28/18	13.40	4.92	--	8.48	
SH-02R	10/02/18	13.40	6.27	--	7.13	
SH-02R	04/02/19	13.40	5.20	--	8.20	
SH-02R	10/01/19	13.40	6.02	--	7.38	
SH-02R	03/25/20	13.40	4.90	--	8.5	
SH-02R	10/19/20	13.40	5.69	--	7.71	
SH-04	02/11/02	13.45	9.40	--	4.05	
SH-04	05/20/02	13.45	11.24	--	2.21	
SH-04	08/27/02	13.45	11.02	--	2.43	
SH-04	11/04/02	13.45	9.31	--	4.14	
SH-04	02/18/03	13.45	9.80	--	3.65	
SH-04	06/09/03	13.45	10.41	--	3.04	
SH-04	09/15/03	17.41	11.15	--	6.26	
SH-04	11/18/03	17.41	7.61	--	9.80	
SH-04	02/24/04	17.41	6.62	--	10.79	
SH-04	05/10/04	17.41	11.40	--	6.01	
SH-04	08/24/04	17.41	10.88	--	6.53	
SH-04	12/13/04	17.41	10.68	--	6.73	
SH-04	03/08/05	17.41	10.33	--	7.08	
SH-04	06/06/05	17.41	10.23	--	7.18	
SH-04	09/19/05	17.41	11.03	--	6.38	
SH-04	12/12/05	17.41	10.53	--	6.88	
SH-04	03/13/06	17.41	9.22	--	8.19	
SH-04	06/05/06	17.41	10.05	--	7.36	
SH-04	09/11/06	17.41	11.00	--	6.41	
SH-04	12/11/06	17.41	9.50	--	7.91	
SH-05	10/27/93	8.77	6.66	--	2.11	
SH-05	01/19/94	8.77	5.92	--	2.85	
SH-05	06/07/94	8.77	6.30	--	2.47	
SH-05	08/17/94	8.77	6.58	--	2.19	
SH-05	11/21/94	8.77	6.03	--	2.74	
SH-05	03/07/96	8.77	4.67	--	4.10	
SH-05	01/13/97	8.77	3.84	--	4.93	
SH-05	10/06/00	8.77	5.23	--	3.54	
SH-05	12/18/00	8.77	5.80	--	2.97	
SH-05	03/27/01					Destroyed during construction activities
SH-05R	05/20/02	9.83	8.07	Sheen	1.76	
SH-05R	08/27/02	9.83	7.59	--	2.24	
SH-05R	11/04/02	9.83	7.81	Sheen	2.02	
SH-05R	02/18/03	9.83	7.60	--	2.23	
SH-05R	06/09/03	9.83	7.29	--	2.54	
SH-05R	09/15/03	13.89	7.42	Sheen	6.47	
SH-05R	11/18/03	13.89	7.21	Sheen	6.68	
SH-05R	02/24/04	13.89	6.41	--	7.48	
SH-05R	05/10/04	13.89	7.33	--	6.56	
SH-05R	08/24/04	13.89	7.60	--	6.29	
SH-05R	12/13/04	13.89	7.15	--	6.74	
SH-05R	03/08/05	13.89	7.62	--	6.27	
SH-05R	06/06/05	13.89	7.24	--	6.65	
SH-05R	09/19/05	13.89	7.80	--	6.09	
SH-05R	12/12/05	13.89	7.49	--	6.40	
SH-05R	03/13/06	13.89	6.38	--	7.51	
SH-05R	06/05/06	13.89	7.10	--	6.79	
SH-05R	09/11/06	13.89	7.72	--	6.17	
SH-05R	12/11/06	13.89	6.61	--	7.28	
SH-05R	03/26/07	13.89	6.82	--	7.07	
SH-05R	06/18/07	13.89	7.43	--	6.46	
SH-05R	09/25/07	13.89	7.72	--	6.17	
SH-05R	12/10/07	13.89	6.70	--	7.19	
SH-05R	03/03/08	13.89	7.01	--	6.88	
SH-05R	06/02/08	13.89	7.50	--	6.39	
SH-05R	09/04/08	13.89	7.55	--	6.34	
SH-05R	12/04/08	13.89	7.12	--	6.77	
SH-05R	03/04/09	13.89	7.02	--	6.87	
SH-05R	06/01/09	13.89	7.36	--	6.53	
SH-05R	09/21/09	13.89	7.73	--	6.16	
SH-05R	11/16/09	13.89	6.93	--	6.96	

**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
SH-05R	03/08/10	13.89	6.47	--	7.42	
SH-05R	06/07/10	13.89	6.63	--	7.26	
SH-05R	09/09/10	13.89	7.58	--	6.31	
SH-05R	11/16/10	13.89	7.04	--	6.85	
SH-05R	03/01/11	13.89	6.58	--	7.31	
SH-05R	05/23/11	13.89	6.74	--	7.15	
SH-05R	08/29/11	13.89	7.52	--	6.37	
SH-05R	12/01/11	13.89	7.09	--	6.80	
SH-05R	03/01/12	13.89	6.89	--	7.00	
SH-05R	05/30/12	13.89	6.91	--	6.98	
SH-05R	08/25/12	13.89	7.29	--	6.60	
SH-05R	11/07/12	13.89	6.79	--	7.10	
SH-05R	02/27/13	13.89	6.77	--	7.12	
SH-05R	04/08/13	13.89	5.59	--	8.30	
SH-05R	07/29/13	13.89	7.25	--	6.64	
SH-05R	10/02/13	13.89	6.82	--	7.07	
SH-05R	01/21/14	13.89	7.18	--	6.71	
SH-05R	04/22/14	13.89	6.59	--	7.30	
SH-05R	07/15/14	13.89	7.17	--	6.72	
SH-05R	03/17/15	13.89	6.30	--	7.59	
SH-05R	09/28/15	13.89	7.23	--	6.66	
SH-05R	03/29/16	13.89	--	--	--	Inaccessible
SH-05R	10/11/16	13.89	7.38	--	6.51	
SH-05R	03/28/17	13.89	5.76	--	8.13	
SH-05R	10/10/17	13.89	7.49	--	6.40	
SH-05R	03/28/18	13.89	6.65	--	7.24	
SH-05R	10/02/18	13.89	7.40	--	6.49	
SH-05R	04/02/19	13.89	6.75	--	7.14	
SH-05R	10/01/19	13.89	7.33	--	6.56	
SH-05R	03/25/20	13.89	6.70	--	7.19	
SH-05R	10/19/20	13.89	7.18	--	6.71	
MW-07	01/13/97	7.66	--	--	--	
MW-07						Destroyed during construction activities
MW-07R	02/11/02	9.93	4.95	--	4.98	
MW-07R	05/20/02	9.93	7.29	--	2.64	
MW-07R	08/27/02	9.93	7.17	--	2.76	
MW-07R	11/04/02	9.93	7.53	--	2.40	
MW-07R	02/18/03	--	--	--	--	Not Measured-Inaccessible; covered with asphalt
MW-07R	06/09/03	--	--	--	--	Not Measured-Inaccessible; covered with asphalt
MW-07R	06/11/03	--	--	--	--	Not Measured-Located & cleaned out
MW-07R	09/15/03	13.92	8.40	--	5.52	
MW-07R	11/18/03	13.92	8.17	--	5.75	
MW-07R	02/24/04	13.92	5.64	--	8.28	
MW-07R	05/10/04	13.92	6.70	--	7.22	
MW-07R	08/24/04	13.92	6.95	--	6.97	
MW-07R	12/13/04	13.92	6.43	--	7.49	
MW-07R	03/08/05	13.92	6.67	--	7.25	
MW-07R	06/06/05	13.92	6.48	--	7.44	
MW-07R	09/19/05	13.92	7.35	--	6.57	
MW-07R	12/12/05	13.92	6.71	--	7.21	
MW-07R	03/13/06	13.92	5.59	--	8.33	
MW-07R	06/05/06	13.92	7.20	--	6.72	
MW-07R	09/11/06	13.92	7.30	--	6.62	
MW-07R	12/11/06	13.92	5.50	--	8.42	
MW-07R	03/26/07	13.92	5.84	--	8.08	
MW-07R	06/18/07	13.92	6.80	--	7.12	
MW-07R	09/25/07	13.92	7.27	--	6.65	
MW-07R	12/10/07	13.92	5.60	--	8.32	
MW-07R	03/03/08	13.92	6.20	--	7.72	
MW-07R	06/02/08	13.92	6.88	--	7.04	
MW-07R	09/04/08	13.92	6.94	--	6.98	
MW-07R	12/04/08	13.92	7.84	--	6.08	
MW-07R	03/04/09	13.92	6.30	--	7.62	
MW-07R	06/01/09	13.92	6.57	--	7.35	
MW-07R	09/21/09	13.92	7.24	--	6.68	
MW-07R	11/16/09	13.92	6.04	--	7.88	
MW-07R	03/08/10	13.92	5.63	--	8.29	
MW-07R	06/07/10	13.92	6.04	--	7.88	
MW-07R	09/09/10	13.92	7.05	--	6.87	
MW-07R	11/15/10	13.92	6.11	--	7.81	
MW-07R	03/01/11	13.92	5.43	--	8.49	
MW-07R	05/23/11	13.92	5.66	--	8.26	
MW-07R	08/29/11	13.92	6.97	--	6.95	

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**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
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Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
MW-07R	12/01/11	13.92	6.24	--	7.68	
MW-07R	03/01/12	13.92	6.10	--	7.82	
MW-07R	05/30/12	13.92	6.12	--	7.80	
MW-07R	08/25/12	13.92	--	--	--	Not Measured
MW-07R	11/07/12	13.92	6.02	--	7.90	
MW-07R	02/27/13	13.92	5.84	--	8.08	
MW-07R	04/08/13	13.92	5.49	--	8.43	
MW-07R	07/29/13	13.92	6.70	--	7.22	
MW-07R	10/02/13	13.92	6.06	--	7.86	
MW-07R	01/21/14	13.92	6.49	--	7.43	
MW-07R	04/22/14	13.92	5.56	--	8.36	
MW-07R	07/15/14	13.92	6.60	--	7.32	
MW-07R	03/17/15	13.92	5.06	--	8.86	
MW-07R	09/28/15	13.92	6.73	--	7.19	
MW-07R	03/29/16	13.92	4.75	--	9.17	
MW-07R	10/11/16	13.92	6.86	--	7.06	
MW-07R	03/28/17	13.92	4.54	--	9.38	
MW-07R	10/10/17	13.92	6.95	--	6.97	
MW-07R	03/28/18	13.92	5.75	--	8.17	
MW-07R	10/02/18	13.92	7.05	--	6.87	
MW-07R	04/02/19	13.92	6.09	--	7.83	
MW-07R	10/01/19	13.92	6.84	--	7.08	
MW-07R	03/25/20	13.92	5.82	--	8.10	
MW-07R	10/19/20	13.92	6.54	--	7.38	
TMW-B1	09/09/10	--	--	--	--	Not Measured-SPH recovery unit in well
TMW-B1	05/23/11	--	7.37	--	--	Not Measured-SPH recovery unit in well
TMW-B1	12/01/11	--	8.17	--	--	Not Measured-SPH recovery unit in well
TMW-B1	03/01/12	--	7.75	--	--	Not Measured-SPH recovery unit in well
TMW-B1	08/25/12	--	8.37	--	--	Not Measured
TMW-B1	07/29/13	--	7.80	--	--	
TMW-B1	10/02/13	--	7.47	--	--	
TMW-B1	01/21/14	--	7.78	--	--	
TMW-B1	04/22/14	--	6.99	--	--	
TMW-B1	07/15/14	--	--	--	--	See SW/KH notes
TMW-B1	03/17/15	--	6.57	--	--	
TMW-B1	09/28/15	--	8.26	--	--	
TMW-B1	03/29/16	--	6.12	--	--	
TMW-B1	10/11/16	--	8.49	--	--	
TMW-B1	03/28/17	--	5.88	--	--	
TMW-B1	10/10/17	--	8.49	--	--	
TMW-B1	03/28/18	--	7.28	--	--	
TMW-B1	10/02/18	--	8.60	--	--	
TMW-B1	04/02/19	--	7.53	--	--	
TMW-B1	10/01/19	--	8.42	--	--	
TMW-B1	03/25/20	--	7.12	--	--	
TMW-B1	10/19/20	--	8.24	--	--	
TMW-1	06/21/13	--	3.44	--	--	Baseline monitoring event
TMW-1	07/29/13	--	3.72	--	--	
TMW-1	08/26/13	--	3.74	--	--	Two-month monitoring event
TMW-1	10/02/13	--	2.97	--	--	
TMW-1	01/21/14	--	3.48	--	--	
TMW-1	04/22/14	--	2.09	--	--	
TMW-1	07/15/14	--	--	--	--	Not done due to no TOC elev datum
TMW-1	03/17/15	--	1.65	--	--	
TMW-1	09/29/15	--	4.06	--	--	
TMW-1	03/29/16	--	1.69	--	--	
TMW-1	10/11/16	--	3.95	--	--	
TMW-1	03/28/17	--	1.23	--	--	
TMW-1	10/10/17	--	4.10	--	--	
TMW-1	03/28/18	--	2.72	--	--	
TMW-1	10/02/18	--	4.21	--	--	
TMW-1	04/02/19	--	3.06	--	--	
TMW-1	10/01/19	--	3.95	--	--	
TMW-1	03/25/20	--	2.53	--	--	
TMW-1	10/19/20	--	3.77	--	--	
TMW-2	06/21/13	--	3.83	--	--	Baseline monitoring event
TMW-2	07/29/13	--	3.94	--	--	
TMW-2	08/26/13	--	3.91	--	--	Two-month monitoring event
TMW-2	10/02/13	--	3.15	--	--	
TMW-2	01/21/14	--	3.63	--	--	
TMW-2	04/22/14	--	2.36	--	--	
TMW-2	07/15/14	--	--	--	--	Not done due to no TOC elev datum
TMW-2	03/17/15	--	1.68	--	--	

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 Harbor Island Terminal  
 2720 13th Avenue Southwest, Seattle, Washington

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
TMW-2	10/01/15	--	4.16	--	--	
TMW-2	03/29/16	--	1.84	--	--	
TMW-2	10/11/16	--	4.01	--	--	
TMW-2	03/28/17	--	1.41	--	--	
TMW-2	10/10/17	--	4.15	--	--	
TMW-2	03/28/18	--	2.86	--	--	
TMW-2	10/02/18	--	4.30	--	--	
TMW-2	04/02/19	--	3.2	--	--	
TMW-2	10/01/19	--	4.02	--	--	
TMW-2	03/25/20	--	2.74	--	--	
TMW-2	10/19/20	--	3.86	--	--	
TMW-3	06/21/13	--	3.81	--	--	Baseline monitoring event
TMW-3	07/29/13	--	3.91	--	--	
TMW-3	08/26/13	--	3.88	--	--	Two-month monitoring event
TMW-3	10/02/13	--	3.14	--	--	
TMW-3	01/21/14	--	3.76	--	--	
TMW-3	04/22/14	--	2.41	--	--	
TMW-3	07/15/14	--	--	--	--	Not done due to no TOC elev datum
TMW-3	03/17/15	--	1.67	--	--	
TMW-3	09/30/15	--	4.21	--	--	
TMW-3	03/29/16	--	2.20	--	--	
TMW-3	10/11/16	--	4.02	--	--	
TMW-3	03/28/17	--	1.66	--	--	
TMW-3	10/10/17	--	4.21	--	--	
TMW-3	03/28/18	--	3.01	--	--	



**Appendix D**  
**Historical Groundwater Elevation Data**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Measured	Casing Elevation <sup>1</sup> (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation <sup>1, 2</sup> (feet NAVD88)	Comments
TMW-3	10/02/18		4.31	--	--	
TMW-3	04/02/19	--	3.42	--	--	
TMW-3	10/01/19	--	4.01	--	--	
TMW-3	03/25/20	--	2.88	--	--	
TMW-3	10/19/20	--	3.96	--	--	
TMW-4	06/21/13	--	3.50	--	--	Baseline monitoring event
TMW-4	07/29/13	--	3.75	--	--	
TMW-4	08/26/13	--	3.80	--	--	Two-month monitoring event
TMW-4	10/02/13	--	2.99	--	--	
TMW-4	01/21/14	--	3.45	--	--	
TMW-4	04/22/14	--	2.20	--	--	
TMW-4	07/15/14	--	--	--	--	Not done due to no TOC elev datum
TMW-4	03/17/15	--	1.3	--	--	
TMW-4	09/30/15	--	3.89	--	--	
TMW-4	03/29/16	--	1.22	--	--	
TMW-4	10/11/16	--	3.71	--	--	
TMW-4	03/28/17	--	1.37	--	--	
TMW-4	10/10/17	--	3.95	--	--	
TMW-4	03/28/18	--	2.75	--	--	
TMW-4	10/02/18	--	4.01	--	--	
TMW-4	04/02/19	--	2.90	--	--	
TMW-4	10/01/19	--	3.76	--	--	
TMW-4	03/25/20	--	2.66	--	--	
TMW-4	10/19/20	--	3.64	--	--	
TMW-5	06/21/13	--	3.24	--	--	Baseline monitoring event
TMW-5	07/29/13	--	3.31	--	--	
TMW-5	08/26/13	--	3.39	--	--	Two-month monitoring event
TMW-5	10/02/13	--	2.80	--	--	
TMW-5	01/21/14	--	3.22	--	--	
TMW-5	04/22/14	--	2.42	--	--	
TMW-5	07/15/14	--	--	--	--	Not done due to no TOC elev datum
TMW-5	03/17/15	--	1.84	--	--	
TMW-5	09/30/15	--	3.71	--	--	
TMW-5	03/29/16	--	1.57	--	--	
TMW-5	10/11/16	--	3.76	--	--	
TMW-5	03/28/17	--	1.30	--	--	
TMW-5	10/10/17	--	3.75	--	--	
TMW-5	03/28/18	--	2.67	--	--	
TMW-5	10/02/18	--	3.93	--	--	
TMW-5	04/02/19	--	2.82	--	--	
TMW-5	10/01/19	--	3.75	--	--	
TMW-5	03/25/20	--	2.55	--	--	
TMW-5	10/19/20	--	3.65	--	--	
TMW-6	06/21/13	--	2.93	--	--	Baseline monitoring event
TMW-6	07/29/13	--	2.91	--	--	
TMW-6	08/26/13	--	2.92	--	--	Two-month monitoring event
TMW-6	10/02/13	--	2.12	--	--	
TMW-6	01/21/14	--	2.74	--	--	
TMW-6	04/22/14	--	1.72	--	--	
TMW-6	07/15/14	--	--	--	--	Not done due to no TOC elev datum
TMW-6	03/17/15	--	1.48	--	--	
TMW-6	09/30/15	--	3.21	--	--	
TMW-6	03/29/16	--	1.00	--	--	
TMW-6	10/11/16	--	3.12	--	--	
TMW-6	03/28/17	--	0.68	--	--	
TMW-6	10/10/17	--	3.24	--	--	
TMW-6	03/28/18	--	1.81	--	--	
TMW-6	10/02/18	--	3.17	--	--	
TMW-6	04/02/19	--	2.00	--	--	
TMW-6	10/01/19	--	3.01	--	--	
TMW-6	03/25/20	--	2.01	--	--	
TMW-6	10/19/20	--	2.71	--	--	

**Notes:**

Highlighted = data from most recent monitoring event

-- = not measured/not applicable

BTOC = below top of casing (TOC); depth to groundwater measured from TOC

SPH = separate phase hydrocarbons

Wells MW-10D and MW-11D were deep wells, screened from 30 to 35 feet below grade

\* Well MW-9

1. Prior to the September 2003 monitoring event, TOC elevations were relative to National Geodetic Vertical Datum (N.G.V.D.) 1929 TIDAL 2 (survey benchmark elev=10.617). All TOC elevations were resurveyed in July 2003, relative to North American Vertical Datum1988 (NAVD88) with modified benchmark elevations to account for shifts from February 2001 earthquake.

2. Groundwater elevation corrected for separate phase hydrocarbon thickness using the specific gravity of diesel (0.8), when present.

# APPENDIX E

## Historical Groundwater Analytical Results



**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
A-5	02/14/02	<0.25	2.3	--	<0.5	--	0.00055	0.0017	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-5	05/22/02	<0.25	2.0	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-5	08/29/02	<0.25	1.2	--	<0.5	--	0.0017	0.00062	<0.0005	0.00099	--	--	--	--	--	--	--	--	--	--	--	
A-5	11/06/02	<0.25	1.2	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-5	02/20/03	<0.25	<0.25	--	<0.5	--	0.00086	0.0019	<0.0005	0.001	--	--	--	--	--	--	--	--	--	--	--	
A-5	06/10/03	0.26	0.40	--	<0.25	--	<0.0005	0.00067	<0.0005	0.0007	--	--	--	--	--	--	--	--	--	--	--	
A-5	09/17/03	<0.25	0.60	--	<0.50	--	0.0042	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-5	11/20/03	<0.25	0.53	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-5	02/26/04	<0.25	3.3	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-5	05/12/04	0.27	0.43	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00057	--	--	--	--	--	--	--	--	--	--	--	
A-5	08/25/04	<0.25	1.1	--	<0.50	--	0.0029	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-5	12/14/04	<0.25	0.43	--	<0.50	--	0.021	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	
A-5	03/10/05	0.43	5.2	--	<0.50	--	<b>0.12</b>	0.0025	<0.001	0.0012	--	--	--	--	--	--	--	--	--	--	--	
A-5	06/07/05	0.54	2.4	--	1.7	--	<b>0.12</b>	0.0028	<0.001	0.0013	--	--	--	--	--	--	--	--	--	--	--	
A-5	09/20/05	0.37	1.2	--	<0.50	--	0.037	0.0017	<0.001	0.0011	--	--	--	--	--	--	--	--	--	--	--	
A-5	12/13/05	0.44	0.31	--	<0.50	--	0.049	0.0021	<0.0005	0.0013	--	--	--	--	--	--	--	--	--	--	--	
A-5	03/15/06	0.36	0.45	--	<0.50	--	0.052	0.0017	<0.001	0.0017	--	--	--	--	--	--	--	--	--	--	--	
A-5	06/08/06	0.91	0.55	--	<0.50	--	<b>0.099</b>	0.0036	0.00076	0.0034	--	--	--	--	--	--	--	--	--	--	--	
A-5	09/12/06	0.46	0.43	--	<0.50	--	0.031	0.0016	<0.001	0.0014	--	--	--	--	--	--	--	--	--	--	--	
A-5	12/12/06	0.7	0.53	--	<0.50	--	<b>0.079</b>	0.0028	<0.001	0.0025	--	--	--	--	--	--	--	--	--	--	--	
A-5	03/27/07	<b>1.4</b>	--	--	--	--	<b>0.19</b>	0.0045	0.0014	0.0050	--	--	0.8	--	--	--	--	--	--	--	--	
A-5	06/19/07	<b>1.1</b>	1.9	--	<0.50	--	<b>0.09</b>	0.0027	0.00072	0.0039	--	--	--	--	--	--	--	--	--	--	--	
A-5	09/24/07	0.72	--	--	--	--	0.039	0.0019	<0.0005	0.0018	--	--	2.70	--	--	--	--	--	--	--	--	
A-5	12/11/07	0.31	--	--	--	--	0.017	0.00096	<0.0005	0.00088	--	--	1.46	--	--	--	--	--	--	--	--	
A-5	03/04/08	<b>1.4</b>	--	--	--	--	<b>0.12</b>	0.0040	<0.0010	0.0040	--	--	0.10	--	--	--	--	--	--	--	--	
A-5	06/03/08	0.85	--	--	--	--	0.048	<0.0015	<0.0015	0.0029	--	--	1.90	--	--	--	--	--	--	--	--	
A-5	09/08/08	<b>1.5</b>	--	--	--	--	<b>0.15</b>	0.0032	0.0031	0.0076	--	--	1.13	--	--	--	--	--	--	--	--	
A-5	12/05/08	0.64	--	--	--	--	<b>0.089</b>	<0.0010	<0.0010	0.0038	--	--	0.41	--	--	--	--	--	--	--	--	
A-5	03/04/09	<0.25	--	--	--	--	0.0011	<0.0010	0.002	0.0071	--	--	0.41	--	--	--	--	--	--	--	--	
A-5	06/03/09	0.45	--	--	--	--	0.022	<0.0010	<0.0010	0.0027	--	--	0.61	--	--	--	--	--	--	--	--	
A-5	09/22/09	0.75	--	--	--	--	0.063	0.0012	0.0041	0.021	--	--	0.69	--	--	--	--	--	--	--	--	
A-5	11/17/09	0.43	--	--	--	--	0.011	<0.0010	<0.0010	0.0038	--	--	0.24	--	--	--	--	--	--	--	--	
A-5	03/08/10	0.34	--	--	--	--	0.0059	<0.0010	0.0012	0.0051	--	--	0.61	--	--	--	--	--	--	--	--	
A-5	06/09/10	<0.25	--	--	--	--	0.0063	<0.0010	<0.0010	0.0019	--	--	0.00	--	--	--	--	--	--	--	--	
A-5	09/10/10	0.80	--	--	--	--	0.031	0.0017	0.0047	0.025	--	--	3.32	--	--	--	--	--	--	--	--	
A-5	11/16/10	0.35	--	--	--	--	0.0025	<0.0010	0.0011	0.0086	--	--	0.30	--	--	--	--	--	--	--	--	
A-5	03/02/11	0.34	--	--	--	--	0.0042	<0.0010	<0.0010	0.0019	--	--	0.00	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
A-5	05/25/11	0.39	--	--	--	--	0.0078	0.00057	<0.0005	0.0014	--	--	1.28	--	--	--	--	--	--	--	
A-5	08/30/11	0.47	--	--	--	--	0.0027	0.00070	<0.0005	0.0013	--	--	0.58	--	--	--	--	--	--	--	
A-5	12/02/11	0.29	--	--	--	--	0.0017	<0.0010	<0.0010	<0.0020	--	--	1.41	--	--	--	--	--	--	--	
A-5	03/02/12	<0.25	--	--	--	--	0.00094	<0.0005	<0.0005	<0.0005	--	--	0.37	--	--	--	--	--	--	--	
A-5	06/01/12	<0.25	--	--	--	--	0.012	<0.0010	<0.0010	0.0010	--	--	0.00	--	--	--	--	--	--	--	
A-5 (DUP)	06/01/12	<0.25	--	--	--	--	0.011	<0.0010	<0.0010	0.0010	--	--	--	--	--	--	--	--	--	--	Duplicate of A-5
A-5	08/25/12	0.57	--	--	--	--	0.02	0.0012	<0.0010	0.0014	--	--	--	--	--	--	--	--	--	--	
A-5	11/08/12	0.27	--	--	--	--	0.028	<0.001	<0.001	0.0011	--	--	--	--	--	--	--	--	--	--	
A-5	02/28/13	0.66	--	--	--	--	0.062	0.0017	<0.0005	0.0013	--	--	--	--	--	--	--	--	--	--	
A-5	04/10/13	0.46	--	--	--	--	0.014	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	
A-5	07/29/13	0.54	--	--	--	--	0.033	0.0022	<0.0005	0.0022	--	--	--	--	--	--	--	--	--	--	
A-5	10/03/13	0.47	--	--	--	--	0.049	0.0014	<0.001	0.0016	--	--	0.00	--	--	--	--	--	--	--	
A-5	01/21/14	0.51	--	--	--	--	0.051	0.0012	<0.001	<0.001	--	--	6.00	--	--	--	--	--	--	--	
A-5	04/23/14	0.60	--	--	--	--	0.025	0.0015	<0.0005	0.0011	--	--	--	--	--	--	--	--	--	--	
A-5	07/15/14	0.61	--	--	--	--	0.017	0.0011	<0.0005	0.00095	--	--	0.37	--	--	--	--	--	--	--	
A-5	03/18/15	0.40	--	--	--	--	0.0045	0.0013	<0.0005	0.0012	--	--	--	--	--	--	--	--	--	--	
A-5	10/02/15	0.495	--	--	--	--	0.00161	<0.005	<0.001	<0.003	--	--	0.10	--	--	--	--	--	--	--	
A-5 (DUP)	10/02/15	0.553	--	--	--	--	0.00168	<0.005	<0.001	<0.003	--	--	--	--	--	--	--	--	--	--	Duplicate of A-5
A-5	03/29/16	0.413	--	--	--	--	0.00809	<0.005	<0.001	<0.003	--	--	0.33	--	--	--	--	--	--	--	
A-5	10/13/16	0.498	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.57	--	--	--	--	--	--	--	
A-5	03/29/17	0.277	--	--	--	--	0.00508	<0.001	<0.001	<0.003	--	--	0.27	--	--	--	--	--	--	--	
A-5	10/11/17	0.576	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.53	--	--	--	--	--	--	--	
A-5	03/28/18	<b>1.04</b>	--	--	--	--	0.00814	0.00201	<0.001	<0.003	--	--	0.13	--	--	--	--	--	--	--	
A-5	10/02/18	0.905 B	--	--	--	--	0.0014	0.00171	<0.001	<0.003	--	--	0.09	--	--	--	--	--	--	--	
A-5	04/03/19	0.591	--	--	--	--	0.00169	0.00145	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
A-5	10/03/19	0.355	--	--	--	--	<0.00100	0.00141	<0.00100	<0.00300	--	--	0.17	--	--	--	--	--	--	--	
A-5	03/27/20	<0.500	--	--	--	--	0.00195	0.00146	<0.00100	<0.00300	--	--	0.17	--	--	--	--	--	--	--	
A-5	10/23/20	0.585 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	-- <sup>d</sup>	--	--	--	--	--	--	--	
A-8	02/14/02	<0.25	1.6	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-8	05/22/02	<0.25	0.51	--	<0.5	--	<0.0005	0.00058	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-8	08/28/02	<0.25	<0.5	--	<0.5	--	<0.0005	0.0014	<0.0005	0.00066	--	--	--	--	--	--	--	--	--	--	
A-8	11/06/02	<0.25	0.43	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-8	02/20/03	<0.25	<0.25	--	<0.5	--	<0.0005	0.00083	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-8	06/10/03	<0.25	<0.25	--	<0.25	--	<0.0005	0.00056	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-8	09/17/03	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-8	11/20/03	<0.25	1.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-8	02/26/04	0.35	1.0000	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
A-8	05/12/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-8	08/25/04	<0.25	4.9	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	
A-8	12/14/04	<0.25	1.7	--	<0.50	--	0.00056	0.00052	<0.0005	0.00094	--	--	--	--	--	--	--	--	--	--	--	
A-8	03/10/05	<0.25	2.1	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00055	--	--	--	--	--	--	--	--	--	--	--	
A-8	06/07/05	<0.25	1.2	--	1.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-8	09/20/05	<0.25	3.5	--	0.83	--	0.0012	<0.001	<0.001	0.0012	--	--	--	--	--	--	--	--	--	--	--	
A-8	12/13/05	<0.25	0.54	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.0011	--	--	--	--	--	--	--	--	--	--	--	
A-8	03/15/06	<0.25	0.55	--	<0.50	--	<0.0010	<0.0010	<0.0010	0.0010	--	--	--	--	--	--	--	--	--	--	--	
A-8	06/08/06	<0.25	0.47	--	<0.50	--	<0.0010	<0.0010	<0.0010	0.0010	--	--	--	--	--	--	--	--	--	--	--	
A-8	09/12/06	<0.25	0.76	--	<0.50	--	<0.0010	<0.0010	<0.0010	0.0011	--	--	--	--	--	--	--	--	--	--	--	
A-8	12/12/06	0.27	0.87	--	<0.50	--	<0.0010	0.0011	<0.0010	0.0015	--	--	--	--	--	--	--	--	--	--	--	
A-8	06/19/07	<0.25	2.4	--	0.58	--	<0.0010	<0.0010	<0.0010	0.0010	--	--	--	--	--	--	--	--	--	--	--	
A-8	06/03/08	<0.30	0.46	--	<0.50	--	<0.0015	<0.0015	<0.0015	<0.0015	--	--	--	--	--	--	--	--	--	--	--	
A-8	06/03/09	<0.25	1.6	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.55	--	--	--	--	--	--	--	--	
A-8	06/09/10	<0.25	0.45	--	<0.50	--	0.0054	<0.0010	<0.0010	<0.0010	--	--	0.00	--	--	--	--	--	--	--	--	
A-8	05/25/11	<0.25	1.2	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	1.32	--	--	--	--	--	--	--	--	
A-8	06/01/12	<0.50	0.90	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	0.00	--	--	--	--	--	--	--	--	
A-8	04/10/13	0.25	--	<0.25	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	--	
A-8	04/23/14	<0.25	1.5	<0.25	<0.50	<0.50	<0.0005	0.00061	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-8	10/02/15	0.382	--	4.97	--	0.475	<0.001	<0.005	<0.001	<0.003	--	--	0.37	--	--	--	--	--	--	--	--	
A-8	10/13/16	0.341	--	0.498	--	<0.50	<0.001	<0.005	<0.001	<0.003	--	--	0.63	--	--	--	--	--	--	--	--	
A-8	10/11/17	0.143 B	--	0.438	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.48	--	--	--	--	--	--	--	--	
A-8	10/02/18	0.196	--	0.472	--	<0.25	<0.001	<0.001	<0.001	<0.003	--	--	0.07	--	--	--	--	--	--	--	--	
A-8	10/02/19	<0.100	--	0.794	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.13	--	--	--	--	--	--	--	--	
A-8	10/23/20	0.249 B	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.14	--	--	--	--	--	--	--	--	
A-10	02/14/02	<0.25	9.2	--	<0.5	--	<0.0005	0.00062	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-10	05/22/02	0.31	8.8	--	<0.5	--	<0.0005	0.00086	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
A-10	08/28/02	0.30	<b>15</b>	--	<0.5	--	<0.001	<0.001	<0.001	<0.001	--	--	1.40	5.7	--	--	16	<0.25	30.00	0.6		
A-10	11/06/02	0.37	<b>13</b>	--	<0.50	--	<0.0005	0.00057	<0.0005	<0.0005	--	--	2.00	5.9	--	--	15	<0.25	10.00	0.3		
A-10	02/20/03	<0.25	6.0	--	<0.5	--	0.0013	<0.0005	<0.0005	0.00055	--	--	2.70	1.0	--	--	22	6.1	86	<0.1		
A-10	06/10/03	0.45	<b>19</b>	--	<0.25	--	<0.001	<0.001	<0.001	<0.001	--	--	1.40	1.60	--	--	17.00	0.54	63.00	0.1		
A-10	09/17/03	0.68	<b>30</b>	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.70	3.20	--	--	47.00	<0.25 c	12.00	0.6		
A-10	11/20/03	<b>1.1</b>	<b>89</b>	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.40	0.10	--	--	4.90	<0.25 c	3.70	0.3		
A-10	02/26/04	<0.25	<b>35</b>	--	0.74	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.50	0.24	--	--	5.10	<0.25 b	61.00	0.2		
A-10	05/12/04	<0.25	3.5	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.60	--*d	--	--	30.00	<0.25	10.00	<0.10		
A-10	08/25/04	<0.25	5.1	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.65	0.75	--	--	6.20	<0.25	57.00	0.12		
A-10	12/14/04	<0.25	1.1	--	<0.50	--	0.0030	<0.001	<0.001	<0.001	--	--	2.50	0.093	--	--	<0.050	<0.25	8.80	<0.10		

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
A-10	03/10/05	<0.25	4.6	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.58	6.60	--	--	12.00	<0.25	260.00	<0.10	
A-10	06/07/05	0.30	<b>68</b>	--	2.1	--	0.00069	<0.0005	<0.0005	<0.0005	--	--	1.51	1.00	--	--	3.40	<0.25	480.00	16	
A-10	09/20/05	0.60	1.5	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.10	2.40	--	--	5.60	<0.25	320.00	0.23	
A-10	12/13/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.20	0.067	--	--	<0.050	14.00	56.00	<0.10	
A-10	03/15/06	<0.25	1.7	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00050	--	--	2.20	2.50	--	--	42.00	<0.25	60.00	0.18	
A-10	06/08/06	<0.25	0.66	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00050	--	--	1.00	1.60	--	--	7.80	<0.25	4.30	0.22	
A-10	09/12/06	<0.25	0.65	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00050	--	--	1.60	1.40	--	--	15.00	<0.25	140.00	0.18	
A-10	12/12/06	<0.25	0.98	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.00	0.088	--	--	2.00	<0.25	7.90	<0.10	
A-10	06/19/07	<0.25	1.2	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.70	--	--	--	--	--	--	--	
A-10	06/03/09	<0.25	2.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.40	--	--	--	--	--	--	--	
A-10	06/09/10	<0.25	0.56	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	
A-10	05/25/11	<0.25	0.80	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.97	--	--	--	--	--	--	--	
A-10	06/01/12	<0.25	0.62	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	
A-10	04/10/13	<0.25	--	0.36	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-10	04/23/14	<0.25	0.27	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-10	10/02/15	<0.100	--	0.723	--	<0.25	<0.001	<0.005	<0.001	<0.003	--	--	0.43	--	--	--	--	--	--	--	
A-10	10/13/16	<0.100	--	0.640	--	<0.500	<0.001	<0.005	<0.001	<0.003	--	--	0.61	--	--	--	--	--	--	--	
A-10	10/10/17	<0.100	--	1.15	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.50	--	--	--	--	--	--	--	
A-10	10/02/18	<0.1	--	1.38	--	0.261	<0.001	<0.001	<0.001	<0.003	--	--	0.04	--	--	--	--	--	--	--	
A-10	10/02/19	<0.100	--	0.441	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.13	--	--	--	--	--	--	--	
A-10	10/23/20	<0.100	--	0.704	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.16	--	--	--	--	--	--	--	
A-12	12/12/06	<0.25	0.98	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-12	06/03/08	<0.25	0.63	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-12	05/25/11	<0.025	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-14R	02/14/02	<0.25	<0.25	--	<0.5	--	0.00061	0.0021	<0.0005	<0.0005	0.005*	--	--	--	--	--	--	--	--	--	
A-14R	05/22/02	<0.25	<0.5	--	<0.5	--	0.00053	0.0021	<0.0005	0.00054	<b>0.02*</b>	--	--	--	--	--	--	--	--	--	
A-14R	08/28/02	<0.25	<0.5	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	1.50	0.034	--	--	0.7	9.5	290.00	<0.1	
A-14R	11/06/02	<0.25	<0.25	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	2.30	0.054	--	--	0.4	5.7	290.00	0.1	
A-14R	02/20/03	<0.25	<0.25	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	2.90	0.26	--	--	<0.2	2.4	300	<0.1	
A-14R	06/10/03	<0.25	<0.25	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.02</b>	--	2.00	0.21	--	--	2.20	6.00	220.00	0.3	
A-14R	09/17/03	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.025*</b>	--	1.90	2.40	--	--	3.40	0.86 a	240.00	0.2	
A-14R	11/20/03	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.032*</b>	--	1.80	0.45	--	--	2.40	0.63 c	250.00	<0.1	
A-14R	02/26/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.018*</b>	--	1.40	3.30	--	--	0.31	0.69 b	190.00	0.1	
A-14R	05/12/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.30	1.40	--	--	<0.050	3.00	130.00	<0.10	
A-14R	08/25/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.22	4.30	--	--	0.66	0.42	200.00	<0.10	
A-14R	12/14/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0072*</b>	--	3.00	3.50	--	--	1.00	<0.25	230.00	<0.10	
A-14R	03/10/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.15	1.30	--	--	2.40	<0.25	290.00	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
A-14R	06/07/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.00	0.28	--	--	0.16	0.36	220.00	<0.2	
A-14R	09/20/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
A-14R	12/13/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.10	1.60	--	--	3.70	<0.25	150.00	<0.10	
A-14R	03/15/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.10	0.82	--	--	0.14	<0.25	80.00	<0.10	
A-14R	06/08/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.40	1.50	--	--	0.53	<0.25	38.00	<0.10	
A-14R	09/12/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.00	0.19	--	--	0.80	<0.25	110.00	<0.10	
A-14R	12/12/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
A-14R	06/19/07	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.90	--	--	--	--	--	--	--	
A-14R	12/12/07	--	--	--	--	--	--	--	--	--	--	--	2.90	1.2	--	--	0.76	<0.25	99.00	<0.10	
A-14R	06/03/08	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.90	--	--	--	--	--	--	--	
A-14R	06/03/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.00	--	--	--	--	--	--	--	
A-14R	06/09/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	--	--	--	--	--	--	--	
A-14R	05/25/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.05	--	--	--	--	--	--	--	
A-14R	06/01/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	--	--	--	--	--	--	--	
A-14R	04/10/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
A-14R	04/23/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
A-14R	10/01/15	<0.100	--	<0.100	--	<0.25	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.35	--	--	--	--	--	--	--	
A-14R	10/13/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.69	--	--	--	--	--	--	--	
A-14R	10/10/17	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.63	--	--	--	--	--	--	--	
A-14R	10/02/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.16	--	--	--	--	--	--	--	
A-14R	10/02/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.15	--	--	--	--	--	--	--	
A-14R	10/23/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.11	--	--	--	--	--	--	--	
A-18	05/25/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
A-19	05/25/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
A-20	05/25/11	<b>2.5</b>	--	--	--	--	<0.0010	<0.0010	0.037	0.013	--	--	--	--	--	--	--	--	--	--	
A-21	02/14/02	<0.25	<0.25	--	<0.5	--	<0.0005	0.0010	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
A-21	05/22/02	<0.25	<0.5	--	<0.5	--	0.00061	0.0017	<0.0005	0.00057	<0.005*	--	--	--	--	--	--	--	--	--	
A-21	08/29/02	<0.25	0.76	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	2.10	0.31	--	--	33.00	<0.25	41.00	0.3	
A-21	11/06/02	<0.25	0.37	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	1.60	0.64	--	--	32.00	<0.25	32.00	<0.1	
A-21	02/19/03	<0.25	<0.5	--	<0.5	--	0.0013	0.0018	<0.0005	0.00061	<0.005*	--	1.90	1.60	--	--	28.00	<0.25	2.90	0.1	
A-21	06/10/03	0.25	<0.25	--	<0.25	--	0.0082	0.00058	<0.0005	<0.0005	<b>0.062*</b>	--	1.30	2.80	--	--	31.00	<0.25	0.30	0.2	
A-21	09/16/03	<0.25	<0.25	--	<0.50	--	0.0034	<0.0005	<0.0005	<0.0005	<b>0.0085*</b>	--	1.60	4.10	--	--	33.00	<0.25 b	5.30	0.7	
A-21	11/19/03	0.47	<0.25	--	<0.50	--	0.061	0.0019	<0.0005	0.0029	<b>0.0067*</b>	--	1.70	5.60	--	--	26.00	<0.25 b	16.00	0.2	
A-21	02/25/04	0.63	<0.50	--	<0.50	--	0.013	0.00066	0.045	0.0016	<0.0050*	--	2.10	2.60	--	--	31.00	<0.25 b	1.20	0.4	
A-21	05/12/04	0.50	<0.25	--	<0.50	--	0.0019	<0.0005	0.0042	0.00072	<0.0050*	--	0.80	1.80	--	--	33.00	<0.25	0.79	<0.10	
A-21	08/25/04	0.26	<0.25	--	<0.50	--	0.0015	<0.0005	<0.0005	0.0015	<0.0050*	--	1.44	5.80	--	--	16.00	<0.25	2.40	0.11	
A-21	12/14/04	0.99	<0.25	--	<0.50	--	0.061	0.0025	0.022	0.0083	<0.0050*	--	2.72	11.00	--	--	4.60	<0.25	0.74	0.12	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
A-21	03/10/05	1.5	0.26	--	<0.50	--	0.024	0.0021	0.0025	0.011	0.020*	--	1.50	8.50	--	--	19.00	<0.25	0.79	<0.10	
A-21	06/07/05	1.2	0.35	--	<0.50	--	0.0076	0.00084	0.00077	0.0043	<0.0050*	--	1.50	3.80	--	--	3.30	<0.25	<0.50	0.7	
A-21	09/20/05	1.3	<0.25	--	<0.50	--	0.011	0.0012	0.00066	0.0048	<0.0050*	--	2.60	6.10	--	--	27.00	<0.25	<0.50	<0.10	
A-21	12/13/05	1.6	<0.25	--	<0.50	--	0.017	0.0016	0.0015	0.0052	<0.0050*	--	2.50	7.50	--	--	30.00	<0.25	<0.50	<0.10	
A-21	03/15/06	0.97	<0.25	--	<0.50	--	0.0098	0.00097	0.0023	0.0033	<0.0050*	--	2.50	3.20	--	--	32.00	<0.25	<0.50	<0.10	
A-21	06/08/06	0.82	<0.25	--	<0.50	--	0.0023	0.00059	<0.0005	0.0019	<0.0050*	--	2.80	2.20	--	--	33.00	<0.25	<0.50	<0.10	
A-21	09/12/06	0.85	<0.25	--	<0.50	--	0.0019	<0.0005	<0.0005	0.0016	<0.0050*	--	2.60	2.90	--	--	31.00	<0.25	<0.50	<0.10	
A-21	12/12/06	0.85	<0.25	--	<0.50	--	0.0071	<0.0005	0.0021	0.0014	<0.0050*	--	3.10	3.20	--	--	46.00	<0.25	130.00	0.11	
A-21	03/27/07	0.28	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	3.80	--	--	--	--	--	--	--	
A-21	06/19/07	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	2.10	0.19	--	--	24	<0.25	120	0.13	
A-21	09/25/07	<0.25	--	--	--	--	0.0040	<0.0005	<0.0005	<0.0005	--	--	3.00	--	--	--	--	--	--	--	
A-21	12/11/07	0.51	--	--	--	--	0.0062	<0.0005	0.026	0.0020	--	--	1.70	--	--	--	--	--	--	--	
A-21	03/04/08	<0.25	--	--	--	--	<0.0005	<0.0005	0.0051	<0.0005	--	--	0.30	--	--	--	--	--	--	--	
A-21	06/04/08	<0.25	--	--	--	--	<0.0005	<0.0005	0.00075	<0.0005	<0.0050	--	1.60	0.11	--	--	20.00	0.27	150.00	0.14	
A-21	09/08/08	0.41	--	--	--	--	<0.0005	0.00074	0.0018	0.00053	--	--	1.71	--	--	--	--	--	--	--	
A-21	12/04/08	0.96	--	--	--	--	<0.0010	<0.0010	0.15	<0.0010	--	--	0.72	--	--	--	--	--	--	--	
A-21	03/04/09	0.48	--	--	--	--	0.0075	<0.0005	0.0068	0.021	--	--	0.37	--	--	--	--	--	--	--	
A-21	06/02/09	0.46	--	--	--	--	0.0027	<0.00050	0.0023	0.0059	<b>0.0087</b>	--	0.20	0.028	--	--	8.00	<0.25	320.00	<0.10	
A-21	09/22/09	0.27	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.56	--	--	--	--	--	--	--	
A-21	11/17/09	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.39	--	--	--	--	--	--	--	
A-21	03/08/10	<0.25	--	--	--	--	0.0026	<0.0005	0.0019	0.0046	--	--	0.85	--	--	--	--	--	--	--	
A-21	06/08/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.33	0.015	--	--	0.72	0.28	85.00	<0.10	
A-21	09/10/10	<0.25	--	--	--	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	3.49	--	--	--	--	--	--	--	
A-21	11/16/10	0.82	--	--	--	--	<0.0010	<0.0010	0.056	0.011	--	--	0.33	--	--	--	--	--	--	--	
A-21	03/02/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.50	--	--	--	--	--	--	--	
A-21	05/24/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.54	0.038	--	--	0.19	0.50	25.00	0.10	
A-21	08/30/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.38	--	--	--	--	--	--	--	
A-21	12/02/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0010	--	--	0.70	--	--	--	--	--	--	--	
A-21	03/02/12	1.7	--	--	--	--	<0.0010	<0.0010	0.16	0.026	--	--	0.29	--	--	--	--	--	--	--	
A-21	05/30/12	1.5	--	--	--	--	<0.0010	<0.0010	0.027	<0.0010	<0.0050	--	0.00	<0.010	--	--	9.60	<0.25	940.00	0.15	
A-21	08/25/12	1.6	--	--	--	--	<0.0010	<0.0010	0.024	<0.0010	--	--	--	--	--	--	--	--	--	--	
A-21	11/08/12	0.53	--	--	--	--	<0.0005	<0.0005	0.0011	0.0015	--	--	--	--	--	--	--	--	--	--	
A-21	02/28/13	0.44	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-21	04/10/13	0.58	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	<0.010	--	--	--	<0.25	920	<0.10	
A-21	07/29/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-21	10/03/13	<0.25	--	--	--	--	<0.001	<0.001	<0.001	<0.001	--	--	0.00	--	--	--	--	--	--	--	
A-21	01/21/14	<0.25	--	--	--	--	<0.001	<0.001	<0.001	<0.001	--	--	3.53	--	--	--	--	--	--	--	



**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
A-21	04/23/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	0.013	--	--	0.62	<0.25	250	<0.10		
A-21	07/15/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.39	--	--	--	--	--	--	--	--	
A-21	03/18/15	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.03	0.050	--	--	4.2	<2.5	1,500	<0.10		
A-21	10/01/15	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	0.00526	0.00402	0.30	0.0590	--	--	73.9	<0.1	41.0	0.0780		
A-21	03/31/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.96	0.0189	--	--	0.378 J5	0.295	42.8	<0.05		
A-21	10/13/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.82	--	--	--	--	--	--	--		
A-21	03/29/17	0.135	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	4.82	--	--	--	--	--	--	--		
A-21	10/13/17	0.142	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.62	--	--	--	--	--	--	--		
A-21	03/29/18	0.12 B	--	--	--	--	0.00153	<0.001	<0.001	<0.003	--	--	2.01	--	--	--	--	--	--	--		
A-21	10/04/18	0.113 B	--	--	--	--	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.06	--	--	--	--	--	--	--		
A-21	04/03/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	3.01	--	--	--	--	--	--	--		
A-21	10/04/19	0.206 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	0.00212	<0.00200	0.16	--	--	--	--	--	--	--		
A-21	03/26/20	<0.500	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.25	--	--	--	--	--	--	--		
A-21	10/23/20	0.201 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.27	--	--	--	--	--	--	--		
A-22R	05/25/11	<b>27</b>	--	--	--	--	<b>3.4</b>	0.086	3.0	1.7	--	--	--	--	--	--	--	--	--	--		
A-23R	02/14/02	0.26	2.1	--	<0.5	--	0.060	0.0010	0.0099	0.0072	<b>0.72*a</b>	--	--	--	--	--	--	--	--	--		
A-23R	05/20/02	0.74	6.9	--	<0.5	--	<b>0.15</b>	<0.001	0.088	0.0067	<b>0.095*a</b>	--	--	--	--	--	--	--	--	--		
A-23R	08/28/02	0.62	2.1	--	<0.5	--	<b>0.20</b>	0.0035	0.021	0.0075	<b>0.23*</b>	--	2.40	4.10	--	--	13.00	<0.25	270.00	0.20		
A-23R	11/05/02	0.74	1.7	--	<0.5	--	<b>0.22</b>	<0.0015	0.0059	0.014	<b>0.18*</b>	--	2.40	3.60	--	--	11.00	<0.25	200.00	1.60		
A-23R	02/19/03	0.71	2.3	--	<0.5	--	<b>0.26</b>	0.0033	0.0054	0.0059	<b>0.049*</b>	--	3.00	6.10	--	--	12.00	<0.25	120.00	<0.1		
A-23R	06/10/03	<0.25	1.8	--	<0.25	--	0.0073	<0.001	0.0028	<0.001	<0.005*	--	1.80	1.80	--	--	30.00	<0.25	300.00	0.20		
A-23R	09/16/03	0.70	1.3	--	<0.50	--	0.043	0.0029	0.057	0.0018	<b>0.38*</b>	--	1.40	7.60	--	--	12.00	<0.25 b	100.00	0.90		
A-23R	11/19/03	<b>1.0</b>	0.78	--	<0.50	--	<b>0.08</b>	0.0037	0.069	0.0035	<b>0.13*</b>	--	1.50	8.70	--	--	7.80	<0.25 b	26.00	0.80		
A-23R	02/25/04	<b>1.6</b>	0.78	--	<0.50	--	<b>0.26</b>	0.0072	0.061	0.015	<b>0.081*</b>	--	1.70	13.00	--	--	14.00	<0.25 b	17.00	0.70		
A-23R	05/12/04	0.28	0.45	--	<0.50	--	0.020	0.00075	0.0022	0.00082	<0.0050*	--	4.70	5.30	--	--	23.00	<0.25	80.00	<1.0		
A-23R	08/25/04	<b>2.3</b>	0.35	--	<0.50	--	<b>0.46</b>	0.012	0.074	0.020	<b>0.012*</b>	--	1.80	10.00	--	--	11.00	<0.25	31.00	0.34		
A-23R	12/14/04	<b>2</b>	0.65	--	<0.50	--	<b>0.37</b>	0.0084	0.041	0.013	<b>0.018*</b>	--	2.20	12.00	--	--	9.80	<0.25	6.40	0.25		
A-23R	03/10/05	0.60	0.31	--	<0.50	--	0.035	0.0011	0.0045	0.0014	<b>0.035*</b>	--	1.10	7.30	--	--	30.00	<0.25	220.00	0.20		
A-23R	06/07/05	0.33	<0.25	--	<0.50	--	0.0080	<0.0005	0.0012	<0.0005	<b>0.013*</b>	--	1.50	5.60	--	--	28.00	<0.25	200.00	1.90		
A-23R	09/20/05	<0.25	<0.25	--	<0.50	--	0.00060	<0.0005	<0.0005	<0.0005	0.0096*a	--	1.50	2.60	--	--	34.00	<0.25	270.00	<0.10		
A-23R	12/14/05	0.37	<0.25	--	<0.50	--	0.019	0.00056	0.00065	0.00058	<b>0.032*</b>	--	0.80	5.30	--	--	25.00	<0.25	50.00	0.17		
A-23R	03/15/06	<b>1.1</b>	<0.25	--	<0.50	--	<b>0.34</b>	0.0033	<0.0025	0.0051	<0.0050*	--	0.80	13.00	--	--	27.00	<0.25	21.00	0.28		
A-23R	06/08/06	0.34	<0.25	--	<0.50	--	0.033	<0.0005	<0.0005	0.031	<b>0.0081*</b>	--	0.70	4.00	--	--	38.00	<0.25	150.00	0.19		
A-23R	09/12/06	0.42	<0.25	--	<0.50	--	0.010	<0.0005	0.032	0.0013	<b>0.035*</b>	--	1.40	3.60	--	--	33.00	<0.25	100.00	<0.10		
A-23R	12/12/06	<b>2.1</b>	<0.25	--	<0.50	--	<b>0.52</b>	0.0066	0.053	0.021	<0.0050*	--	2.80	16.00	--	--	24.00	<0.25	4.20	0.31		
A-23R	03/27/07	0.86	--	--	--	--	<b>0.17</b>	0.0019	0.0019	0.0045	--	--	1.10	--	--	--	--	--	--	--		
A-23R	06/19/07	0.44	--	--	--	--	0.021	0.00058	0.010	0.0013	0.0076*	--	1.40	3.00	--	--	32.00	<0.25	180.00	0.11		
A-23R	09/24/07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
A-23R	12/11/07	0.79	--	--	--	--	<b>0.095</b>	0.0025	0.0050	0.0026	--	--	2.73	--	--	--	--	--	--	--	
A-23R	03/04/08	<0.25	--	--	--	--	0.00097	<0.0005	<0.0005	<0.0005	--	--	3.20	--	--	--	--	--	--	--	
A-23R	06/05/08	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	2.40	2.60	--	--	44.00	<0.25	440.00	<0.10	
A-23R	12/05/08	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.33	--	--	--	--	--	--	--	
A-23R	03/04/09	<0.25	--	--	--	--	0.00073	<0.0005	0.0022	0.013	--	--	0.35	--	--	--	--	--	--	--	
A-23R	06/02/09	<0.25	--	--	--	--	0.0013	<0.00050	0.0021	0.0059	<0.0050*	--	0.60	2.10	--	--	22.00	<0.25	290.00	<0.10	
A-23R	09/21/09	<0.25	--	--	--	--	<0.00050	<0.00050	<0.00050	<0.00050	--	--	0.77	--	--	--	--	--	--	--	
A-23R	11/16/09	<0.25	--	--	--	--	<0.0005	<0.0005	0.001	<0.0005	--	--	1.29	--	--	--	--	--	--	--	
A-23R	03/08/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.86	--	--	--	--	--	--	--	
A-23R	06/08/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	0.89	1.10	--	--	39.00	<0.25	450.00	<0.10	
A-23R	09/09/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.54	--	--	--	--	--	--	--	
A-23R	11/16/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.96	--	--	--	--	--	--	--	
A-23R	03/01/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	
A-23R	05/24/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050***	--	0.59	1.00	--	--	44.00	<0.25	450.00	0.10	
A-23R	08/29/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.55	--	--	--	--	--	--	--	
A-23R	12/01/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0010	--	--	1.15	--	--	--	--	--	--	--	
A-23R	03/01/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.47	--	--	--	--	--	--	--	
A-23R	05/30/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050***	--	0.00	<0.010	--	--	86.00	<0.25	470.00	<0.10	
A-23R	11/07/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	<0.010	--	--	11	<0.25 *c	1,000	<0.10	
A-23R	02/27/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	
A-23R	04/08/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	<0.0050	--	--	--	--	--	--	--	--	
A-23R	07/29/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
A-23R	10/02/13	<0.25	--	--	--	--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	
A-23R	01/21/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	4.28	--	--	--	--	--	--	--	
A-23R	04/22/14	<0.25	--	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.0050	<0.0050	--	0.018	--	--	18	<0.25	1,900	<0.10	
A-23R	07/15/14	<0.25	--	--	--	--	0.00092	<0.0005	<0.0005	<0.0005	--	--	0.88	--	--	--	--	--	--	--	
A-23R	09/28/15	<0.100	--	--	--	--	0.00109	<0.005	<0.001	<0.003	--	--	0.12	3.55	--	--	4.87 T8	<0.1 T8	23.7	<0.05	
A-23R	10/11/16	<0.100	--	--	--	--	0.00109	<0.005	<0.001	<0.003	--	--	0.26	--	--	--	--	--	--	--	
A-23R	10/10/17	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.51	--	--	--	--	--	--	--	
A-23R	10/02/18	0.119 B	--	--	--	--	0.00299	<0.001	<0.001	<0.003	--	--	0.12	--	--	--	--	--	--	--	
A-23R	10/03/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.11	--	--	--	--	--	--	--	
A-23R	10/19/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.22	--	--	--	--	--	--	--	
A-25	06/16/11	<b>4.1</b>	--	--	--	--	<b>0.27</b>	0.038	0.28	0.19	--	--	--	--	--	--	--	--	--	--	
A-26R	05/25/11	<b>22</b>	--	--	--	--	<b>4</b>	0.095	1.6	0.75	--	--	--	--	--	--	--	--	--	--	
A-27	02/14/02	<b>2.9</b>	<b>11</b>	--	<0.5	--	<b>0.13</b>	0.014	0.096	0.25	--	--	--	--	--	--	--	--	--	--	
A-27	05/22/02	<b>3.3</b>	8.2	--	<0.5	--	<b>0.20</b>	0.016	0.14	0.38	--	--	--	--	--	--	--	--	--	--	
A-27	08/29/02	<b>3.8</b>	8.1	--	<0.5	--	<b>0.24</b>	0.016	0.14	0.29	--	--	2.30	7.50	--	--	24.00	<0.25	0.29	0.20	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
A-27	11/06/02	3.2	8.000	--	<0.5	--	0.16	0.016	0.065	0.14	--	--	0.70	5.20	--	--	26.00	<0.25	<0.25	0.20	
A-27	02/19/03	3.1	6.8	--	<0.5	--	0.17	0.017	0.052	0.13	--	--	3.20	6.60	--	--	19.00	<0.25	<0.25	<0.1	
A-27	06/10/03	3.7	4.5	--	<0.25	--	0.14	0.013	0.11	0.23	--	--	1.20	10.00	--	--	19.00	<0.25	0.77	0.10	
A-27	09/16/03	4.5	5.6	--	<0.50	--	0.27	0.02	0.18	0.38	--	--	1.00	8.60	--	--	51.00	<0.25 b	0.59	0.70	
A-27	11/19/03	5.9	5.3	--	<0.50	--	0.25	0.023	0.13	0.33	--	--	1.10	8.90	--	--	19.00	<0.25 b	0.33	<0.1	
A-27	02/25/04	4.4	16	--	<0.50	--	0.15	0.016	0.18	0.30	--	--	1.90	12.00	--	--	27.00	<0.25 b	<0.25	0.30	
A-27	05/11/04	4.6	5.2	--	<0.50	--	0.16	0.017	0.23	0.38	--	--	0.70	8.40	--	--	25.00	<0.25	<0.50	<0.10	
A-27	08/25/04	4.7	2.5	--	<0.50	--	0.25	0.018	0.17	0.24	--	--	1.68	12.00	--	--	22.00	<0.25	<0.50	0.13	
A-27	12/14/04	4.5	4.4	--	<0.50	--	0.11	0.012	0.099	0.14	--	--	1.32	12.00	--	--	10.00	<0.25	<0.50	0.12	
A-27	03/10/05	5.8	4.7	--	<0.50	--	0.14	0.015	0.16	0.22	--	--	1.62	12.00	--	--	18.00	<0.25	0.78	<0.10	
A-27	06/07/05	4.5	7.8	--	<0.50	--	0.17	0.014	0.24	0.34	--	--	1.00	7.00	--	--	19.00	<0.25	<0.50	0.30	
A-27	09/20/05	6.3	2.3	--	<0.50	--	0.25	0.019	0.18	0.22	--	--	3.10	10.00	--	--	29.00	<0.25	0.84	0.16	
A-27	12/13/05	3.7	0.83	--	<0.50	--	0.13	0.012	0.083	0.095	--	--	2.30	16.00	--	--	24.00	<0.25	<0.50	<0.10	
A-27	03/15/06	4.4	1.3	--	<0.50	--	0.13	0.017	0.19	0.24	--	--	2.30	15.00	--	--	14.00	<0.25	<0.50	0.16	
A-27	06/08/06	4.5	1.1	--	<0.50	--	0.19	0.016	0.23	0.28	--	--	1.20	13.00	--	--	25.00	<0.25	0.51	0.15	
A-27	09/12/06	3.4	0.82	--	<0.50	--	0.17	0.011	0.12	0.12	--	--	1.90	12.00	--	--	19.00	<0.25	<0.50	0.23	
A-27	12/12/06	3.7	0.90	--	<0.50	--	0.11	0.0096	0.10	0.12	--	--	1.00	13.00	--	--	24.00	<0.25	<0.50	<0.10	
A-27	03/27/07	3.2	--	--	--	--	0.063	0.0078	0.047	0.050	--	--	1.40	--	--	--	--	--	--	--	
A-27	06/19/07	2.6	--	--	--	--	0.073	0.0064	0.047	0.053	--	--	2.40	11.00	--	--	7.50	<0.25	<1.0	0.10	
A-27	09/24/07	2.7	--	--	--	--	0.10	0.0072	0.035	0.040	--	--	1.50	--	--	--	--	--	--	--	
A-27	12/11/07	4.7	--	--	--	--	0.16	0.011	0.17	0.13	--	--	1.50	--	--	--	--	--	--	--	
A-27	03/04/08	4.0	--	--	--	--	0.10	0.011	0.14	0.11	--	--	1.80	--	--	--	--	--	--	--	
A-27	06/04/08	2.5	--	--	--	--	0.093	0.0063	0.022	0.041	--	--	2.00	9.90	--	--	10.00	<0.25	<0.50	0.13	
A-27	09/08/08	3.5	--	--	--	--	0.16	0.0091	0.067	0.047	--	--	1.85	--	--	--	--	--	--	--	
A-27	12/04/08	3.1	--	--	--	--	0.13	0.0075	0.091	0.046	--	--	0.39	--	--	--	--	--	--	--	
A-27	03/04/09	2.5	--	--	--	--	0.098	0.0080	0.07	0.043	--	--	0.39	--	--	--	--	--	--	--	
A-27	06/02/09	3.1	--	--	--	--	0.048	0.0065	0.11	0.05	--	--	0.63	6.5	--	--	13	<0.25	1.2	<0.10	
A-27	09/22/09	2.9	--	--	--	--	0.054	0.0064	0.099	0.037	--	--	0.45	--	--	--	--	--	--	--	
A-27	11/16/09	3.0	--	--	--	--	0.035	0.0051	0.0921	0.035	--	--	0.46	--	--	--	--	--	--	--	
A-27	03/09/10	2.4	--	--	--	--	0.024	0.0043	0.089	0.036	--	--	1.32	--	--	--	--	--	--	--	
A-27	06/08/10	2.5	--	--	--	--	0.021	0.0041	0.088	0.031	--	--	0.00	3.90	--	--	12.00	<0.25	2.10	<0.10	
A-27	09/09/10	3.4	--	--	--	--	0.035	0.0054	0.12	0.034	--	--	0.47	--	--	--	--	--	<0.50	--	
A-27	11/16/10	2.1	--	--	--	--	0.014	0.0034	0.070	0.022	--	--	0.34	--	--	--	--	--	--	--	
A-27	03/02/11	2.3	--	--	--	--	0.014	0.0024	0.051	0.016	--	--	0.00	--	--	--	--	--	--	--	
A-27	05/24/11	1.7	--	--	--	--	0.0092	0.0017	0.023	0.0096	--	--	0.27	3.30	--	--	8.80	<0.25	2.20	0.10	
A-27	08/30/11	2.1	--	--	--	--	0.026	0.0021	0.022	0.011	--	--	0.36	--	--	--	--	--	--	--	
A-27	12/02/11	2.2	--	--	--	--	0.016	0.0026	0.030	0.0094	--	--	0.77	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
A-27	03/01/12	1.4	--	--	--	--	0.012	0.0018	0.035	0.0077	--	--	0.32	--	--	--	--	--	--	--	--	
A-27	05/30/12	1.6	--	--	--	--	0.015	0.0016	0.038	0.0066	--	--	0.00	2.60	--	--	21.00	<0.25	1.10	<0.10	--	
A-27	08/25/12	1.5	--	--	--	--	0.029	0.0018	0.0027	0.0048	--	--	--	--	--	--	--	--	--	--	--	
A-27	11/08/12	1.2	--	--	--	--	0.025	0.0022	0.0093	0.0068	--	--	--	--	--	--	--	--	--	--	--	
A-27	02/28/13	1.6	--	--	--	--	0.038	0.0019	0.057	0.0078	--	--	--	--	--	--	--	--	--	--	--	
A-27	04/10/13	1.3	--	--	--	--	0.035	0.0018	0.041	0.0053	--	--	--	3.9	--	--	21	<0.25 *c	3.3	<0.10	--	
A-27	06/21/13	1.0	0.40 K	--	--	--	0.053	0.0024	0.043	0.0083	--	--	--	--	--	--	--	<0.25 *c	2.7	<0.10	--	Baseline monitoring event
A-27	07/30/13	1.8	--	--	--	--	<b>0.073</b>	0.0039	0.051	0.017	--	--	--	6.2	16	3.6	--	16	<0.50	<0.10	--	
A-27 (DUP)	07/30/13	1.5	--	--	--	--	0.058	0.0033	0.040	0.015	--	--	--	--	--	--	--	--	--	--	--	Duplicate of A-27
A-27	08/26/13	1.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
A-27	08/26/13	2.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Duplicate of A-27
A-27	10/02/13	1.9	--	--	--	--	0.066	0.0041	0.038	0.021	--	--	0.00	7.4	14	3.6	--	<0.50 *c	<0.50	<0.10	--	
A-27	01/22/14	2.6	--	--	--	--	<b>0.078</b>	0.0042	0.061	0.062	--	--	7.32	--	--	--	--	--	<0.50	<0.10	--	
A-27	04/22/14	2.9	--	--	--	--	0.062	0.0023	0.074	0.078	--	--	--	2.9	--	--	2.4	<0.25	4.2	<0.10	--	
A-27	07/15/14	1.8	--	--	--	--	0.051	0.0021	0.012	0.016	--	--	0.36	5.7	18	16	--	--	0.34 J	<0.10	--	
A-27	03/18/15	2.3	--	--	--	--	<b>0.072</b>	0.0019	0.072	0.010	--	--	0.33	6.7	--	--	17	<0.25	3.1	<0.10	--	Surrogate recovery above lab limits
A-27	09/29/15	1.68	--	--	--	--	0.0609	<0.005	0.00988	0.00742	--	--	0.29	3.86	--	--	22.8 T8	<0.10	9.30	<0.05	--	
A-27	03/31/16	2.55	--	--	--	--	<b>0.131</b>	<0.005	0.142	0.0142	--	--	0.36	4.98	--	--	25.7	<0.10	7.57	<0.05 J3 J6	--	
A-27	10/14/16	1.42	--	--	--	--	0.0670	<0.005	0.0101	0.00490	--	--	0.29	2.02	--	--	24.3	<0.10	105	<0.05	--	
A-27	03/29/17	2.81	--	--	--	--	<b>0.144</b>	0.00320	0.159	0.0204	--	--	0.23	--	--	--	--	--	--	--	--	
A-27	10/12/17	1.08	--	--	--	--	0.0598	<0.00100	0.0114	<0.00300	--	--	0.73	1.47	--	--	19.3 T8	<0.100	74.0	<0.0500	--	
A-27	03/29/18	1.29	--	--	--	--	0.0259	<0.001	0.00882	<0.003	--	--	0.11	--	--	--	--	--	--	--	--	
A-27	10/04/18	0.949	--	--	--	--	0.0259	<0.001	<0.001	<0.003	--	--	0.12	1.64	--	--	10.7 T8	<0.1	236	<0.05	--	
A-27	04/03/19	0.869	--	--	--	--	0.00859	<0.00100	0.0116	<0.00300	--	--	0.08	--	--	--	--	--	292	--	--	
A-27	10/04/19	1.32	--	--	--	--	0.0217	0.00104	0.00201	0.00407	--	--	0.18	2.65	--	--	<1.25 T8	<0.100	6.65	<0.0500	--	
A-27	03/27/20	0.950 B	--	--	--	--	0.0135	<0.00100	0.0277	0.00357	--	--	0.21	--	--	--	--	--	<5.00	--	--	
A-27	10/22/20	1.73 B	--	--	--	--	0.0185	0.00123	<0.00100	0.00315	--	--	0.34	5.14	--	--	14.2 T8	<0.100	46.2	<0.0500	--	
A-28R	02/14/02	5.3	2.7	--	<0.5	--	<b>0.66</b>	0.027	0.42	0.20	<b>0.035*</b>	--	--	--	--	--	--	--	--	--	--	
A-28R	05/22/02	3.1	6.7	--	<0.5	--	<b>0.14</b>	0.010	0.20	0.092	<b>0.05*</b>	--	--	--	--	--	--	--	--	--	--	
A-28R	08/29/02	4.0	6.0	--	<0.5	--	<b>0.15</b>	0.019	0.23	0.078	<b>0.032*</b>	--	3.60	6.20	--	--	45.00	<0.25	0.73	0.30	--	
A-28R	11/06/02	3.4	1.8	--	<0.5	--	<b>0.47</b>	0.015	0.053	0.050	<b>0.028*</b>	--	2.20	5.90	--	--	46.00	<0.25	0.57	<0.1	--	
A-28R	02/19/03	3.5	4.6	--	<0.5	--	<b>0.46</b>	0.015	0.051	0.050	<b>0.013*</b>	--	3.00	6.30	--	--	48.00	<0.25	0.56	<0.1	--	
A-28R	06/10/03	3.7	2.9	--	<0.25	--	<b>0.31</b>	0.0081	0.085	0.051	<b>0.064*</b>	--	1.20	6.10	--	--	42.00	<0.25	<0.25	<0.1	--	
A-28R	09/16/03	3.8	2.0	--	<0.50	--	<b>1.0</b>	0.013	0.075	0.048	<b>0.17*</b>	--	0.90	10b	--	--	58.00	<0.25 b	0.41	0.50	--	
A-28R	11/19/03	4.9	<0.25	--	<0.50	--	<b>0.58</b>	0.012	0.059	0.064	<b>0.11*</b>	--	1.20	9.90	--	--	47.00	<0.25 b	0.25	<0.1	--	
A-28R	02/25/04	5.1	1.7	--	<0.50	--	<b>0.63</b>	0.0093	0.19	0.076	<b>0.0080*</b>	--	1.80	9.60	--	--	46.00	<0.25 b	<0.25	1.40	--	
A-28R	05/12/04	6.5	2.6	--	<0.50	--	<b>0.96</b>	0.012	0.20	0.058	<0.0050*	--	1.90	11.00	--	--	47.00	<0.25	<0.50	<0.10	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
A-28R	08/25/04	5.9	0.88	--	<0.50	--	2.1	0.018	0.050	0.053	0.043*	--	0.50	12.00	--	--	38.00	<0.25	--*b	--*b	
A-28R	12/14/04	7.6	3.0	--	<0.50	--	1.4	0.015	0.073	0.062	0.025*	--	1.72	12.00	--	--	22.00	<0.25	<0.50	0.12	
A-28R	03/10/05	10	0.76	--	<0.50	--	1.9	0.019	0.077	0.064	0.0078*	--	3.32	14.00	--	--	42.00	<0.25	<0.50	<0.10	
A-28R	06/07/05	6.4	1.2	--	<0.50	--	2.1	0.015	0.069	0.048	0.0068*	--	1.00	13.00	--	--	35.00	<0.25	<0.50	0.70	
A-28R	09/20/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
A-28R	12/13/05	5.4	<0.25	--	<0.50	--	0.93	0.011	0.033	0.036	0.012*	--	0.89	15.00	--	--	28.00	<0.25	<0.50	0.13	
A-28R	03/15/06	4.6	<0.25	--	<0.50	--	0.80	0.012	0.11	0.035	<0.0050*	--	0.89	15.00	--	--	45.00	<0.25	1.30	<0.10	
A-28R	06/08/06	4.2	0.49	--	0.73	--	0.87	0.013	0.070	0.035	0.019*	--	0.80	13.00	--	--	34.00	<0.25	<0.50	--	
A-28R	09/12/06	5.2	<0.25	--	<0.50	--	1.0	0.015	0.048	0.036	0.016*	--	1.10	16.00	--	--	35.00	<0.25	<0.50	<0.10	
A-28R	12/12/06	4.0	0.57	--	<0.50	--	0.3	0.0095	0.027	0.028	<0.0050*	--	1.70	13.00	--	--	25.00	<0.25	<0.50	<0.10	
A-28R	03/27/07	5.5	--	--	--	--	0.71	0.014	0.062	0.022	--	--	3.20	--	--	--	--	--	--	--	
A-28R	06/19/07	5.3	--	--	--	--	0.59	0.018	0.058	0.041	<0.0050	--	3.20	12.00	--	--	32.00	<0.25	2.50	<0.10	
A-28R	09/24/07	3.9	--	--	--	--	0.53	0.015	0.041	0.035	--	--	2.90	--	--	--	--	--	--	--	
A-28R	12/11/07	2.1	--	--	--	--	0.088	0.0044	0.013	0.015	--	--	2.60	--	--	--	--	--	--	--	
A-28R	03/04/08	3.6	--	--	--	--	0.27	0.0087	0.044	0.022	--	--	0.80	--	--	--	--	--	--	--	
A-28R	06/04/08	2.2	--	--	--	--	0.095	0.0049	0.0060	0.012	<0.0050	--	2.30	7.00	--	--	18.00	<0.25	<0.50	<0.10	
A-28R	12/04/08	1.4	--	--	--	--	0.026	0.0022	0.011	0.0075	--	--	0.36	--	--	--	--	--	--	--	
A-28R	03/04/09	1.4	--	--	--	--	0.12	0.0060	0.057	0.029	--	--	0.44	--	--	--	--	--	--	--	
A-28R	06/02/09	2.1	--	--	--	--	0.055	0.0020	0.016	0.0069	<0.0050	--	0.46	2.30	--	--	15.00	<0.25	2.80	0.18	
A-28R	09/22/09	2.3	--	--	--	--	0.1	0.0026	0.038	0.016	--	--	0.55	--	--	--	--	--	--	--	
A-28R	11/16/09	1.7	--	--	--	--	0.080	0.002	0.039	0.017	--	--	0.52	--	--	--	--	--	--	--	
A-28R	03/09/10	7.3	--	--	--	--	0.65	0.0079	0.32	0.092	--	--	0.50	--	--	--	--	--	--	--	
A-28R	06/08/10	2.2	--	--	--	--	0.14	0.0018	0.045	0.013	<0.0050	--	0.00	2.40	--	--	31.00	<0.25	18.00	0.29	
A-28R	09/10/10	2.4	--	--	--	--	0.12	0.0020	0.041	0.011	--	--	3.81	--	--	--	--	--	--	--	
A-28R	11/16/10	1.8	--	--	--	--	0.077	0.0017	0.047	0.013	--	--	0.79	--	--	--	--	--	--	--	
A-28R	03/02/11	2.8	--	--	--	--	0.15	0.0029	0.083	0.016	--	--	0.00	--	--	--	--	--	--	--	
A-28R	05/24/11	3.5	--	--	--	--	0.21	0.0029	0.091	0.015	<0.0050	--	0.00	3.60	--	--	39.00	<0.25	1.60	0.13	
A-28R	08/30/11	3.7	--	--	--	--	0.14	0.0026	0.061	0.011	--	--	0.31	--	--	--	--	--	--	--	
A-28R	12/02/11	3.6	--	--	--	--	0.074	0.0022	0.056	0.0092	--	--	0.30	--	--	--	--	--	--	--	
A-28R	03/02/12	2.6	--	--	--	--	0.086	0.0022	0.075	0.012	--	--	2.47	--	--	--	--	--	--	--	
A-28R	05/30/12	2.7	--	--	--	--	0.065	0.0017	0.050	0.0085	<0.0050	--	0.00	2.00	--	--	42.00	<0.25	<0.50	0.11	
A-28R	08/25/12	1.8	--	--	--	--	0.030	0.00089	0.010	0.0031	--	--	--	--	--	--	--	--	--	--	
A-28R	11/08/12	0.81	--	--	--	--	0.015	<0.0005	0.0066	0.0013	--	--	--	--	--	--	--	--	--	--	
A-28R	02/28/13	2.6	--	--	--	--	0.062	<0.0025	0.044	0.0059	--	--	--	--	--	--	--	--	--	--	
A-28R	04/10/13	3.2	--	--	--	--	0.035	0.0013	0.030	0.0042	<0.0050	--	--	2.5	--	--	37	<0.25 °c	7.9	<0.10	
A-28R	07/29/13	2.5	--	--	--	--	0.043	0.0018	0.019	0.0034	--	--	--	--	--	--	--	--	--	--	
A-28R	10/02/13	1.4	--	--	--	--	0.015	<0.001	0.0043	0.0026	--	--	0.00	--	--	--	--	--	--	--	

Appendix E  
 Historical Groundwater Analytical Results  
 Kinder Morgan Liquids Terminals, LLC  
 Harbor Island Terminal  
 2720 13th Avenue Southwest, Seattle, Washington



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
A-28R	01/22/14	1.4	--	--	--	--	0.17	0.0027	0.0060	0.0033	--	--	5.55	--	--	--	--	--	--	--	--	
A-28R	04/22/14	2.2	--	--	--	--	0.062	0.0022	0.016	0.0025	<0.0050	--	--	4.3	--	--	47	0.45	2.2	<0.10		
A-28R	07/15/14	1.7	--	--	--	--	0.043	0.0016	0.0062	0.0020	--	--	0.20	--	--	--	--	--	--	--		
A-28R	03/18/15	3.0	--	--	--	--	0.042	0.0035	0.016	0.0055	--	--	0.22	7.5	--	--	44	<0.25	4.4	<0.10	Surrogate recovery above lab limits	
A-28R	09/29/15	1.85	--	--	--	--	0.0205	<0.005	0.00431	<0.003	--	--	0.30	4.15	--	--	71.3 T8	<0.10	<5.0	<0.05		
A-28R	03/31/16	3.37	--	--	--	--	0.160	<0.005	0.0202	0.00467	--	--	0.41	5.11	--	--	45.5	<0.10	<5.0	<0.05		
A-28R	10/14/16	3.65	--	--	--	--	0.208	0.00979	0.0106	0.00704	<0.002	<0.002	0.38	9.23	--	--	32.9	<0.10	<5.0	<0.05		
A-28R	03/29/17	3.87	--	--	--	--	0.113	0.00481	0.0217	0.00608	--	--	0.19	--	--	--	--	--	--	--		
A-28R	10/13/17	4.67	--	--	--	--	0.850	0.0177	0.0277	0.0161	<0.00200	<0.00100	0.63	13.6	--	--	37.7 T8	<0.100	<5.00	<0.0500		
A-28R	03/29/18	6.93	--	--	--	--	0.466	0.0103	0.0282	0.00879	--	--	4.61	--	--	--	--	--	--	--		
A-28R	10/04/18	7.86	--	--	--	--	0.534	0.0173	0.0284	0.0146	<0.002	<0.002	0.14	14.7	--	--	31.1 T8	<0.1	<5.0	<0.05		
A-28R	04/03/19	6.24	--	--	--	--	0.127	0.0069	0.294	0.023	--	--	0.09	--	--	--	--	--	--	--		
A-28R	10/04/19	8.86	--	--	--	--	0.544	0.0128	0.240	0.0265	<0.00200	<0.00200	0.28	15.5	--	--	32.5 T8	<0.100	<5.00	<0.0500		
A-28R	03/26/20	1.96	--	--	--	--	0.00593	<0.00100	0.0740	0.00677	--	--	0.18	--	--	--	--	--	--	--		
A-28R	10/22/20	3.72	--	--	--	--	0.0398	0.00334	0.0538	0.00876	<0.00500	<0.00500	0.07	4.46	--	--	34.8 T8	<0.100	<5.00	<0.0500		
A-29R	05/25/11	5.6	--	--	--	--	2.3	0.018	<0.015	0.024	--	--	--	--	--	--	--	--	--	--		
11	06/24/13	<0.25	0.30	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	<0.25	2.5	<0.10	Baseline monitoring event	
11	07/30/13	<0.25	--	--	--	--	--	--	--	--	--	--	--	0.42	1.0	<0.30	--	<0.25	0.88	<0.10		
11	08/26/15	<0.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.71	--		
11	10/03/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.69	0.046	5.2	0.78	--	1.2 °c	560	<0.10		
11	01/22/14	0.75	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	9.20	--	--	--	--	--	120	<0.10		
11	04/21/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	1.1	580	<0.10		
11	07/14/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.07	0.47	1.6	0.55	--	--	200	<0.10		
11	03/18/15	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	10.87	<0.010	--	--	<0.050	0.43	450	<0.10		
11	09/29/15	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	3.59	0.0747	--	--	0.518	0.438	310	<0.05		
11	03/30/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	7.15	<0.010	--	--	<0.050	0.332	1,120	<0.05		
11	10/14/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	7.40	--	--	--	--	--	548	--		
11	03/29/17	<0.100	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	6.58	--	--	--	--	--	1,010	--		
11	10/13/17	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	4.84	--	--	--	--	--	428	--		
11	03/29/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	7.24	--	--	--	--	--	222	--		
11	10/03/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	2.37	--	--	--	--	--	423	--		
11	04/03/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	7.62	--	--	--	--	--	90	--		
11	10/03/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	3.30	--	--	--	--	--	175	--		
11	03/26/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	7.31	--	--	--	--	--	408	--		
11	10/20/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	4.01	--	--	--	--	--	247	--		
12	06/24/13	4.1	5.3 K	--	--	--	0.037	0.045	0.13	0.53	--	--	--	--	--	--	--	<0.25	<0.50	<0.10	Baseline monitoring event	
12	08/26/13	9.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
12	10/03/13	2.7	--	--	--	--	0.0020	0.0057	0.043	0.18	--	--	0.00	2.2	39	35	--	1.1 °c	5,500	<0.10	
12	01/22/14	4.2	--	--	--	--	0.0067	0.015	0.027	0.34	--	--	3.42	--	--	--	--	--	3,000	<0.10	
12	04/21/14	2.6	--	--	--	--	0.015	0.014	0.088	0.15	--	--	--	--	--	--	--	<0.25	1,700	0.22	
12	07/14/14	4.7	--	--	--	--	0.019	0.026	0.17	0.22	--	--	0.20	11	31	38	--	--	1,100	<0.10	
12	03/18/15	1.8	--	--	--	--	0.0059	0.0012	0.003	0.024	--	--	0.23	2.2	--	--	5.5	<0.25	940	<0.10	
12	09/29/15	3.32	--	9.85	--	0.732	0.0435	0.0217	0.191	0.0609	0.0508	0.00280	0.14	3.01	--	--	1.34 T8	<0.10	550	0.499	
12	03/30/16	0.725	--	--	--	--	0.00441	<0.005	0.0140	0.00511	--	--	0.29	0.473	--	--	2.32	<0.10	1,550	<0.05	
12	10/14/16	1.62	--	0.713	--	<0.500	0.00363	0.00950	0.0721	0.0306	0.0187	0.00336	0.87	--	--	--	--	--	791	--	
12	04/20/17	1.83	--	--	--	--	0.0244	<0.010	0.138	<0.030	--	--	0.31	--	--	--	--	--	2,740	--	
12	10/13/17	2.19 B	--	4.59	--	<0.250	0.0110	<0.0100	0.101	0.0317	0.146	0.00182	0.46	--	--	--	--	--	901	--	
12	03/29/18	1.05	--	--	--	--	0.00197	<0.001	0.00228	0.00365	--	--	0.10	--	--	--	--	--	627	--	
12	10/04/18	2.68	--	0.772	--	<0.25	0.033	0.012	0.181	<0.03	0.024	0.00272	0.26	--	--	--	--	--	152	--	
12	04/03/19	1.23	--	--	--	--	0.00225	0.00150	0.0185	0.0175	--	--	0.02	--	--	--	--	--	254	--	
12	10/03/19	1.36	--	1.41	--	<0.250	0.00435	0.00295	0.0226	0.0109	0.00951	0.00334	0.12	--	--	--	--	--	125	--	
12	03/26/20	0.520	--	--	--	--	0.00213	0.00132	0.00808	0.0141	--	--	0.66	--	--	--	--	--	1,050	--	
12	10/21/20	2.73	--	1.57	--	<0.250	0.116	0.00918	0.0913	0.0490	0.0239	<0.00500	0.45	--	--	--	--	--	1,270	--	
MW-1	02/13/02	<0.25	2.0	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
MW-1	05/21/02	<0.25	1.9	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
MW-1	08/28/02	<0.25	1.0	--	<0.5	--	0.0013	0.0067	0.00052	0.0016	<0.005*	--	3.20	4.00	--	--	12.00	<0.25	1.20	0.20	
MW-1	11/05/02	<0.25	0.87	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	0.021*	--	1.90	3.60	--	--	85.00	<0.25	0.99	1.30	
MW-1	02/19/03	<0.25	1.9	--	<0.5	--	<0.0005	0.00058	<0.0005	<0.0005	<0.005*	--	3.60	4.90	--	--	16.00	<0.25	11.00	0.10	
MW-1	06/10/03	<0.25	1.1	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	1.30	7.60	--	--	28.00	<0.25	6.40	<0.1	
MW-1	09/16/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.40	5.60	--	--	25.00	<0.25 b	5.20	<0.1	
MW-1	11/19/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.90	3.80	--	--	15.00	<0.25 b	0.50	<0.1	
MW-1	02/25/04	<0.25	1.3	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.20	2.60	--	--	21.00	<0.25 b	17.00	0.20	
MW-1	05/11/04	<0.25	0.87	--	<0.50	--	<0.0005	0.00068	<0.0005	<0.0005	<0.0050*	--	1.80	1.60	--	--	27.00	<0.25	11.00	<0.10	
MW-1	08/25/04	0.83	0.40	--	<0.50	--	<0.0005	<0.0005	0.00065	<0.0005	<0.0050*	--	2.38	1.60	--	--	18.00	<0.25	2.80	<0.10	
MW-1	12/15/04	<0.25	0.38	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.20	1.40	--	--	4.30	0.72	26.00	<0.10	
MW-1	03/09/05	<0.25	0.63	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.40	1.50	--	--	19.00	<0.25	9.80	<0.10	
MW-1	06/08/05	<0.25	0.80	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.00	0.82	--	--	11.00	<0.25	15.00	<0.2	
MW-1	09/21/05	<0.25	0.40	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.50	0.68	--	--	51.00	<0.25	52.00	<0.10	
MW-1	12/14/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.20	1.10	--	--	18.00	<0.25	21.00	<0.10	
MW-1	03/14/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.10	0.16	--	--	20.00	<0.25	21.00	<0.10	
MW-1	06/07/06	<0.25	0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.80	0.14	--	--	23.00	<0.25	86.00	<0.10	
MW-1	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0052*	--	2.20	2.50	--	--	24.00	<0.25	15.00	<0.10	
MW-1	12/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.60	0.22	--	--	6.60	1.00	49.00	<0.10	
MW-1	06/20/07	<0.25	0.75	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	3.40	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-1	03/04/08	--	--	--	--	--	--	--	--	--	--	--	1.20	--	--	--	--	--	26.00	--		
MW-1	06/05/08	<0.25	0.32	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.0013	<0.0050	--	2.70	--	--	--	--	<0.25	41.00	--		
MW-1	06/01/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.68	--	--	--	--	--	--	--		
MW-1	06/08/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	--	--	--	--	--	--	--		
MW-1	05/23/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.12	--	--	--	--	--	--	--		
MW-1	06/01/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	--	--	--	--	--	--	--		
MW-1	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--		
MW-1	04/23/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--		
MW-1	10/01/15	<0.100	--	1.38	--	0.708	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.19	--	--	--	--	--	--	--		
MW-1	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.34	--	--	--	--	--	--	--		
MW-1	10/12/17	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.77	--	--	--	--	--	--	--		
MW-1	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.14	--	--	--	--	--	--	--		
MW-1	10/02/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.16	--	--	--	--	--	--	--		
MW-1	10/22/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.10	--	--	--	--	--	--	--		
MW-2	02/13/02	<0.25	0.71	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--		
MW-2	05/21/02	<0.25	0.66	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--		
MW-2	08/29/02	<0.25	0.91	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	2.10	0.69	--	--	1.60	<0.25	9.80	<0.1		
MW-2	11/05/02	<0.25	0.73	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	1.90	1.20	--	--	5.10	<0.25	9.60	<0.1		
MW-2	02/19/03	<0.25	0.74	--	<0.5	--	<0.0005	0.00062	<0.0005	<0.0005	<b>0.028*</b>	--	2.10	0.031	--	--	1.60	<0.25	55.00	<0.1		
MW-2	06/10/03	<0.25	0.61	--	<0.25	--	<0.0005	0.00071	<0.0005	<0.0005	<b>0.026*a</b>	--	1.40	0.059	--	--	1.60	<0.25	25.00	0.30		
MW-2	09/16/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.062*</b>	--	1.40	1.10	--	--	12.00	<0.25 b	21.00	0.60		
MW-2	11/19/03	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.021*</b>	--	6.40	0.13	--	--	0.40	<0.25 b	8.30	<0.1		
MW-2	02/25/04	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.030*</b>	--	4.30	0.079	--	--	0.75	0.67 b	17.00	0.20		
MW-2	05/11/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.70	0.24	--	--	0.18	0.64	25.00	<0.10		
MW-2	08/25/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.02	0.11	--	--	0.063	<0.25	21.00	<0.10		
MW-2	12/14/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.72	0.093	--	--	<0.050	<0.25	11.00	<0.10		
MW-2	03/10/05	<0.25	0.29	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.00	0.23	--	--	0.32	0.34	31.00	<0.10		
MW-2	06/07/05	<0.25	0.91	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.036*</b>	--	1.00	0.44	--	--	0.059	0.26	21.00	<0.2		
MW-2	09/20/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.70	0.033	--	--	<0.050	<0.25	25.00	<0.10		
MW-2	12/13/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.024*</b>	--	3.00	0.71	--	--	1.60	<0.25	4.50	<0.10		
MW-2	03/15/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.80	<0.010	--	--	<0.050	0.54	17.00	<0.10		
MW-2	06/08/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0063*	--	1.20	0.013	--	--	<0.050	0.35	10.00	<0.10		
MW-2	09/12/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.50	0.49	--	--	<0.050	<0.25	13.00	<0.10		
MW-2	12/12/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.20	0.018	--	--	0.068	0.91	14.00	<0.10		
MW-2	06/19/07	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.80	--	--	--	--	--	--	--		
MW-2	03/04/08	--	--	--	--	--	--	--	--	--	--	--	3.20	--	--	--	--	--	19.00	--		
MW-2	06/04/08	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.90	--	--	--	--	0.97	12.00	--		



**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
Site-Specific Cleanup Levels:		1.0	10	10	10	10	0.071	200	29.0	N/A	0.0058											
MW-2	06/03/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	4.27	--	--	--	--	--	--	--		
MW-2	06/08/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.063</b>	--	1.71	--	--	--	--	--	--	--		
MW-2	05/23/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	3.30	--	--	--	--	--	--	0.0050		
MW-2	05/31/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.83	--	--	--	--	--	--	0.0050		
MW-2	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	<0.10		
MW-2	04/22/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	<0.10		
MW-2	09/30/15	<0.100	--	<0.100	--	<0.25	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	1.02	0.276	--	--	0.115 T8	<0.10	6.98	<0.05		
MW-2	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	1.42	--	--	--	--	--	--	--		
MW-2	10/11/17	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	2.66	--	--	--	--	--	--	--		
MW-2	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	3.14	--	--	--	--	--	--	--		
MW-2	10/03/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	1.37	--	--	--	--	--	--	--		
MW-2	10/21/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	1.11	--	--	--	--	--	--	--		
MW-3	02/13/02	<0.25	1.8	--	<0.5	--	0.011	0.0015	0.0045	0.011	<0.005*	--	--	--	--	--	--	--	--	--		
MW-3	05/20/02	0.38	1.9	--	<0.5	--	0.052	0.0028	0.025	0.020	<b>0.01*</b>	--	--	--	--	--	--	--	--	--		
MW-3	08/28/02	0.62	2.5	--	<0.5	--	<b>0.11</b>	0.0071	0.021	0.030	<0.005*	--	2.60	4.60	--	--	11.00	<0.25	19.00	0.20		
MW-3	11/06/02	0.63	1.1	--	<0.5	--	<b>0.14</b>	0.0053	0.021	0.015	<b>0.006*</b>	--	2.90	0.88	--	--	0.80	<0.25	9.20	0.20		
MW-3	02/19/03	<0.25	1.8	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.014*</b>	--	8.60	0.017	--	--	0.20	6.10	84.00	0.20		
MW-3	06/11/03	<0.25	1.3	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.019*</b>	--	6.54	0.022	--	--	0.40	8.50	130.00	0.20		
MW-3	09/17/03	<0.25	1.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.042*</b>	--	6.50	0.028	--	--	0.80	8.20	160.00	<0.1		
MW-3	11/20/03	<0.25	2.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0063*	--	7.80	<0.01	--	--	<0.2	17.00	66.00	0.20		
MW-3	02/25/04	<0.25	1.2	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.025*</b>	--	2.80	<0.01	--	--	<0.050	6.70	35.00	0.20		
MW-3	05/11/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	8.40	<0.010	--	--	<0.050	7.70	59.00	<0.10		
MW-3	08/25/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0051*	--	1.80	<0.010	--	--	<0.050	7.00	66.00	<0.10		
MW-3	12/15/04	<0.25	0.33	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.018*</b>	--	7.60	0.059	--	--	<0.050	6.50	50.00	<0.10		
MW-3	03/09/05	<0.25	<0.25	--	<0.50	--	0.0010	<0.0005	<0.0005	<0.0005	<0.0050*	--	4.43	1.80	--	--	<0.050	3.50	51.00	<0.10		
MW-3	06/08/05	<0.25	<0.25	--	<0.50	--	0.0011	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.98	3.30	--	--	<0.050	4.20	37.00	<0.2		
MW-3	09/21/05	<0.25	<0.25	--	<0.50	--	0.00094	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.90	4.30	--	--	0.064	3.40	47.00	<0.10		
MW-3	12/14/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.80	0.80	--	--	<0.050	1.60	72.00	<0.10		
MW-3	03/14/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.10	0.23	--	--	<0.050	7.50	22.00	<0.10		
MW-3	06/07/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.80	0.30	--	--	<0.050	4.60	21.00	<0.10		
MW-3	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.60	2.40	--	--	<0.050	0.40	30.00	<0.10		
MW-3	12/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	0.80	0.25	--	--	0.064	2.80	28.00	<0.10		
MW-3	06/20/07	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	2.20	--	--	--	--	--	--	--		
MW-3	06/05/08	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	2.00	--	--	--	--	3.40	15.00	--		
MW-3	06/01/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	4.84	--	--	--	--	--	--	--		
MW-3	06/09/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	0.0011	0.0053	<0.0050	--	3.24	--	--	--	--	--	--	--		
MW-3	05/23/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	5.29	--	--	--	--	--	--	--		

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-3	05/31/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.34	--	--	--	--	--	--	--	
MW-3	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
MW-3	04/22/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
MW-3	10/01/15	<0.100	--	0.143	--	<0.25	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	2.76	--	--	--	--	--	--	--	
MW-3	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	3.86	--	--	--	--	--	--	--	
MW-3	10/11/17	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	4.49	--	--	--	--	--	--	--	
MW-3	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	2.95	--	--	--	--	--	--	--	
MW-3	10/02/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<b>0.00743</b>	<0.00200	4.44	--	--	--	--	--	--	--	
MW-3	10/22/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	4.84	--	--	--	--	--	--	--	
MW-4	02/14/02	0.78	<b>280</b>	--	<50	--	<b>0.30</b>	0.0072	0.0023	0.0082	--	--	--	--	--	--	--	--	--	--	
MW-4	05/21/02	<b>1.5</b>	8.6	--	<0.5	--	<b>0.43</b>	0.023	0.034	0.13	--	--	--	--	--	--	--	--	--	--	
MW-4	08/28/02	<b>3.3</b>	<b>30</b>	--	2.6	--	<b>1.1</b>	0.016	0.016	0.024	--	--	1.00	5.10	--	--	86.00	<0.25	2.90	--^	
MW-4	11/05/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-4	02/19/03	<b>3.1</b>	<b>31</b>	--	<0.5	--	0.056	0.0017	0.014	0.020	--	--	2.00	1.80	--	--	120.00	<0.25	270.00	--^	
MW-4	06/10/03	0.39	<b>12</b>	--	<0.25	--	0.031	0.0012	0.0091	0.0096	--	--	0.90	4.90	--	--	36.00	<0.25	8.40	0.60	
MW-4	09/16/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-4	11/19/03	0.25	<b>19</b>	--	<0.50	--	0.033	<0.001	0.0042	0.0069	--	--	1.40	1.90	--	--	31.00	<0.25 b	49.00	0.60	
MW-4	02/25/04	0.36	<b>15</b>	--	<0.50	--	0.035	0.0014	0.0056	0.0094	--	--	2.20	1.20	--	--	32.00	<0.25 b	1.00	0.30	
MW-4	05/12/04	0.33	7.4	--	<0.50	--	0.012	<0.001	0.0048	0.0058	--	--	0.89	4.90	--	--	37.00	<0.25	5.30	<0.10	
MW-4	08/26/04	<0.50	5.1	--	<0.50	--	0.014	<0.0025	0.0039	0.0069	--	--	2.32	1.40	--	--	26.00	<0.25	6.40	0.42	
MW-4	12/15/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-4	03/09/05	<2.0	<b>11</b>	--	<0.50	--	<0.01	<0.01	<0.01	0.013	--	--	1.37	1.00	--	--	31.00	<0.25	110.00	0.33	
MW-4	06/08/05	<1.0	<b>16</b>	--	1.1	--	<0.005	<0.005	<0.005	<0.005	<0.0050	--	1.50	1.60	--	--	46.00	<0.25	11.00	0.50	
MW-4	09/21/05	<2.0	<b>19</b>	--	2.1	--	<0.010	<0.010	<0.010	<0.010	--	--	1.30	7.00	--	--	54.00	<0.25	0.52	23.00	
MW-4	12/14/05	<0.50	6.2	--	0.81	--	0.012	<0.0025	0.0032	0.0084	--	--	2.40	6.60	--	--	19.00	<0.25	33.00	0.38	
MW-4	03/14/06	<0.40	3.9	--	0.69	--	0.0063	<0.0020	0.0020	0.0062	--	--	2.40	4.20	--	--	11.00	<0.25	1.90	0.53	
MW-4	06/07/06	<0.50	4.5	--	<0.50	--	0.0037	<0.0025	<0.0025	<0.0025	--	--	3.20	7.10	--	--	8.30	<0.25	<0.50	0.54	
MW-4	09/13/06	<0.50	2.7	--	<0.50	--	0.0034	<0.0025	<0.0025	0.0029	--	--	2.80	7.60	--	--	15.00	<0.25	<0.50	0.85	
MW-4	12/13/06	<0.25	3.7	--	0.62	--	0.0012	<0.0005	<0.0005	0.0023	--	--	2.90	2.30	--	--	8.70	<0.25	31.00	<0.10	
MW-4	06/20/07	<0.25	--	--	--	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	1.80	--	--	--	--	--	--	--	
MW-4	06/05/08	<0.25	1.2	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	2.60	--	--	--	--	--	--	--	
MW-4	06/01/09	<0.25	2.1	--	0.61	--	<0.0005	<0.0005	<0.0005	0.00080	--	--	0.26	--	--	--	--	--	--	--	
MW-4	06/08/10	<0.25	0.86	--	<0.50	--	<0.0005	0.00057	<0.0005	0.0018	--	--	0.00	--	--	--	--	--	--	--	
MW-4	05/23/11	<0.25	1.6	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.25	--	--	--	--	--	--	--	
MW-4	06/01/12	<0.50	2.0	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	0.00	--	--	--	--	--	--	--	
MW-4	04/09/13	<0.50 O	--	0.92	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	--	--	--	--	--	--	
MW-4	04/23/14	<0.25	5.3	1.7	0.90	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	

Appendix E  
 Historical Groundwater Analytical Results  
 Kinder Morgan Liquids Terminals, LLC  
 Harbor Island Terminal  
 2720 13th Avenue Southwest, Seattle, Washington

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-4	09/30/15	<0.100	--	5.02	--	0.916	<0.001	<0.005	<0.001	<0.003	--	--	0.41	--	--	--	--	--	--	--	
MW-4	10/12/16	0.285	--	1.27	--	<0.500	<0.001	<0.005	<0.001	<0.003	--	--	0.62	--	--	--	--	--	--	--	
MW-4	10/11/17	0.225 B	--	4.55	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.59	--	--	--	--	--	--	--	
MW-4	10/04/18	0.198	--	0.973	--	<0.25	<0.001	<0.001	<0.001	<0.003	--	--	0.08	--	--	--	--	--	--	--	
MW-4	10/03/19	<0.100	--	1.44	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.21	--	--	--	--	--	--	--	
MW-4	10/20/20	0.217 B	--	0.929	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.04	--	--	--	--	--	--	--	
MW-5	02/13/02	<0.25	<0.25	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
MW-5	05/21/02	<0.25	<0.5	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.01*</b>	--	--	--	--	--	--	--	--	--	
MW-5	08/29/02	<0.25	1.2	--	<0.5	--	<0.0005	0.0018	<0.0005	0.00063	<0.005*	--	1.40	0.17	--	--	0.30	<0.25	11.00	0.20	
MW-5	11/05/02	<0.25	1.6	--	<0.5	--	0.0055	0.0016	<0.0005	0.00056	<0.005*	--	4.10	6.40	--	--	13.00	1.10	250.00	0.30	
MW-5	02/20/03	<0.25	<0.25	--	<0.5	--	<0.0005	0.00066	<0.0005	<0.0005	<0.005*	--	2.00	0.073	--	--	<0.2	<0.25	6.20	<0.1	
MW-5	06/11/03	<0.25	0.36	--	<0.25	--	<0.0005	0.00079	<0.0005	<0.0005	<0.005*	--	1.60	2.50	--	--	0.60	<0.25	8.20	0.10	
MW-5	09/16/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.011*</b>	--	1.20	4.70	--	--	3.10	<0.25 b	5.60	0.10	
MW-5	11/20/03	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0086*</b>	--	4.90	<0.01	--	--	0.30	<0.25 b	4.70	0.20	
MW-5	02/24/04	<0.25	<0.50	--	<0.50	--	<0.0005	0.0014	<0.0005	<0.0005	<0.0050*	--	3.10	0.33	--	--	0.062	<0.25 b	5.80	0.10	
MW-5	05/11/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.90	0.61	--	--	1.50	0.27	3.00	<0.10	
MW-5	08/26/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.22	<0.010	--	--	<0.050	1.80	7.60	<0.10	
MW-5	12/15/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	12.19	<0.010	--	--	<0.050	0.27	4.30	<0.10	
MW-5	03/09/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.11*</b>	--	6.22	0.020	--	--	<0.050	<0.25	15.00	<0.10	
MW-5	06/08/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.50	<0.010	--	--	<0.050	<0.25	11.00	<0.2	
MW-5	09/21/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.90	0.080	--	--	0.077	<0.25	8.90	<0.10	
MW-5	12/14/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.20	<0.010	--	--	<0.050	<0.25	9.80	--*d	
MW-5	03/14/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.012*</b>	--	2.20	<0.010	--	--	<0.050	0.55	3.20	<0.10	
MW-5	06/07/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0099*</b>	--	2.00	<0.010	--	--	<0.050	1.10	4.50	<0.10	
MW-5	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.013*</b>	--	2.10	0.34	--	--	<0.050	<0.25	6.60	<0.10	
MW-5	12/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0088*</b>	--	2.30	<0.010	--	--	<0.050	0.30	3.80	<0.10	
MW-5	06/20/07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-5	06/04/08	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0094</b>	--	2.40	--	--	--	--	--	--	--	
MW-5	06/02/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00078	<0.0050	--	4.34	--	--	--	--	--	--	--	
MW-5	06/08/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.84	--	--	--	--	--	--	--	
MW-5	05/24/11	<0.25	<0.25	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	--	5.26	--	--	--	--	--	--	--	
MW-5	05/31/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	2.33	--	--	--	--	--	--	--	
MW-5	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0073</b>	--	--	--	--	--	--	--	--	--	
MW-5	04/21/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
MW-5	10/01/15	<0.100	--	0.371	--	<0.25	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.45	--	--	--	--	--	--	--	
MW-5	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.40	--	--	--	--	--	--	--	
MW-5	10/13/17	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.59	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-5	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.13	--	--	--	--	--	--	--	
MW-5	10/01/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	1.46	--	--	--	--	--	--	--	
MW-5	10/19/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	1.37	--	--	--	--	--	--	--	
MW-6	02/13/02	0.97	1.1	--	<0.5	--	0.014	0.0007	<0.0005	0.00065	<0.005*	--	--	--	--	--	--	--	--	--	
MW-6	05/22/02	<b>1.1</b>	2.5	--	<0.5	--	0.035	0.0012	0.0024	0.00072	<0.005*	--	--	--	--	--	--	--	--	--	
MW-6	08/29/02	0.58	6.4	--	<0.5	--	0.0014	<0.001	<0.001	<0.001	<0.005*	--	1.20	0.72	--	--	4.10	<0.25	11.00	0.10	
MW-6	11/05/02	0.59	7.3	--	<0.5	--	0.064	<0.001	<0.001	0.0016	<b>0.02*</b>	--	1.70	1.70	--	--	10.00	<0.25	5.60	0.70	
MW-6	02/19/03	0.54	1.7	--	<0.5	--	0.0062	<0.0005	<0.0005	<0.0005	<0.005*	--	3.30	1.20	--	--	7.30	<0.25	62.00	0.10	
MW-6	06/10/03	0.70	1.9	--	<0.25	--	0.025	0.0011	0.00052	0.00051	<0.005*	--	2.00	0.87	--	--	5.90	<0.25	17.00	0.20	
MW-6	09/16/03	0.68	<0.50	--	<0.50	--	<0.0005	<0.0005	0.00053	<0.0005	<b>0.019*</b>	--	2.30	1.60	--	--	41.00	<0.25 b	2.90	1.00	
MW-6	11/19/03	0.44	1.6	--	<0.50	--	0.0095	0.00067	<0.0005	0.00051	<0.0050*	--	5.10	1.70	--	--	5.40	<0.25 b	19.00	<0.1	
MW-6	02/25/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.40	<0.01	--	--	0.49	2.8b	24.00	<0.1	
MW-6	05/11/04	<b>1.0</b>	0.67	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.20	0.39	--	--	5.10	<0.25	12.00	<0.10	
MW-6	08/25/04	<0.25	0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.26	0.59	--	--	4.90	<0.25	8.70	0.18	
MW-6	12/14/04	0.82	0.81	--	<0.50	--	0.0080	<0.0005	<0.0005	<0.0005	<b>0.011*</b>	--	1.45	2.80	--	--	2.50	<0.25	9.90	<0.10	
MW-6	03/10/05	<b>1.0</b>	0.42	--	<0.50	--	0.0011	<0.0005	<0.0005	<0.0005	<0.0050*	--	0.70	0.85	--	--	1.90	<0.25	20.00	0.15	
MW-6	06/07/05	0.92	<0.25	--	<0.50	--	0.0014	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.80	0.38	--	--	0.86	0.56	19.00	0.20	
MW-6	09/20/05	0.91	<0.25	--	<0.50	--	<0.0005	<0.0005	0.00062	<0.0005	<0.0050*	--	0.90	1.50	--	--	2.50	<0.25	6.00	0.18	
MW-6	12/13/05	<b>1.2</b>	0.38	--	<0.50	--	0.0032	<0.0005	0.00050	<0.0005	<0.0050*	--	1.00	1.90	--	--	2.60	<0.25	10.00	0.26	
MW-6	03/15/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.00	0.057	--	--	0.30	<0.25	17.00	<0.10	
MW-6	06/08/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.90	0.22	--	--	5.90	<0.25	7.30	0.39	
MW-6	09/12/06	0.71	<0.25	--	<0.50	--	<0.0005	0.00055	<0.0005	<0.0005	<0.0050*	--	1.60	0.98	--	--	2.50	<0.25	3.10	0.33	
MW-6	12/12/06	<0.25	<0.25	--	<0.50	--	<0.0005	0.00055	<0.0005	<0.0005	<0.0050*	--	2.00	0.032	--	--	1.60	0.91	49.00	<0.10	
MW-6	03/27/07	0.81	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.30	--	--	--	--	--	--	--	
MW-6	06/19/07	0.73	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.40	0.40	--	--	4.40	<0.25	15.00	0.21	
MW-6	09/24/07	0.55	--	--	--	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	3.40	--	--	--	--	--	--	--	
MW-6	12/11/07	0.54	--	--	--	--	0.0014	<0.0005	<0.0005	<0.0005	--	--	3.16	--	--	--	--	--	--	--	
MW-6	03/04/08	0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.50	--	--	--	--	--	--	--	
MW-6	06/04/08	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	2.90	0.38	--	--	0.70	<0.25	11.00	0.13	
MW-6	09/08/08	0.51	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.89	--	--	--	--	--	--	--	
MW-6	12/04/08	0.43	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.33	--	--	--	--	--	--	--	
MW-6	03/04/09	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.57	--	--	--	--	--	--	--	
MW-6	06/02/09	0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	0.0025	<0.0050	--	1.37	0.096	--	--	0.30	3.30	24.00	<0.10	
MW-6	09/21/09	0.33	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.28	--	--	--	--	--	--	--	
MW-6	11/17/09	0.31	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.46	--	--	--	--	--	--	--	
MW-6	03/09/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	0.00095	--	--	1.33	--	--	--	--	--	--	--	
MW-6	06/08/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.080	0.036	--	--	0.22	0.41	11.00	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
Site-Specific Cleanup Levels:		1.0	10	10	10	10	0.071	200	29.0	N/A	0.0058										
MW-6	09/09/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.40	--	--	--	--	--	4.80	--	
MW-6	11/15/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.42	--	--	--	--	--	--	--	
MW-6	03/02/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.20	--	--	--	--	--	--	--	
MW-6	05/24/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.86	0.010	--	--	<0.050	0.68	10.00	0.10	
MW-6	08/30/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.32	--	--	--	--	--	--	--	
MW-6	12/01/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0010	--	--	0.90	--	--	--	--	--	--	--	
MW-6	03/01/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.69	--	--	--	--	--	--	--	
MW-6	05/31/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	<0.010	--	--	<0.050	2.10	18.00	<0.10	
MW-6	08/25/12	0.27	--	--	--	--	<0.00050	<0.00050	<0.00050	<0.00050	--	--	--	--	--	--	--	--	--	--	
MW-6	11/08/12	0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-6	02/28/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-6	04/09/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	<0.010	--	--	<0.050	0.92 °c	15	<0.10	
MW-6	07/29/13	0.30	--	--	--	--	<0.0005	<0.0005	<0.0005	0.00059	--	--	--	--	--	--	--	--	--	--	
MW-6	10/02/13	0.69	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	10.68	--	--	--	--	--	--	--	
MW-6	01/22/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	8.95	--	--	--	--	--	--	--	
MW-6	04/22/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	<0.010	--	--	<0.050	1.6	23	<0.10	
MW-6	07/15/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.51	--	--	--	--	--	--	--	
MW-6	09/29/15	0.259	--	--	--	--	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.36	0.123	--	--	0.203 T8	<0.1	9.64	<0.05	
MW-6	10/12/16	0.294	--	--	--	--	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.78	--	--	--	--	--	--	--	
MW-6	10/12/17	0.311	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	1.14	--	--	--	--	--	--	--	
MW-6	10/03/18	0.389 B	--	--	--	--	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.36	--	--	--	--	--	--	--	
MW-6	10/03/19	0.249	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.15	--	--	--	--	--	--	--	
MW-6	10/22/20	0.250 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.50	--	--	--	--	--	--	--	
MW-7	02/14/02	13	7.5	--	<0.5	--	0.20	0.24	0.57	1.8	0.035*	--	--	--	--	--	--	--	--	--	
MW-7	05/21/02	6.6	11	--	<0.5	--	0.16	0.089	0.43	0.66	0.04*	--	--	--	--	--	--	--	--	--	
MW-7	08/29/02	2.9	5.7	--	<0.5	--	0.12	0.042	0.24	0.11	0.047*	--	1.40	14.00	--	--	9.80	<0.25	20.00	0.40	
MW-7	11/05/02	0.90	5.9	--	<0.5	--	0.021	0.0022	0.004	0.0066	0.041*	--	3.00	14.00	--	--	8.90	<0.25	7.00	0.50	
MW-7	02/20/03	9.7	11	--	<0.5	--	0.12	0.13	0.33	1.4	0.11*a	--	2.50	13.00	--	--	13.00	<0.25	21.00	1.10	
MW-7	06/11/03	5.7	8.7	--	<0.25	--	0.13	0.092	0.26	0.52	0.081*a	--	2.00	17.00	--	--	12.00	<0.25	1.10	0.50	
MW-7	09/17/03	1.4	12	--	<0.50	--	0.078	0.031	0.15	0.089	0.11*a	--	1.10	14.00	--	--	2.70	<0.25 c	3.00	1.10	
MW-7	11/20/03	0.26	0.79	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.035	0.019*a	--	2.40	0.98	--	--	0.90	1.3 c	19.00	<0.1	
MW-7	02/26/04	15	21	--	<0.50	--	0.11	0.34	0.63	3.8	0.034*a	--	6.20	18.00	--	--	27.00	<0.25 b	59.00	0.90	
MW-7	05/11/04	6.3	11	--	<0.50	--	0.059	0.15	0.31	1.3	0.0083*a	--	1.00	14.00	--	--	16.00	<0.25	12.00	0.15	
MW-7	08/26/04	7.1	20	--	<0.50	--	0.054	0.22	0.34	1.7	0.067*a	--	3.80	15.00	--	--	13.00	<0.25	9.20	0.47	
MW-7	12/15/04	18	4.4	--	<0.50	--	0.14	0.37	0.53	3.0	0.19*a	--	1.30	10.00	--	--	20.00	3.20	68.00	0.19	
MW-7	03/09/05	3.5	2.1	--	<0.50	--	0.045	0.034	0.090	0.27	0.079*a	--	1.45	18.00	--	--	9.30	<0.25	4.50	0.45	
MW-7	06/08/05	2.9	2.3	--	<0.50	--	0.054	0.050	0.11	0.44	0.069*a	--	10.50	17.00	--	--	8.70	<0.25	1.40	0.40	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
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Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-7	09/20/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-7	09/21/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-7	12/14/05	8.8	0.59	--	<0.50	--	0.16	0.19	0.31	1.5	0.042*a	--	1.70	22.00	--	--	19.00	<0.25	75.00	0.16		
MW-7	03/14/06	15	0.50	--	<0.50	--	0.12	0.26	0.50	3.6	0.026*	--	1.70	18.00	--	--	9.70	<0.25	19.00	0.36		
MW-7	06/07/06	17	0.85	--	<0.50	--	0.12	0.35	0.69	4.5	0.023*	--	1.60	19.00	--	--	2.70	<0.25	17.00	0.43		
MW-7	09/13/06	2.4	0.32	--	<0.50	--	0.050	0.055	0.19	0.39	0.021*a	--	2.00	17.00	--	--	1.80	<0.25	2.10	0.17		
MW-7	12/13/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-7	03/27/07	13	--	--	--	--	0.091	0.22	0.60	2.5	--	--	1.90	--	--	--	--	--	--	--	--	
MW-7	06/20/07	6.6	--	--	--	--	0.027	0.06	0.19	1.1	0.030*	--	1.00	23.00	--	--	2.90	<0.25	8.30	0.45		
MW-7	09/24/07	6.6	--	--	--	--	0.023	0.094	0.27	2.0	--	--	2.60	--	--	--	--	--	--	--	--	
MW-7	12/11/07	27	--	--	--	--	0.031	0.33	0.87	6.6	--	--	3.22	--	--	--	--	--	--	--	--	
MW-7	03/04/08	19	--	--	--	--	0.032	0.19	0.66	3.8	--	--	1.30	--	--	--	--	--	13.00	--	--	
MW-7	06/04/08	6.4	--	--	--	--	<0.01	0.088	0.30	0.77	0.019***	--	1.30	19.00	--	--	0.15	<0.25	2.30	0.63		
MW-7	09/08/08	15	--	--	--	--	0.015	0.064	0.35	2.6	--	--	0.73	--	--	--	--	--	--	--	--	
MW-7	12/05/08	8.7	--	--	--	--	0.019	0.046	0.33	1.5	--	--	0.40	--	--	--	--	--	--	--	--	
MW-7	03/04/09	5.7	--	--	--	--	0.014	0.073	0.25	1.4	--	--	0.70	--	--	--	--	--	--	--	--	
MW-7	06/02/09	5.5	--	--	--	--	0.014	0.029	0.15	0.89	0.0072*	--	0.37	25.00	--	--	2.80	<0.25	21.00	0.42		
MW-7	09/21/09	6.1	--	--	--	--	0.0072	0.03	0.18	1.1	--	--	0.54	--	--	--	--	--	--	--	--	
MW-7	11/17/09	18	--	--	--	--	<0.020	0.16	0.54	4.3	--	--	0.64	--	--	--	--	--	--	--	--	
MW-7	03/09/10	5.8	--	--	--	--	0.013	0.047	0.20	0.9	--	--	0.18	--	--	--	--	--	--	--	--	
MW-7	06/09/10	4.9	--	--	--	--	0.0075	0.058	0.25	1.2	0.0064*	--	0.00	27.00	--	--	1.10	1.60	1.60	0.44		
MW-7	09/09/10	1.9	<0.25	--	<0.50	--	0.0036	0.0082	0.041	0.23	--	--	0.25	--	--	--	--	<0.25	3.60	--	--	
MW-7	11/15/10	8.8	--	--	--	--	0.012	0.10	0.34	2.1	--	--	0.47	--	--	--	--	--	--	--	--	
MW-7	03/01/11	4.9	--	--	--	--	0.0051	0.055	0.11	0.77	--	--	0.00	--	--	--	--	--	--	--	--	
MW-7	05/24/11	5.0	--	--	--	--	0.0062	0.050	0.14	0.66	0.0082***	--	0.00	3.50	--	--	1.80	0.46	5.10	0.55		
MW-7	08/29/11	2.3	--	--	--	--	0.0022	0.0055	0.026	0.16	--	--	0.44	--	--	--	--	--	--	--	--	
MW-7	12/01/11	5.2	--	--	--	--	<0.0005	0.026	0.036	0.83	--	--	0.42	--	--	--	--	--	--	--	--	
MW-7	03/01/12	6.0	<0.25	--	<0.50	--	0.011	0.0987	0.24	0.90	--	--	0.25	--	--	--	--	--	--	--	--	
MW-7	05/31/12	8.8	--	--	--	--	0.02	0.14	0.36	1.9	0.0063***	--	0.00	14.00	--	--	1.50	<0.25	2.40	0.70		
MW-7	08/25/12	1.8	--	--	--	--	0.0024	0.0062	0.030	0.16	--	--	--	--	--	--	--	--	--	--	--	
MW-7	11/08/12	2.4	--	--	--	--	0.0028	0.028	0.072	0.55	--	--	--	--	--	--	--	--	--	--	--	
MW-7	02/28/13	1.3	--	--	--	--	<0.0015	0.0070	0.0070	0.19	--	--	--	--	--	--	--	--	--	--	--	
MW-7	04/09/13	8.1	--	--	--	--	<0.005	0.070	0.25	1.4	0.0097	0.0097	--	3.7	--	--	3.3	<0.25 *c	4.7	0.054 J		
MW-7	04/09/13	5.7	--	--	--	--	0.0071	0.072	0.24	1.2	--	--	--	--	--	--	--	--	--	--	--	
MW-7	06/21/13	4.0	0.27 K	--	--	--	0.0059	0.064	0.28	1.1	--	--	--	--	--	--	--	<0.25 *c	3.2	<0.10	Baseline monitoring event	
MW-7	07/30/13	7.2	--	--	--	--	0.016	0.11	0.29	1.6	--	--	--	20	4.6	<0.30	--	<0.25	4.1	<0.10		
MW-7	08/26/13	7.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-7	10/03/13	2.8	--	--	--	--	0.016	0.033	0.15	0.54	--	--	0.00	20	170	140	--	0.81 °c	3,100	<0.10	
MW-7	01/22/14	2.1	--	--	--	--	0.014	0.010	0.13	0.17	--	--	5.11	--	--	--	--	--	2,100	0.23	
MW-7	04/21/14	1.9	--	--	--	--	0.013	0.0093	0.11	0.2	<0.0050	<0.0050	--	7.9	--	--	15	0.29	1,200	0.18	
MW-7 (DUP)	04/21/14	2.4	--	--	--	--	0.015	0.012	0.13	0.25	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-7
MW-7	07/14/14	1.5	--	--	--	--	0.012	0.0012	0.073	0.021	--	--	1.80	24	3.7	5.8	--	--	1,000	<0.10	
MW-7	03/17/15	1.6	--	--	--	--	0.0043	0.0061	0.050	0.13	--	--	0.10	3.3	--	--	3.6	<0.25	750	0.16	
MW-7 (DUP)	03/17/15	2.1	--	--	--	--	0.0059	0.0078	0.068	0.17	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-7
MW-7	09/30/15	1.02	--	--	--	--	0.00844	<0.005	0.0328	0.0335	0.00580	0.00381	0.21	12.1	--	--	19.7 T8	<0.10	932	<0.05	
MW-7	03/30/16	0.519	--	--	--	--	0.00212	<0.005	0.0203	0.0144	--	--	0.45	2.08	--	--	9.61	<0.10	1,250	<0.05	
MW-7 (DUP)	03/30/16	0.799	--	--	--	--	0.00211	<0.005	0.0272	0.0267	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-7
MW-7	10/13/16	1.87	--	--	--	--	0.00538	<0.005	0.0690	0.0819	0.00555	0.00434	0.26	--	--	--	--	--	963	--	
MW-7 (DUP)	10/13/16	1.88	--	--	--	--	0.00557	<0.005	0.0705	0.0825	0.00539	0.00706	0.26	--	--	--	--	--	976	--	Duplicate of MW-7
MW-7	04/20/17	1.25	--	--	--	--	0.00118	0.00455	0.0644	0.0999	--	--	0.23	--	--	--	--	--	1,830	--	
MW-7	10/12/17	1.03	--	--	--	--	0.00362	0.00205	0.0331	0.0268	0.00488	0.00313	0.45	--	--	--	--	--	96.7	--	
MW-7 (DUP)	10/12/17	1.03	--	--	--	--	0.00307	0.00202	0.0359	0.0287	0.00448	0.00287	0.45	--	--	--	--	--	953	--	Duplicate of MW-7
MW-7	03/29/18	1.15	--	--	--	--	0.00117	0.00187	0.0216	0.0324	--	--	0.11	--	--	--	--	--	803	--	
MW-7 (DUP)	03/29/18	1.24	--	--	--	--	0.00111	0.00191	0.0257	0.0399	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-7
MW-7	10/04/18	1.49	--	--	--	--	0.0049	0.00211	0.0202	0.0142	0.00818	0.00449	0.10	--	--	--	--	--	1,670	--	
MW-7 (DUP)	10/04/18	1.45	--	--	--	--	0.00354	0.00207	0.0189	0.0160	0.00741	0.00581	--	--	--	--	--	--	--	--	Duplicate of MW-7
MW-7	04/03/19	0.451	--	--	--	--	<0.00100	<0.00100	0.00142	<0.00300	--	--	0.01	--	--	--	--	--	763	--	
MW-7 (DUP)	04/03/19	0.251	--	--	--	--	<0.00100	<0.00100	0.00116	<0.00300	--	--	0.01	--	--	--	--	--	--	--	Duplicate of MW-7
MW-7	10/03/19	1.83	--	--	--	--	0.00213	0.00397	0.0413	0.0193	0.00326	0.00226	0.05	--	--	--	--	--	400	--	
MW-7 (DUP)	10/03/19	1.74	--	--	--	--	0.00215	0.00399	0.0385	0.0194	0.00333	0.00237	0.05	--	--	--	--	--	379	--	Duplicate of MW-7
MW-7	03/26/20	0.394	--	--	--	--	<0.00100	<0.00100	0.00853	0.00701	--	--	0.18	--	--	--	--	--	2,270	--	
MW-7	10/20/20	0.173 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.25	--	--	--	--	--	681	--	
MW-7 (DUP)	10/20/20	0.119 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.25	--	--	--	--	--	755	--	Duplicate of MW-7
MW-8	02/14/02	<0.25	8.1	--	<5.0	--	<0.0005	0.00086	<0.0005	<0.0005	0.03*	--	--	--	--	--	--	--	--	--	
MW-8	08/29/02	<0.25	7.5	--	<0.5	--	<0.0005	0.00082	<0.0005	<0.0005	0.017*	--	6.20	0.90	--	--	2.30	<0.25	3.70	0.20	
MW-8	11/05/02	<0.25	1.7	--	1.2	--	<0.0005	<0.0005	<0.0005	<0.0005	0.012*	--	2.10	5.50	--	--	3.40	<0.25	7.50	0.10	
MW-8	02/20/03	<0.25	6.6	--	<0.5	--	<0.0005	0.00055	<0.0005	0.0024	0.029*	--	2.90	0.56	--	--	0.50	0.69	7.60	0.30	
MW-8	06/11/03	<0.25	3.8	--	<0.25	--	0.0013	<0.001	<0.001	<0.001	0.012*	--	1.56	18.00	--	--	0.30	<0.25	<0.25	0.40	
MW-8	09/17/03	<0.25	3.3	--	0.77	--	<0.0005	<0.0005	<0.0005	<0.0005	0.030*	--	2.50	11.00	--	--	6.10	<0.25 c	6.70	0.40	
MW-8	11/20/03	<0.25	2.5	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	<0.0050*	--	1.70	<0.010	--	--	<0.2	2.4 c	11.00	0.10	
MW-8	02/26/04	<0.25	2.7	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.016*	--	2.30	<0.01	--	--	0.57	1.2 b	4.40	0.20	
MW-8	05/11/04	<0.25	1.5	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.10	0.19	--	--	0.12	<0.25	5.30	<0.10	
MW-8	08/26/04	<0.25	1.0	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.32	0.36	--	--	<0.050	2.20	11.00	<0.10	
MW-8	12/15/04	<0.25	1.5	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	0.0071*	--	2.30	<0.010	--	--	<0.050	5.80	15.00	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-8	03/09/05	<0.25	1.6	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0094*</b>	--	2.22	<0.010	--	--	<0.050	1.20	7.30	<0.10	
MW-8	06/08/05	<0.25	1.8	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.014*</b>	--	6.50	0.018	--	--	<0.050	2.30	7.40	<0.2	
MW-8	09/21/05	<0.25	0.97	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.011*</b>	--	2.10	4.40	--	--	0.51	<0.25	11.00	<0.10	
MW-8	12/14/05	<0.25	1.1	--	0.58	--	<0.001	<0.001	<0.001	0.0013	<b>0.0060*</b>	--	2.50	4.00	--	--	<0.050	2.20	11.00	<0.10	
MW-8	03/14/06	<0.25	0.54	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.011*</b>	--	2.50	<0.010	--	--	<0.050	1.60	6.40	<0.10	
MW-8	06/07/06	<0.25	0.88	--	0.61	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0093*</b>	--	1.30	0.53	--	--	<0.050	1.10	6.00	<0.10	
MW-8	09/13/06	<0.25	0.35	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.012*</b>	--	1.60	7.10	--	--	0.068	<0.25	5.00	<0.10	
MW-8	12/13/06	<0.25	0.82	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0060*</b>	--	3.10	<0.010	--	--	<0.050	7.30	41.00	<0.10	
MW-8	06/20/07	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.029</b>	--	2.20	--	--	--	--	--	--	--	
MW-8	06/04/08	<0.25	0.37	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<b>0.064</b>	--	2.50	--	--	--	--	--	--	--	
MW-8	06/02/09	<0.25	0.52	--	<0.50	--	<0.00050	<0.00050	<0.00050	<0.00050	<b>0.020</b>	--	1.52	--	--	--	--	--	--	--	
MW-8	06/09/10	<0.25	0.82	--	0.65	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.013</b>	--	1.55	--	--	--	--	--	--	--	
MW-8	05/24/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.020</b>	--	0.85	--	--	--	--	--	--	--	
MW-8	05/31/12	<0.25	<0.25	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<b>0.032</b>	--	0.79	--	--	--	--	--	--	--	
MW-8	04/10/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.046</b>	--	--	--	--	--	--	--	--	--	
MW-8	04/24/14	<0.25	0.49	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.027</b>	--	--	--	--	--	--	--	--	--	
MW-8	09/29/15	<0.100	--	1.75	--	2.07	<0.001	<0.005	<0.001	<0.003	<b>0.00676</b>	<0.002	2.06	--	--	--	--	--	--	--	
MW-8	10/13/16	<0.100	--	0.385	--	<0.500	<0.001	<0.005	<0.001	<0.003	<b>0.0183</b>	<0.002	0.25	--	--	--	--	--	--	--	
MW-8	10/12/17	<0.100	--	0.390	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<b>0.0180</b>	<0.00100	0.54	--	--	--	--	--	--	--	
MW-8	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	0.00275	<0.002	0.12	--	--	--	--	--	--	--	
MW-8	10/02/19	<0.100	--	0.328	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	0.00579	<0.00200	0.31	--	--	--	--	--	--	--	
MW-8	10/21/20	<0.100	--	0.290	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<b>0.0130</b>	<0.00500	1.14	--	--	--	--	--	--	--	
MW-9	06/11/03	<b>6.0</b>	<b>13</b>	--	<0.50	--	0.0031	0.036	0.076	0.60	<b>0.022*</b>	--	2.10	6.60	--	--	15.00	<0.25	2.00	0.70	
MW-9	09/17/03	<b>5.3</b>	<b>39</b>	--	0.72	--	0.026	0.027	0.09	0.45	<b>0.0095*</b>	--	2.10	9.80	--	--	19.00	<0.25 c	1.50	0.70	
MW-9	11/20/03	<b>8.5</b>	<b>19</b>	--	<0.50	--	<0.005	0.018	0.14	1.1	<b>0.0096*</b>	--	1.60	2.20	--	--	14.00	<0.25 c	66.00	0.30	
MW-9	02/26/04	<b>4.1</b>	<b>28</b>	--	<0.50	--	0.022	0.0072	0.025	0.47	<b>0.0083*</b>	--	1.10	15.00	--	--	12.00	<0.25 b	8.10	0.80	
MW-9	05/11/04	<b>4.1</b>	5.8	--	<0.50	--	0.0023	0.0093	0.081	0.44	<0.0050*	--	0.90	4.10	--	--	0.25	<0.25	0.62	0.12	
MW-9	08/26/04	<b>4.2</b>	6.2	--	<0.50	--	0.0066	0.025	0.13	0.43	<b>0.0099*</b>	--	1.80	8.20	--	--	15.00	<0.25	1.00	0.41	
MW-9	12/15/04	<b>5.4</b>	7.6	--	<0.50	--	<0.0025	0.011	0.12	0.39	<b>0.0094*</b>	--	1.76	5.30	--	--	29.00	10.00	180.00	<0.10	
MW-9	03/09/05	<b>4.5</b>	3.5	--	<0.50	--	0.0037	0.0047	0.042	0.18	<b>0.021*</b>	--	4.70	4.30	--	--	7.20	<0.25	4.40	0.30	
MW-9	06/08/05	<b>3.2</b>	3.9	--	<0.50	--	0.0035	0.0087	0.069	0.17	<b>0.0076*</b>	--	4.50	6.50	--	--	8.40	<0.25	6.10	0.30	
MW-9	09/21/05	<b>2.3</b>	2.6	--	<0.50	--	0.007	0.0077	0.033	0.12	<b>0.0076*</b>	--	1.70	11.00	--	--	14.00	<0.25	1.90	0.21	
MW-9	12/14/05	<b>4.7</b>	1.2	--	<0.50	--	0.0078	0.010	0.12	0.38	<b>0.0095*</b>	--	3.30	10.00	--	--	9.10	<0.25	17.00	0.11	
MW-9	03/14/06	<b>2.4</b>	1.4	--	<0.50	--	0.0024	0.0034	0.018	0.12	<b>0.013*</b>	--	3.30	12.00	--	--	3.40	<0.25	1.40	0.51	
MW-9	06/07/06	<0.25	1.0	--	<0.50	--	0.0011	0.023	0.049	0.21	<b>0.021*</b>	--	0.90	4.60	--	--	5.60	<0.25	0.94	0.13	
MW-9	09/13/06	<b>1.8</b>	0.46	--	<0.50	--	0.0044	0.016	0.063	0.064	<b>0.010*</b>	--	1.90	7.40	--	--	7.50	<0.25	<0.50	<0.10	
MW-9	12/13/06	<b>2.6</b>	3.8	--	<0.50	--	<0.0025	<0.0025	0.024	0.19	<b>0.025*</b>	--	2.40	0.72	--	--	3.60	0.27	12.00	0.19	



**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-9	03/27/07	1.5	--	--	--	--	0.16	0.0013	0.0051	0.026	--	--	2.90	--	--	--	--	--	--	--	--	
MW-9	06/20/07	2.0	--	--	--	--	0.066	0.015	0.051	0.12	0.017	--	2.90	3.50	--	--	6.00	<0.25	<0.50	0.42		
MW-9	09/24/07	1.7	--	--	--	--	0.0036	0.0072	0.029	0.093	--	--	2.50	--	--	--	--	--	--	--	--	
MW-9	12/11/07	2.9	--	--	--	--	<0.0025	<0.0025	0.057	0.55	--	--	1.76	--	--	--	--	--	--	--	--	
MW-9	03/04/08	3.0	--	--	--	--	0.0096	<0.0015	0.016	0.15	--	--	1.50	--	--	--	--	--	--	--	--	
MW-9	06/04/08	2.0	--	--	--	--	0.0019	0.0073	0.039	0.089	0.0088	--	1.80	3.50	--	--	7.90	<0.25	0.80	0.40		
MW-9	09/08/08	2.4	--	--	--	--	0.0022	0.020	0.077	0.16	--	--	1.25	--	--	--	--	--	--	--	--	
MW-9	12/05/08	0.93	--	--	--	--	<0.0015	<0.0015	<0.0015	0.052	--	--	0.47	--	--	--	--	--	--	--	--	
MW-9	03/04/09	0.42	--	--	--	--	<0.0010	<0.0010	0.0040	0.031	--	--	0.32	--	--	--	--	--	--	--	--	
MW-9	06/02/09	1.2	--	--	--	--	<0.00050	<0.00050	0.0041	0.032	0.0099	--	0.51	0.57	--	--	1.50	<0.25	10.00	<0.10		
MW-9	09/22/09	1.2	--	--	--	--	0.0060	0.0018	0.0068	0.033	--	--	1.16	--	--	--	--	--	--	--	--	
MW-9	11/17/09	<0.25	--	--	--	--	<0.0005	0.00050	<0.0005	0.0043	--	--	0.48	--	--	--	--	--	--	--	--	
MW-9	03/09/10	<0.25	--	--	--	--	0.00092	0.00050	0.00055	0.00071	--	--	0.48	--	--	--	--	--	--	--	--	
MW-9	06/09/10	0.3	--	--	--	--	0.0014	<0.0005	0.00081	0.0058	<0.0050	--	0.00	7.50	--	--	2.90	<0.25	4.80	0.49		
MW-9	09/09/10	0.48	--	--	--	--	0.0058	0.0014	0.0061	0.025	--	--	0.37	--	--	--	--	--	2.00	--	--	
MW-9	11/15/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	0.00085	--	--	0.39	--	--	--	--	--	--	--	--	
MW-9	03/01/11	<0.25	--	--	--	--	0.014	<0.0005	<0.0005	0.00085	--	--	0.00	--	--	--	--	--	--	--	--	
MW-9	05/24/11	<0.25	--	--	--	--	0.0043	<0.0005	<0.0005	0.00085	0.0093	--	0.00	18.00	--	--	<0.050	<0.25	3.60	0.10		
MW-9	08/29/11	0.28	--	--	--	--	0.0067	<0.0005	0.00078	0.0038	--	--	0.27	--	--	--	--	--	--	--	--	
MW-9	12/01/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	0.0024	--	--	0.66	--	--	--	--	--	--	--	--	
MW-9	03/01/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.35	--	--	--	--	--	--	--	--	
MW-9	05/31/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	0.012	--	0.00	0.13	--	--	<0.050	0.38	5.30	<0.10		
MW-9	08/25/12	0.67	--	--	--	--	<0.00050	<0.00050	0.00062	0.0057	--	--	--	--	--	--	--	--	--	--	--	
MW-9	11/08/12	<0.25	--	--	--	--	<0.001	<0.001	<0.001	0.0029	--	--	--	--	--	--	--	--	--	--	--	
MW-9	02/28/13	<0.25	--	--	--	--	0.0012	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-9	04/10/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	6.1	--	--	<0.050	0.88 °c	3.2	<0.10		
MW-9	06/24/13	0.33	0.37	--	--	--	0.014	<0.0005	<0.0005	0.0035	--	--	--	--	--	--	--	<0.25	5.3	0.11	Baseline monitoring event	
MW-9	07/30/13	0.27	--	--	--	--	0.0017	<0.0005	0.00071	0.006	--	--	--	14	2.0	<0.30	--	<0.25	72	0.077 J		
MW-9	08/26/13	0.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
MW-9	10/03/13	0.3	--	--	--	--	0.0056	<0.0005	<0.0005	0.0092	--	--	0.00	18	3.8	1.5	--	<0.50 °c	8.6	<0.10		
MW-9	01/22/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	0.0013	--	--	9.46	--	--	--	--	--	26	<0.10		
MW-9	04/21/14	<0.25	--	--	--	--	0.017	<0.0005	<0.0005	<0.0005	<0.0050	--	--	24	--	--	0.45	<0.25	300	<0.10		
MW-9	07/14/14	<0.25	--	--	--	--	0.010	<0.0005	<0.0005	0.00072	--	--	0.24	21	1.5	1.2	--	--	99	<0.10		
MW-9	03/18/15	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.99	2.9	--	--	<0.050	0.57	190	<0.10		
MW-9	09/30/15	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	0.00323	<0.002	0.09	5.40	--	--	0.207 T8	<0.1	27.8	<0.05		
MW-9	03/30/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	3.76	<0.010	--	--	<0.050	0.585	86.3	<0.05		
MW-9	10/13/16	0.784	--	--	--	--	<0.001	<0.005	0.00182	0.0116	0.00276	<0.002	0.24	--	--	--	--	--	39.2	--		

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-9	03/29/17	0.113	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	5.09	--	--	--	--	--	89.7	--	
MW-9 (DUP)	03/29/17	0.147	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	--	--	--	--	--	--	--	--	
MW-9	10/12/17	0.667	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<b>0.0123</b>	<0.00100	0.53	--	--	--	--	--	18 P1	--	
MW-9	03/28/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	4.67	--	--	--	--	--	47.5	--	
MW-9	10/04/18	0.769	--	--	--	--	<0.001	<0.001	<0.001	<0.003	<b>0.00808</b>	<0.002	0.11	--	--	--	--	--	7.13	--	
MW-9	04/03/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	3.96	--	--	--	--	--	5.2	--	
MW-9	10/02/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	0.00435	<0.00200	0.15	--	--	--	--	--	6.77	--	
MW-9	03/26/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	5.24	--	--	--	--	--	47.1	--	
MW-9	10/21/20	0.130 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	1.73	--	--	--	--	--	16.1	--	
MW-12	06/19/01	<0.05	1.6	--	<0.5	--	<0.001	<0.001	<0.001	<0.003	<0.004	--	--	--	--	--	--	--	--	--	
MW-12	06/20/01	<0.06	1.7	--	<0.5	--	<0.001	<0.001	<0.001	<0.003	<0.004	--	--	--	--	--	--	--	--	--	
MW-12		Destroyed during construction activities																			
MW-12R	02/14/02	<0.25	1.4	--	<0.5	--	0.014	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
MW-12R	05/21/02	<0.25	2.5	--	<0.5	--	<b>0.08</b>	0.0013	<0.0005	0.00066	<0.005*	--	--	--	--	--	--	--	--	--	
MW-12R	08/28/02	<0.25	2.1	--	<0.5	--	0.028	0.0059	<0.0005	0.0015	<0.005*	--	--	--	--	--	--	--	--	--	
MW-12R	11/05/02	<0.25	1.3	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
MW-12R	02/19/03	0.26	2.5	--	<0.5	--	<b>0.19</b>	0.0012	<0.001	<0.001	<0.005*	--	--	--	--	--	--	--	--	--	
MW-12R	06/10/03	0.41	1.3	--	<0.25	--	<b>0.11</b>	0.00055	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
MW-12R	09/16/03	<0.25	0.67	--	<0.50	--	0.0021	<0.0005	<0.0005	<0.0005	<b>0.013*</b>	--	--	--	--	--	--	--	--	--	
MW-12R	11/19/03	0.42	<0.25	--	<0.50	--	<b>0.26</b>	<0.001	<0.001	<0.001	<b>0.0078</b>	--	--	--	--	--	--	--	--	--	
MW-12R	02/25/04	0.26	1.8	--	<0.50	--	<b>0.099</b>	0.00050	<0.0005	0.00076	<b>0.010*</b>	--	--	--	--	--	--	--	--	--	
MW-12R	05/12/04	0.56	0.74	--	<0.50	--	<b>0.20</b>	<0.001	<0.001	<0.001	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	08/26/04	0.35	0.50	--	<0.50	--	<b>0.089</b>	<0.001	<0.001	<0.001	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	12/15/04	<0.25	0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	03/09/05	<0.25	0.39	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	06/08/05	<0.25	0.39	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-12R	09/21/05	0.26	0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	03/14/06	<0.25	<0.25	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	06/07/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	12/13/06	<0.25	0.27	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	12/14/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	06/20/07	<0.25	--	--	--	--	<0.0005	0.0010	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
MW-12R	06/05/08	<0.25	0.78	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	--	--	--	--	--	--	--	--	--	
MW-12R	06/01/09	<0.25	0.32	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.36	--	--	--	--	--	--	--	
MW-12R	06/08/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.19	--	--	--	--	--	--	--	
MW-12R	05/23/11	<0.25	0.41	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	--	0.55	--	--	--	--	--	--	0.0050	

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Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-12R	06/01/12	<0.25	<0.25	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	--	0.00	--	--	--	--	--	--	--	0.0050	
MW-12R	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	<0.10	
MW-12R	04/23/14	<0.25	0.49	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	<0.10	
MW-12R	09/30/15	<0.100	--	2.41	--	1.07	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.41	4.05	--	--	2.1 T8	<0.1	5.55	<0.05		
MW-12R	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.61	--	--	--	--	--	--	--	--	
MW-12R	10/11/17	<0.100	--	0.216	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.65	--	--	--	--	--	--	--	--	
MW-12R	10/04/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.08	--	--	--	--	--	--	--	--	
MW-12R	10/03/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.13	--	--	--	--	--	--	--	--	
MW-12R	10/20/20	0.103 B	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.03	--	--	--	--	--	--	--	--	
MW-13	06/19/01	<0.05	1.3	--	<0.5	--	<0.001	<0.001	<0.001	<0.003	<0.004	--	--	--	--	--	--	--	--	--	--	
MW-13	Destroyed during construction activities																					
MW-13R	02/14/02	<0.25	3.2	--	<0.5	--	0.056	<0.0005	<0.0005	0.00075	<0.005*	--	--	--	--	--	--	--	--	--	--	
MW-13R	05/21/02	<0.25	3.5	--	<0.5	--	0.0025	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	--	
MW-13R	08/28/02	<0.25	2.4	--	<0.5	--	<0.0005	0.0019	<0.0005	0.00070	<0.005*	--	--	--	--	--	--	--	--	--	--	
MW-13R	11/05/02	<0.25	2.0	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	--	
MW-13R	02/19/03	<0.25	1.7	--	<0.5	--	0.00078	0.0032	<0.0005	0.00083	<0.005*	--	--	--	--	--	--	--	--	--	--	
MW-13R	06/10/03	<0.25	0.76	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	--	
MW-13R	09/16/03	<0.25	1.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0078*</b>	--	--	--	--	--	--	--	--	--	--	
MW-13R	11/19/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0066</b>	--	--	--	--	--	--	--	--	--	--	
MW-13R	02/25/04	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.012*</b>	--	--	--	--	--	--	--	--	--	--	
MW-13R	05/12/04	<0.25	0.61	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	08/26/04	<0.25	0.49	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	12/15/04	<0.25	0.91	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	03/09/05	<0.25	0.35	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	06/08/05	<0.25	0.49	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-13R	09/21/05	<0.25	0.39	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	03/14/06	<0.25	<0.25	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	06/07/06	<0.25	<0.25	--	<0.50	--	<0.005	<0.005	<0.005	<0.005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	12/13/06	<0.25	0.33	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0077*	--	--	--	--	--	--	--	--	--	--	
MW-13R	12/14/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	--	--	--	--	--	--	--	--	--	
MW-13R	06/20/07	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	--	
MW-13R	06/05/08	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	--	
MW-13R	06/01/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.49	--	--	--	--	--	--	--	--	
MW-13R	06/08/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	--	--	--	--	--	--	--	--	
MW-13R	05/23/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.18	--	--	--	--	--	--	--	0.0050	
MW-13R	Abandoned on 5/25/2012																					

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-14	02/13/02	2.5	37	--	<5.0	--	0.010	0.0085	0.18	0.22	--	--	--	--	--	--	--	--	--	--	--	
MW-14	05/21/02	2.9	23	--	1.0	--	0.0093	0.0057	0.18	0.15	--	--	--	--	--	--	--	--	--	--	--	
MW-14	08/29/02	2.9	28	--	<0.5	--	0.017	0.0073	0.21	0.14	--	--	2.20	5.90	--	--	20.00	<0.25	52.00	0.70	--	
MW-14	11/05/02	2.0	28	--	0.91	--	0.060	0.0059	0.12	0.076	--	--	2.40	11.00	--	--	23.00	<0.25	39.00	0.80	--	
MW-14	02/20/03	3.4	18	--	<0.5	--	0.056	0.0062	0.14	0.11	--	--	1.90	3.50	--	--	20.00	<0.25	35.00	0.80	--	
MW-14	06/11/03	3.1	28	--	<0.5	--	0.059	0.0098	0.23	0.13	--	--	1.50	2.90	--	--	19.00	<0.25	4.30	0.40	--	
MW-14	09/16/03	<1.0	15	--	<0.50	--	0.13	<0.005	0.019	0.022	--	--	1.30	0.86	--	--	15.00	<0.25 b	0.89	0.50	--	
MW-14	11/20/03	<2.0	29	--	0.7	--	0.12	<0.01	0.020	0.031	--	--	3.70	0.57	--	--	4.90	0.57 c	31.00	<0.1	--	
MW-14	02/24/04	2.4	21	--	<0.50	--	0.061	0.014	0.25	0.20	--	--	4.30	2.40	--	--	19.00	<0.25 b	0.60	0.60	--	
MW-14	05/11/04	2.7	27	--	<0.50	--	0.053	0.0092	0.21	0.16	--	--	0.10	2.30	--	--	19.00	<0.25	<0.50	<0.10	--	
MW-14	08/26/04	2.3	11	--	0.53	--	0.024	<0.0025	0.16	0.19	--	--	1.01	2.90	--	--	13.00	<0.25	47.00	0.38	--	
MW-14	12/15/04	1.2	9.6	--	<0.50	--	0.0084	<0.005	0.010	0.0055	--	--	2.88	4.50	--	--	0.13	4.80	110.00	<0.10	--	
MW-14	03/09/05	4.2	7.7	--	<0.50	--	0.0053	0.0094	0.18	0.099	--	--	2.99	6.80	--	--	12.00	0.62	41.00	0.30	--	
MW-14	06/08/05	3.1	8.8	--	<0.50	--	0.0043	0.0069	0.17	0.11	--	--	2.00	4.30	--	--	15.00	<0.25	18.00	0.40	--	
MW-14	09/21/05	1.6	10	--	1.1	--	0.012	0.0048	0.077	0.068	--	--	2.00	7.60	--	--	19.00	<0.25	8.20	0.36	--	
MW-14	12/14/05	3.1	2.0	--	<0.50	--	0.0059	0.0075	0.12	0.068	--	--	2.10	8.90	--	--	9.50	<0.25	21.00	<0.10	--	
MW-14	03/14/06	0.79	2.1	--	<0.50	--	<0.0025	<0.0025	0.023	0.030	--	--	2.10	1.50	--	--	7.90	<0.25	33.00	0.12	--	
MW-14	06/07/06	0.84	3.0	--	<0.50	--	<0.0025	<0.0025	0.061	0.033	--	--	1.50	1.50	--	--	11.00	<0.25	16.00	1.10	--	
MW-14	09/13/06	2.4	1.8	--	<0.50	--	<0.0025	0.0060	0.1	0.056	--	--	1.80	6.80	--	--	14.00	<0.25	1.70	0.22	--	
MW-14	12/13/06	1.1	1.4	--	<0.50	--	<0.0025	<0.0025	0.044	0.029	--	--	2.20	2.20	--	--	5.80	0.36	25.00	<0.10	--	
MW-14	03/27/07	1.3	--	--	--	--	0.0057	<0.0025	0.049	0.024	--	--	2.70	--	--	--	--	--	--	--	--	
MW-14	06/20/07	1.5	--	--	--	--	<0.0025	0.0039	0.087	0.046	--	--	3.40	2.90	--	--	7.50	<0.25	4.90	0.79	--	
MW-14	09/24/07	2.5	--	--	--	--	0.0024	0.0077	0.15	0.13	--	--	3.10	--	--	--	--	--	--	--	--	
MW-14	12/11/07	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.76	--	--	--	--	--	--	--	--	
MW-14	03/04/08	0.43	--	--	--	--	<0.0015	<0.0015	0.019	0.0073	--	--	1.10	--	--	--	--	--	--	--	--	
MW-14	06/04/08	<0.30	--	--	--	--	<0.0015	<0.0015	<0.015	<0.015	--	--	2.70	2.00	--	--	3.40	<0.25	8.90	0.58	--	
MW-14	09/08/08	2.5	--	--	--	--	0.0024	0.0070	0.17	0.075	--	--	0.69	--	--	--	--	--	--	--	--	
MW-14	12/05/08	<0.50	--	--	--	--	<0.0025	<0.0025	0.0047	0.0036	--	--	0.45	--	--	--	--	--	--	--	--	
MW-14	03/04/09	<0.25	--	--	--	--	0.0011	<0.0010	0.0011	0.0038	--	--	0.81	--	--	--	--	--	--	--	--	
MW-14	06/02/09	<0.25	--	--	--	--	<0.0010	<0.0010	<0.0010	0.0018	--	--	0.89	0.15	--	--	0.12	2.50	34.00	<0.10	--	
MW-14	09/21/09	0.56	--	--	--	--	<0.0025	<0.0025	0.044	0.013	--	--	0.92	--	--	--	--	--	--	--	--	
MW-14	11/17/09	<0.50	--	--	--	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	1.01	--	--	--	--	--	--	--	--	
MW-14	03/08/10	<0.25	--	--	--	--	0.0010	<0.0010	0.0010	0.0021	--	--	0.32	--	--	--	--	--	--	--	--	
MW-14	06/08/10	<0.25	--	--	--	--	<0.0005	<0.0005	0.0011	0.0014	--	--	0.25	0.72	--	--	0.18	<0.25	8.50	<0.10	--	
MW-14	09/09/10	0.5	--	--	--	--	0.0013	0.0018	0.031	0.036	--	--	0.32	--	--	--	--	--	--	--	--	
MW-14	11/15/10	<0.25	--	--	--	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.35	--	--	--	--	--	--	--	--	
MW-14	03/01/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.020	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-14	05/24/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	0.18	--	--	0.10	0.25	14.00	0.10	
MW-14	08/29/11	0.41	--	--	--	--	<0.0010	0.0011	0.019	0.026	--	--	0.19	--	--	--	--	--	--	--	
MW-14	12/01/11	<0.25	--	--	--	--	<0.0010	<0.0010	<0.0010	0.0032	--	--	0.31	--	--	--	--	--	--	--	
MW-14	03/01/12	<0.25	--	--	--	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	1.10	--	--	--	--	--	--	--	
MW-14	05/31/12	<0.25	--	--	--	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.00	0.086	--	--	<0.050	<0.25	10.00	<0.10	
MW-14	08/25/12	<0.25	--	--	--	--	<0.00050	<0.00050	0.0028	0.0017	--	--	--	--	--	--	--	--	--	--	
MW-14	11/08/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	0.0041	--	--	--	--	--	--	--	--	--	--	
MW-14	02/28/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-14	04/09/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	0.25	--	--	<0.050	0.46 *c	9.2	<0.10	
MW-14	07/30/13	<0.25	--	--	--	--	<0.0005	0.00058	0.011	0.0092	--	--	--	--	--	--	--	--	--	--	
MW-14	10/03/13	<0.25	--	--	--	--	<0.001	<0.001	0.0034	0.022	--	--	0.00	--	--	--	--	--	--	--	
MW-14	01/22/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	5.98	--	--	--	--	--	--	--	
MW-14	04/21/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	0.23	--	--	<0.050	<0.25	8.8	<0.10	
MW-14	07/15/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.37	--	--	--	--	--	--	--	
MW-14	10/01/15	0.299	--	--	--	--	<0.001	<0.005	0.00106	0.0192	--	--	0.81	3.47	--	--	8.61 T8	<0.1	<5	<0.05	
MW-14	10/11/16	1.11	--	--	--	--	<0.001	<0.005	0.0257	0.0309	--	--	0.73	--	--	--	--	--	--	--	
MW-14	10/11/17	0.416	--	--	--	--	<0.00100	<0.00100	0.00251	0.00387	--	--	0.70	--	--	--	--	--	--	--	
MW-14	10/03/18	0.65	--	--	--	--	<0.001	0.00116	<0.001	0.00549	--	--	0.13	--	--	--	--	--	--	--	
MW-14	10/01/19	0.526	--	--	--	--	<0.00100	0.00109	<0.00100	0.00649	--	--	0.08	--	--	--	--	--	--	--	
MW-14	10/19/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	2.42	--	--	--	--	--	--	--	
MW-16	02/13/02	<0.25	<0.25	--	<0.5	--	0.0013	0.0037	<0.0005	0.0011	--	--	--	--	--	--	--	--	--	--	
MW-16	05/21/02	<0.25	<0.5	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	08/29/02	<0.25	<0.5	--	<0.5	--	<0.0005	0.0022	<0.0005	0.00069	--	--	--	--	--	--	--	--	--	--	
MW-16	11/05/02	<0.25	0.29	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	02/19/03	<0.25	<0.25	--	<0.5	--	<0.0005	0.0018	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	06/10/03	<0.25	<0.25	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	09/16/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	11/19/03	<0.25	<0.25	--	<0.50	--	<0.0005	0.0013	<0.0005	0.00062	--	--	--	--	--	--	--	--	--	--	
MW-16	02/25/04	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	05/11/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	08/26/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	12/15/04	<0.25	<0.25	--	<0.50	--	0.029	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	03/10/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	06/07/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	09/20/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	12/13/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	03/15/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-16	06/08/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	09/12/06	<0.25	<0.25	--	<0.50	--	<0.0005	0.00062	0.0012	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	12/12/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	06/19/07	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	06/04/08	0.39	0.43	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	--	--	--	--	--	--	--	--	
MW-16	06/03/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.48	--	--	--	--	--	--	--	
MW-16	06/09/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.0012	--	--	1.11	--	--	--	--	--	--	--	
MW-16	05/23/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.34	--	--	--	--	--	--	--	
MW-16	05/31/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.020	--	--	--	--	--	--	--	
MW-16	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	04/22/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-16	09/30/15	<0.100	--	<0.100	--	<0.25	<0.001	<0.005	<0.001	<0.003	--	--	0.48	--	--	--	--	--	--	--	
MW-16	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	--	--	0.88	--	--	--	--	--	--	--	
MW-16	10/13/17	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.79	--	--	--	--	--	--	--	
MW-16	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	--	--	0.27	--	--	--	--	--	--	--	
MW-16	10/04/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.24	--	--	--	--	--	--	--	
MW-16	10/22/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.40	--	--	--	--	--	--	--	
MW-17	05/23/11	0.3	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-18	02/13/02	<b>7.6</b>	0.77	--	<0.5	--	<b>1.8</b>	0.067	0.29	0.34	--	--	--	--	--	--	--	--	--	--	
MW-18	05/21/02	<b>1.2</b>	0.30	--	<0.5	--	<b>0.25</b>	0.016	0.068	0.068	--	--	--	--	--	--	--	--	--	--	
MW-18	08/29/02	<b>1.6</b>	<0.5	--	<0.5	--	<b>0.45</b>	0.014	0.032	0.044	--	--	--	--	--	--	--	--	--	--	
MW-18	11/05/02	<b>1.1</b>	<0.25	--	<0.5	--	<0.3	0.010	0.011	0.031	--	--	--	--	--	--	--	--	--	--	
MW-18	02/19/03	<0.25	<0.25	--	<0.5	--	0.0035	0.0047	<0.0005	0.0016	--	--	--	--	--	--	--	--	--	--	
MW-18	06/10/03	<0.25	<0.25	--	<0.25	--	0.022	0.0016	<0.0005	0.0040	--	--	--	--	--	--	--	--	--	--	
MW-18	09/16/03	<0.25	<0.50	--	<0.50	--	0.036	0.0019	<0.0005	0.0075	--	--	--	--	--	--	--	--	--	--	
MW-18	11/19/03	<0.25	<0.25	--	<0.50	--	0.0042	<0.0005	<0.0005	0.0015	--	--	--	--	--	--	--	--	--	--	
MW-18	02/25/04	0.58	<0.25	--	<0.50	--	<b>0.11</b>	0.0048	0.00087	0.026	--	--	--	--	--	--	--	--	--	--	
MW-18	05/11/04	<b>1.1</b>	<0.25	--	<0.50	--	<b>0.25</b>	0.0073	0.0016	0.037	--	--	--	--	--	--	--	--	--	--	
MW-18	08/26/04	<0.25	<0.25	--	<0.50	--	0.003	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-18	12/15/04	0.84	<0.25	--	<0.50	--	<b>0.14</b>	0.0060	0.0019	0.029	--	--	--	--	--	--	--	--	--	--	
MW-18	03/10/05	0.84	<0.25	--	<0.50	--	<b>0.25</b>	0.0049	0.0020	0.021	--	--	--	--	--	--	--	--	--	--	
MW-18	06/07/05	0.68	<0.25	--	<0.50	--	<b>0.17</b>	0.0039	0.0019	0.0098	--	--	--	--	--	--	--	--	--	--	
MW-18	09/20/05	<b>4.0</b>	<0.25	--	<0.50	--	<b>0.74</b>	0.021	0.0091	0.090	--	--	--	--	--	--	--	--	--	--	
MW-18	12/13/05	<b>2.3</b>	<0.25	--	<0.50	--	<b>0.45</b>	0.015	0.0067	0.033	--	--	--	--	--	--	--	--	--	--	
MW-18	03/15/06	<b>4.9</b>	<0.25	--	<0.50	--	<b>1.2</b>	0.035	0.025	0.12	--	--	--	--	--	--	--	--	--	--	
MW-18	06/08/06	<b>1.2</b>	<0.25	--	<0.50	--	<b>0.15</b>	0.011	0.011	0.034	--	--	--	--	--	--	--	--	--	--	
MW-18	09/12/06	0.35	<0.25	--	<0.50	--	0.023	0.0021	0.0022	0.0047	--	--	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-18	12/12/06	0.28	<0.25	--	<0.50	--	0.023	0.0018	0.0019	0.0060	--	--	--	--	--	--	--	--	--	--	--	
MW-18	03/27/07	0.78	--	--	--	--	0.022	0.0029	0.0051	0.012	--	--	3.20	--	--	--	--	--	--	--	--	
MW-18	06/19/07	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-18	09/24/07	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	3.20	--	--	--	--	--	--	--	--	
MW-18	12/11/07	<0.25	--	--	--	--	0.011	0.00075	<0.0005	0.0032	--	--	3.40	--	--	--	--	--	--	--	--	
MW-18	03/04/08	0.29	--	--	--	--	0.0090	0.0016	0.00050	0.00088	--	--	1.50	--	--	--	--	--	--	--	--	
MW-18	06/04/08	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	3.10	--	--	--	--	--	--	--	--	
MW-18	09/08/08	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.26	--	--	--	--	--	--	--	--	
MW-18	12/04/08	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.21	--	--	--	--	--	--	--	--	
MW-18	03/04/09	<0.25	--	--	--	--	0.00080	<0.0005	<0.0005	<0.0005	--	--	0.94	--	--	--	--	--	--	--	--	
MW-18	06/03/09	<0.25	--	--	--	--	0.00061	<0.0005	<0.0005	<0.0005	--	--	0.47	--	--	--	--	--	--	--	--	
MW-18	09/22/09	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.63	--	--	--	--	--	--	--	--	
MW-18	11/17/09	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	8.07	--	--	--	--	--	--	--	--	
MW-18	03/09/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	0.0011	--	--	0.90	--	--	--	--	--	--	--	--	
MW-18	06/08/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	--	
MW-18	09/10/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	3.84	--	--	--	--	--	--	--	--	
MW-18	11/16/10	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.59	--	--	--	--	--	--	--	--	
MW-18	03/02/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.030	--	--	--	--	--	--	--	--	
MW-18	05/23/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	--	
MW-18	08/30/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.28	--	--	--	--	--	--	--	--	
MW-18	12/02/11	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0010	--	--	0.57	--	--	--	--	--	--	--	--	
MW-18	03/02/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.57	--	--	--	--	--	--	--	--	
MW-18	05/31/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	--	
MW-18	11/08/12	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-18	02/28/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-18	04/09/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-18	07/29/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-18	10/02/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	--	
MW-18	01/22/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	5.50	--	--	--	--	--	--	--	--	
MW-18	04/22/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-18	07/15/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.15	--	--	--	--	--	--	--	--	
MW-18	03/18/15	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.23	--	--	--	--	--	--	--	--	
MW-18	09/30/15	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.47	--	--	--	--	--	--	--	--	
MW-18	03/29/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.65	--	--	--	--	--	--	--	--	
MW-18	10/12/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.67	--	--	--	--	--	--	--	--	
MW-18	03/29/17	<0.100	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.17	--	--	--	--	--	--	--	--	
MW-18	10/12/17	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.73	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-18	03/29/18	0.13 B	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	1.89	--	--	--	--	--	--	--	--	
MW-18	10/03/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.15	--	--	--	--	--	--	--	--	
MW-18	04/03/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.1	--	--	--	--	--	--	--	--	
MW-18	10/03/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.13	--	--	--	--	--	--	--	--	
MW-18	03/27/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.25	--	--	--	--	--	--	--	--	
MW-18	10/21/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.09	--	--	--	--	--	--	--	--	
MW-19	02/13/02	<b>29</b>	6.8	--	<2.5	--	0.057	0.73	0.58	6.5	--	--	--	--	--	--	--	--	--	--	--	
MW-19	05/21/02	<b>30</b>	7.7	--	<0.5	--	0.049	0.65	0.53	6.5	--	--	--	--	--	--	--	--	--	--	--	
MW-19	08/29/02	<b>13</b>	<b>11</b>	--	<0.5	--	<b>0.14</b>	0.29	0.20	2.1	--	--	0.90	13.00	--	--	19.00	<0.25	<0.25	0.60		
MW-19	11/05/02	<b>8.2</b>	3.0	--	<0.5	--	<b>0.21</b>	0.37	0.16	1.7	--	--	2.70	10.00	--	--	19.00	<0.25	<0.25	0.40		
MW-19	02/20/03	<b>38</b>	<b>19</b>	--	<0.5	--	<b>0.091</b>	1.2	0.80	8.0	--	--	3.20	13.00	--	--	43.00	<0.25	23.00	0.50		
MW-19	06/11/03	<b>32</b>	<b>15</b>	--	<1.0	--	0.042	0.38	0.80	6.7	--	--	0.50	16.00	--	--	37.00	<0.25	11.00	0.40		
MW-19	09/16/03	<b>4.2</b>	<b>12</b>	--	<0.50	--	<b>0.19</b>	0.043	0.19	1.1	--	--	1.40	18.00	--	--	30.00	<0.25 b	5.20	0.70		
MW-19	11/20/03	<b>22</b>	<b>10</b>	--	<0.50	--	<b>0.11</b>	0.67	0.75	6.1	--	--	4.80	18.00	--	--	49.00	<0.25 c	10.00	0.50		
MW-19	02/24/04	<b>19</b>	<b>14</b>	--	<0.50	--	<0.015	0.49	0.63	4.7	--	--	2.10	20.00	--	--	39.00	<0.25 b	1.80	0.60		
MW-19	05/11/04	<b>27</b>	<b>13</b>	--	<0.50	--	<0.025	0.22	0.87	7.2	--	--	0.60	17.00	--	--	30.00	<0.25	0.98	0.24		
MW-19	08/26/04	<b>22</b>	0.72	--	<0.50	--	0.042	0.26	0.64	4.6	--	--	2.83	15.00	--	--	15.00	<0.25	<0.50	0.20		
MW-19	12/15/04	<b>15</b>	7.6	--	<0.50	--	0.039	0.12	0.37	2.7	--	--	3.89	21.00	--	--	44.00	<0.25	31.00	0.22		
MW-19	03/09/05	<b>27</b>	9.1	--	<0.50	--	<b>0.073</b>	0.18	0.56	3.4	--	--	3.42	22.00	--	--	25.00	<0.25	5.30	0.26		
MW-19	06/08/05	<b>17</b>	6.3	--	<0.50	--	<b>0.071</b>	0.17	0.61	2.8	--	--	0.89	15.00	--	--	18.00	<0.25	12.00	0.60		
MW-19	09/20/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled	
MW-19	12/14/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled	
MW-19	03/14/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled	
MW-19	06/07/06	<b>14</b>	1.4	--	<0.50	--	<0.010	0.043	0.29	1.4	--	--	1.70	18.00	--	--	7.90	<0.25	<0.50	0.55		
MW-19	09/13/06	<b>11</b>	0.50	--	<0.50	--	0.032	0.047	0.41	1.1	--	--	2.10	19.00	--	--	10.00	<0.25	<0.50	1.30		
MW-19	12/13/06	<b>8.0</b>	1.4	--	<0.50	--	0.016	0.052	0.3	1.4	--	--	3.90	19.00	--	--	30.00	<0.25	16.00	0.43		
MW-19	03/27/07	<b>13</b>	--	--	--	--	<0.010	0.047	0.35	1.8	--	--	2.50	--	--	--	--	--	--	--		
MW-19	06/20/07	<b>12</b>	--	--	--	--	0.05	0.092	0.29	1.2	--	--	1.90	23.00	--	--	9.30	<0.25	<0.50	0.19		
MW-19	09/24/07	<b>10</b>	--	--	--	--	<b>0.13</b>	0.11	0.42	1.3	--	--	3.70	--	--	--	--	--	--	--		
MW-19	12/11/07	<b>12</b>	--	--	--	--	<b>0.11</b>	0.14	0.40	1.9	--	--	2.13	--	--	--	--	--	--	--		
MW-19	03/04/08	<b>17</b>	--	--	--	--	<b>0.15</b>	0.28	0.52	2.4	--	--	1.90	--	--	--	--	--	--	--		
MW-19	06/04/08	<b>11</b>	--	--	--	--	0.070	0.023	0.45	1.0	--	--	3.40	21.00	--	--	7.00	<0.25	0.86	0.46		
MW-19	09/08/08	<b>5.3</b>	--	--	--	--	<b>0.078</b>	0.0063	0.12	0.29	--	--	1.02	--	--	--	--	--	--	--		
MW-19	12/05/08	<b>7.8</b>	--	--	--	--	<b>0.071</b>	0.047	0.38	0.73	--	--	0.27	--	--	--	--	--	--	--		
MW-19	03/04/09	<b>9.4</b>	--	--	--	--	<b>0.076</b>	0.13	0.43	1.4	--	--	0.52	--	--	--	--	--	--	--		
MW-19	06/02/09	<b>13</b>	--	--	--	--	<b>0.071</b>	0.13	0.43	1.6	--	--	0.37	28.00	--	--	6.30	<0.25	<0.50	0.18		
MW-19	09/21/09	<b>8.4</b>	--	--	--	--	0.052	0.0097	0.32	0.29	--	--	0.35	--	--	--	--	--	--	--		



**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-19	11/17/09	7.4	--	--	--	--	0.023	0.049	0.34	1.2	--	--	0.86	--	--	--	--	--	--	--	
MW-19	03/08/10	10	--	--	--	--	0.017	0.11	0.46	1.8	--	--	0.69	--	--	--	--	--	--	--	
MW-19	06/08/10	12	--	--	--	--	0.042	0.17	0.55	1.6	--	--	0.00	27.00	--	--	10.00	<0.25	<0.50	<0.10	
MW-19	09/09/10	7.3	0.71	--	<0.50	--	0.039	0.020	0.42	0.18	--	--	0.41	--	--	--	--	<0.25	39.00	--	
MW-19	11/15/10	4.5	--	--	--	--	0.039	0.18	0.44	0.13	--	--	0.35	--	--	--	--	--	--	--	
MW-19	03/01/11	9.6	--	--	--	--	0.039	0.13	0.34	0.88	--	--	0.00	--	--	--	--	--	--	--	
MW-19	05/24/11	7.4	--	--	--	--	0.0028	0.011	0.17	0.38	--	--	0.69	28.00	--	--	1.70	<0.25	3.80	0.11	
MW-19	08/29/11	7.0	--	--	--	--	0.012	0.015	0.15	0.066	--	--	0.21	--	--	--	--	--	--	--	
MW-19	12/01/11	7.5	--	--	--	--	0.059	0.034	0.22	0.30	--	--	0.41	--	--	--	--	--	--	--	
MW-19	03/01/12	6.4	--	--	--	--	0.15	0.064	0.34	0.44	--	--	0.26	--	--	--	--	--	--	--	
MW-19	05/31/12	8.3	--	--	--	--	0.079	0.073	0.48	0.81	--	--	0.00	13.00	--	--	10.00	<0.25	<0.50	0.21	
MW-19	08/25/12	5.2	--	--	--	--	0.054	0.0076	0.27	0.089	--	--	--	--	--	--	--	--	--	--	
MW-19	11/08/12	4.7	--	--	--	--	0.042	0.0096	0.28	0.18	--	--	--	--	--	--	--	--	--	--	
MW-19	02/28/13	8.1	--	--	--	--	0.045	0.13	0.44	0.77	--	--	--	--	--	--	--	--	--	--	
MW-19	04/09/13	6.9	--	--	--	--	0.029	0.15	0.32	0.57	--	--	--	27	--	--	7.5	<0.25 *c	<0.50	<0.10	
MW-19	06/21/13	2.8	1.1 K	--	--	--	0.019	0.017	0.31	0.081	--	--	--	--	--	--	--	<0.25 *c	<0.50	0.13	Baseline monitoring event
MW-19	07/30/13	4.4	--	--	--	--	0.0086	0.0051	0.16	0.013	--	--	--	--	--	--	--	--	--	--	
MW-19	08/26/13	2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
MW-19	10/03/13	3.2	--	--	--	--	0.0076	0.0023	0.046	0.0020	--	--	0.00	--	--	--	--	--	--	--	
MW-19	01/22/14	2.2	--	--	--	--	0.021	0.00065	0.029	<0.0005	--	--	7.20	--	--	--	--	--	620	<0.10	
MW-19	04/21/14	2.1	--	--	--	--	0.0066	0.0039	0.16	0.0064	--	--	--	28	--	--	30	<0.25	190	0.23	
MW-19	07/15/14	4.2	--	--	--	--	0.0059	0.010	0.21	0.15	--	--	0.46	30	8.3	7.6	--	--	<0.50	<0.10	
MW-19 (DUP)	07/15/14	4.4	--	--	--	--	0.0052	0.0097	0.20	0.15	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-19
MW-19	03/17/15	4.3	--	--	--	--	0.0049	0.014	0.14	0.18	--	--	0.05	30	--	--	8.7	<0.25	1.9	<0.10	
MW-19	09/30/15	2.02	--	--	--	--	0.00341	<0.005	0.0157	<0.003	--	--	0.20	7.96	--	--	11.0 T8	<0.10	<5	<0.05	
MW-19	03/30/16	1.69	--	--	--	--	<0.001	<0.005	0.0365	0.0591	--	--	0.28	16.60	--	--	45.1	<0.10	170	<0.05	
MW-19	10/11/16	1.98	--	--	--	--	0.00527	<0.005	0.0119	0.00806	--	--	0.76	--	--	--	--	--	<5.0	--	
MW-19	03/28/17	3.12	--	--	--	--	<0.005	<0.005	0.0483	0.239	--	--	0.15	--	--	--	--	--	200	--	
MW-19	10/13/17	1.91	--	--	--	--	<0.00100	0.00157	0.00731	0.00979	--	--	0.63	--	--	--	--	--	<5.0	--	
MW-19	03/29/18	2.31	--	--	--	--	<0.001	0.00299	0.0678	0.136	--	--	0.13	--	--	--	--	--	<5.0	--	
MW-19	10/03/18	<0.1	--	--	--	--	0.00101	0.00158	0.00583	<0.003	--	--	0.14	--	--	--	--	--	28.3	--	
MW-19	04/02/19	0.810	--	--	--	--	0.00180	<0.00100	<0.00100	<0.00300	--	--	0.06	--	--	--	--	--	1,310	--	
MW-19	10/02/19	1.23	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.24	--	--	--	--	--	130	--	
MW-19	03/25/20	0.276	--	--	--	--	0.00107	<0.00100	0.00863	<0.00300	--	--	0.29	--	--	--	--	--	1,690	--	
MW-19	10/20/20	0.856	--	--	--	--	0.00409	<0.00100	<0.00100	<0.00300	--	--	0.04	--	--	--	--	--	557	--	
MW-20	02/13/02	<0.25	0.64	--	<0.5	--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	
MW-20	05/20/02	<0.25	1.3	--	<0.5	--	0.018	0.0012	0.0048	0.014	--	--	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-20	08/29/02	0.6	1.1	--	<0.5	--	0.057	0.0065	0.021	0.084	--	--	2.60	12	--	--	5.4	<0.25	7.90	0.3	
MW-20	11/06/02	<0.25	0.81	--	<0.5	--	0.0023	0.00053	<0.0005	<0.0005	--	--	5.70	0.10	--	--	4.2	<0.25	610.00	0.3	
MW-20	02/19/03	<0.25	<0.25	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-20	06/11/03	<0.25	0.68	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	15.00	<0.01	--	--	7.30	<0.25	2200.00	0.2	
MW-20	09/17/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	14.00	<0.010	--	--	2.00	<0.25 c	1800.00	0.5	
MW-20	11/20/03	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00072	--	--	13.00	0.15	--	--	1.70	<0.25 c	1900.00	<0.1	
MW-20	02/25/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	14.00	0.026	--	--	0.34	<0.25 b	2100.00	--^	
MW-20	05/11/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	7.50	0.048	--	--	0.29	<0.25	2100.00	<0.10	
MW-20	08/26/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.00	16.00	--	--	140.00	<0.25	970.00	<0.10	
MW-20	12/15/04	<0.25	0.30	--	<0.50	--	0.0013	<0.0005	<0.0005	<0.0005	--	--	3.34	0.71	--	--	27.00	<0.25	550.00	0.28	
MW-20	03/09/05	<0.25	<0.25	--	<0.50	--	0.00074	<0.0005	<0.0005	<0.0005	--	--	2.82	0.25	--	--	18.00	<0.25	470.00	<0.10	
MW-20	06/08/05	<0.25	0.55	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.50	10.00	--	--	18.00	<0.25	480.00	0.20	
MW-20	09/21/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-20	12/14/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	3.20	0.28	--	--	15.00	<0.25	250.00	0.21	
MW-20	03/14/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	3.20	0.98	--	--	5.50	<0.25	56.00	<0.10	
MW-20	06/07/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.00	15.00	--	--	7.40	<0.25	68.00	<0.10	
MW-20	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.50	23.00	--	--	17.00	<0.25	110.00	<0.10	
MW-20	12/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.30	3.3	--	--	2.30	<0.25	69.00	<0.10	
MW-20	06/20/07	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	4.10	--	--	--	--	--	--	--	
MW-20	06/05/08	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.30	--	--	--	--	--	--	--	
MW-20	06/01/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.40	--	--	--	--	--	--	--	
MW-20	06/09/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	0.00054	0.0028	--	--	0.00	--	--	--	--	--	--	--	
MW-20	05/23/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	
MW-20	05/31/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	
MW-20	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-20	04/22/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-20	10/01/15	<0.100	--	0.378	--	<0.25	<0.001	<0.005	<0.001	<0.003	--	--	0.22	--	--	--	--	--	--	--	
MW-20	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	--	--	0.23	--	--	--	--	--	--	--	
MW-20	10/12/17	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.70	--	--	--	--	--	--	--	
MW-20	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	--	--	0.11	--	--	--	--	--	--	--	
MW-20	10/02/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.20	--	--	--	--	--	--	--	
MW-20	10/21/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.18	--	--	--	--	--	--	--	
MW-21	02/19/03	--	--	--	--	--	--	--	--	--	--	--	6.90	0.061	--	--	1.9	<0.25	1400	<0.1	
MW-21	06/10/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-21	06/11/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-21	09/17/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-21	11/20/03	0.97	<b>19</b>	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	0.90	0.013	--	--	2.80	<0.25 c	17.00	0.5	

**Appendix E**  
**Historical Groundwater Analytical Results**  
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Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-21	02/26/04	2.3	35	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	1.00	12.00	--	--	17.00	<0.25 b	12.00	0.9	
MW-21	05/11/04	1.2	29	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	1.80	4.70	--	--	12.00	<0.25	0.92	<0.10	
MW-21	08/26/04	4.3	33	--	<0.50	--	<0.001	<0.001	0.0013	0.0014	--	--	2.80	2.00	--	--	1.80	<0.25	<0.50	0.13	
MW-21	12/15/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-21	03/09/05	2.4	140	--	<5.0	--	<0.0015	<0.0015	0.0016	<0.0015	--	--	0.99	4.30	--	--	9.80	<0.25	<0.50	<0.10	
MW-21	06/08/05	1.8	31	--	0.50	--	<0.002	<0.002	0.0026	<0.002	--	--	3.50	1.80	--	--	11.00	<0.25	1.20	0.5	
MW-21	09/21/05	1.7	46	--	3.3	--	<0.0010	<0.0010	0.0013	<0.0010	--	--	2.40	15.00	--	--	7.20	<0.25	<0.50	0.14	
MW-21	12/14/05	1.0	6.1	--	0.54	--	<0.002	<0.002	0.0027	<0.002	--	--	1.20	18.00	--	--	0.19	<0.25	5.30	0.18	
MW-21	03/14/06	<0.25	33	--	3.1	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.20	<0.010	--	--	0.10	<0.25	3.20	<0.10	
MW-21	06/07/06	0.77	18	--	1.2	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	1.20	1.70	--	--	9.90	<0.25	2.30	0.37	
MW-21	09/13/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-21	12/13/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-21	03/27/07	<0.50	9.6	--	0.75	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	0.90	--	--	--	--	--	--	--	
MW-21	06/20/07	<0.50	8.5	--	0.66	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	2.10	9.10	--	--	4.20	<0.25	<0.50	<0.10	
MW-21	09/24/07	0.36	4.3	--	0.52	--	<0.0015	<0.0015	0.0018	<0.0015	--	--	2.50	--	--	--	--	--	--	--	
MW-21	12/11/07	<0.25	34	--	2.5	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	2.60	--	--	--	--	--	--	--	
MW-21	03/04/08	<0.50	12	--	0.92	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	2.50	--	--	--	--	--	--	--	
MW-21	06/04/08	<0.30	4.7	--	<0.50	--	<0.0015	<0.0015	<0.015	<0.0015	--	--	2.80	14.00	--	--	7.40	<0.25	<0.50	0.13	
MW-21	09/08/08	0.98	3.8	--	<0.50	--	<0.0015	0.0015	0.0049	0.0028	--	--	0.77	--	--	--	--	--	--	--	
MW-21	12/05/08	<1.0	4.8	--	<0.50	--	<0.0050	<0.0050	<0.0050	<0.0050	--	--	1.24	--	--	--	--	--	--	--	
MW-21	03/04/09	<0.50	6.4	--	0.89	--	<0.0025	<0.0025	<0.0025	0.0034	--	--	0.84	--	--	--	--	--	--	--	
MW-21	06/02/09	0.7	2.9	--	0.68	--	<0.0010	<0.0010	0.0016	<0.0010	--	--	1.29	7.10	--	--	4.00	<0.25	3.90	0.23	
MW-21	09/22/09	1.7	4.7	--	<0.50	--	<0.0025	<0.0025	0.0029	<0.0025	--	--	0.79	--	--	--	--	--	--	--	
MW-21	11/17/09	<0.25	0.87	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.17	--	--	--	--	--	--	--	
MW-21	03/09/10	<0.25	1.1	--	<0.50	--	0.0014	<0.0010	<0.0010	<0.0005	--	--	1.03	--	--	--	--	--	--	--	
MW-21	09/10/10	0.6	3.7	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	--	--	--	--	--	--	--	--	
MW-21	11/15/10	<0.25	0.49	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.72	--	--	--	--	--	--	--	
MW-21	03/01/11	<0.25	1.2	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.11	--	--	--	--	--	--	--	
MW-21	05/23/11	<0.25	1.2	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.41	0.85	--	--	0.11	ND	4.30	0.10	
MW-21	08/29/11	0.35	3.7	--	0.98	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.55	--	--	--	--	--	--	--	
MW-21	12/01/11	<0.25	1.7	--	--	--	<0.0010	<0.0010	<0.0010	<0.0020	--	--	1.16	--	--	--	--	--	--	--	
MW-21	03/01/12	<0.25	0.51	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.79	--	--	--	--	--	--	--	
MW-21	05/31/12	<0.25	6.1	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.00	0.24	--	--	0.092	<0.25	5.70	0.22	
MW-21	08/25/12	0.56	1.8	--	0.59	--	<0.0025 o	<0.0025 o	<0.0025 o	<0.0025 o	--	--	--	--	--	--	--	--	--	--	
MW-21	11/08/12	<0.25	--	0.29	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	
MW-21	02/28/13	<0.25	--	0.90	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-21	04/10/13	<0.25	--	0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	0.62	--	--	<0.050	0.70 *c	4.2	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments	
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>											
MW-21	07/30/13	0.32	2.9	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	--	
MW-21	10/03/13	<0.25	--	0.62	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.00	--	--	--	--	--	--	--	--	
MW-21	01/22/14	<0.25	2.3	--	0.77	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	8.32	--	--	--	--	--	--	--	--	
MW-21	04/24/14	<0.25	0.74	0.28	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	0.20	--	--	<0.050	<0.25	7.8	<0.10	--	
MW-21	07/14/14	<0.25	1.4	0.58	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.29	--	--	--	--	--	--	--	--	
MW-21	03/18/15	<0.25	--	<0.25	--	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	--	--	4.6	0.55	--	--	<0.050	0.28	2.0	<0.10	--	
MW-21	09/30/15	<0.100	--	3.12	--	1.59	<0.001	<0.005	<0.001	<0.003	--	--	0.28	2.51	--	--	4.36 T8	0.107	<5.0	0.081	--	
MW-21	03/30/16	<0.100	--	1.00	--	0.537	<0.001	<0.005	<0.001	<0.003	--	--	1.85	0.0797	--	--	<0.05	0.605	<5.0	<0.05	--	
MW-21	10/13/16	0.244	--	1.64	--	<0.500	<0.001	<0.005	<0.001	<0.003	--	--	0.34	--	--	--	--	--	--	--	--	
MW-21	03/29/17	<0.100	--	0.354	--	<0.500	<0.001	<0.001	<0.001	<0.003	--	--	3.25	--	--	--	--	--	--	--	--	
MW-21	10/12/17	0.168 B	--	1.68	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.63	--	--	--	--	--	--	--	--	
MW-21	03/28/18	<0.1	0.624	--	0.31	--	<0.001	<0.001	<0.001	<0.003	--	--	0.77	--	--	--	--	--	--	--	--	
MW-21	10/03/18	0.444	--	7.03	--	0.757	<0.001	<0.001	<0.001	<0.003	--	--	0.08	--	--	--	--	--	--	--	--	
MW-21	04/03/19	0.165 B	--	0.967	--	0.271 B	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.5	--	--	--	--	--	--	--	--	
MW-21	10/02/19	<0.100	--	1.15	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.14	--	--	--	--	--	--	--	--	
MW-21 (DUP)	10/02/19	<0.100	--	1.21	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.14	--	--	--	--	--	--	--	--	Duplicate of MW-21
MW-21	03/26/20	<0.500	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.96	--	--	--	--	--	--	--	--	
MW-21 (DUP)	03/26/20	<0.100	--	<0.200	--	<0.200	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.96	--	--	--	--	--	--	--	--	Duplicate of MW-21
MW-21	10/21/20	0.188	--	1.67	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.41	--	--	--	--	--	--	--	--	
MW-21 (DUP)	10/21/20	0.281 B	--	2.21	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.41	--	--	--	--	--	--	--	--	Duplicate of MW-21
MW-22	02/13/02	0.96	9.2	--	<0.5	--	0.012	0.0053	0.017	0.0097	--	--	--	--	--	--	--	--	--	--	--	
MW-22	05/21/02	<b>1.1</b>	7.7	--	<0.5	--	<b>0.16</b>	0.049	0.023	0.030	--	--	--	--	--	--	--	--	--	--	--	
MW-22	08/29/02	<b>1.4</b>	2.4	--	<0.5	--	<b>0.50</b>	0.0093	0.044	0.0066	--	--	0.70	2.4	--	--	9.1	<0.25	2.20	0.2	--	
MW-22	11/05/02	0.49	1.7	--	<0.5	--	<b>0.14</b>	0.0031	0.025	<0.001	--	--	1.60	1.1	--	--	5.6	<0.25	99.00	0.2	--	
MW-22	02/19/03	<0.25	9.1	--	<0.5	--	<0.001	<0.001	<0.001	<0.001	--	--	2.10	<0.01	--	--	4.7	<0.25	120	0.1	--	
MW-22	06/10/03	<0.25	7.4	--	0.87a	--	<0.001	<0.001	<0.001	<0.001	--	--	1.30	0.087	--	--	5.00	0.64	110.00	0.5	--	
MW-22	09/16/03	<0.25	2.7	--	<0.50	--	0.0018	<0.0005	<0.0005	<0.0005	--	--	2.40	2.0	--	--	55.00	<0.25 b	230.00	1.6	--	
MW-22	11/19/03	<0.50	8.4	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	6.60	0.056	--	--	2.30	<0.25 b	100.00	0.4	--	
MW-22	02/25/04	<0.25	6.4	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	8.20	<0.01	--	--	2.40	0.38 b	43.00	0.4	--	
MW-22	05/11/04	<0.25	2.0	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	5.10	<0.010	--	--	0.48	0.87	36.00	<0.10	--	
MW-22	08/25/04	<0.25	0.61	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	2.72	1.4	--	--	2.70	0.33	59.00	--*b	--	
MW-22	12/14/04	<0.25	1.1	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.35	3.2	--	--	5.50	1.20	65.00	<0.10	--	
MW-22	03/10/05	<0.25	2.2	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	1.40	0.38	--	--	9.20	0.49	23.00	0.61	--	
MW-22	06/07/05	<0.25	3.0	--	<0.50	--	0.0049	<0.001	<0.001	<0.001	--	--	4.20	0.53	--	--	6.30	<0.25	25.00	0.7	--	
MW-22	09/20/05	0.40	2.9	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	3.70	0.86	--	--	27.00	<0.25	24.00	0.16	--	
MW-22	12/13/05	<0.25	0.71	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	2.10	3.8	--	--	12.00	<0.25	25.00	3.0	--	
MW-22	03/15/06	<0.25	2.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.10	0.033	--	--	4.40	<0.25	14.00	<0.10	--	
MW-22	06/08/06	<0.25	0.89	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.60	0.62	--	--	4.50	<0.25	17.00	0.19	--	

Appendix E  
Historical Groundwater Analytical Results  
Kinder Morgan Liquids Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest, Seattle, Washington

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-22	09/12/06	<0.25	0.45	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.60	2.2	--	--	4.50	<0.25	19.00	0.11	
MW-22	12/12/06	<0.25	1.4	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	0.90	0.010	--	--	2.20	<0.25	7.3	<0.10	
MW-22	06/19/07	<0.25	1.1	--	<0.50	--	0.0094	<0.0005	<0.0005	<0.0005	--	--	1.80	--	--	--	--	--	--	--	
MW-22	06/04/08	<0.25	0.77	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.60	--	--	--	--	--	--	--	
MW-22	06/03/09	<0.25	1.8	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.50	--	--	--	--	--	--	--	
MW-22	06/09/10	<0.25	1.2	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.0011	--	--	0.00	--	--	--	--	--	--	--	
MW-22	09/09/10	--	--	--	--	--	--	--	--	--	--	--	0.36	--	--	--	--	--	<0.50	--	
MW-22	05/23/11	<0.25	2.7	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	--	--	0.00	--	--	--	--	--	--	--	
MW-22	05/31/12	<1.0	2.1	--	0.73	--	<0.0050	<0.0050	<0.0050	<0.0050	--	--	0.00	--	--	--	--	--	--	--	
MW-22	04/09/13	<0.25	--	0.97	<0.50	--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	
MW-22	04/22/14	<0.25	2.9	0.38	<0.50	<0.50	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	--	--	--	
MW-22	09/30/15	<0.100	--	0.911	--	<0.25	<0.001	<0.005	<0.001	<0.003	--	--	0.36	--	--	--	--	--	--	--	
MW-22	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	--	--	0.84	--	--	--	--	--	--	--	
MW-22	10/11/17	<0.100	--	0.256	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.71	--	--	--	--	--	--	--	
MW-22	10/03/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	--	--	0.11	--	--	--	--	--	--	--	
MW-22	10/03/19	0.826	--	0.258	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
MW-22	10/21/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
MW-23	11/19/03	<b>5.3</b>	1.4	--	<0.50	--	<b>0.87</b>	0.016	0.098	0.23	--	--	--	--	--	--	--	--	--	--	
MW-23	02/25/04	<b>3.3</b>	0.85	--	<0.50	--	<b>0.91</b>	0.011	0.046	0.030	0.0052*	--	1.60	12	--	--	15	<0.25 b	13.00	0.4	
MW-23	05/12/04	<b>4.2</b>	1.3	--	<0.50	--	<b>1.1</b>	0.013	0.046	0.048	<0.0050*	--	1.80	13	--	--	19	<0.25	3.60	0.16	
MW-23	08/26/04	<b>5.3</b>	0.72	--	<0.50	--	<b>1.1</b>	0.023	0.20	0.17	<b>0.014*</b>	--	1.41	10	--	--	14	<0.25	21.00	0.11	
MW-23	12/14/04	--	--	--	--	--	--	--	--	--	--	--	2.30	16	--	--	1.2	<0.25	<0.50	0.25	
MW-23	03/08/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-23	06/07/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-23	09/20/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-23	12/13/05	<b>6.3</b>	<0.25	--	<0.50	--	<b>1.3</b>	0.014	0.048	0.044	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-23	03/15/06	<b>7.0</b>	0.28	--	<0.50	--	<b>1.4</b>	0.015	0.19	0.21	<0.0050*	--	2.30	17	--	--	20	<0.25	<0.50	0.23	
MW-23	06/08/06	<b>5.2</b>	1.3	--	<0.50	--	<b>1.4</b>	0.014	0.11	0.11	<0.0050*	--	1.10	18	--	--	18	<0.25	<0.50	0.20	
MW-23	09/12/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-23	12/12/06	<b>8.1</b>	<0.25	--	<0.50	--	<b>1.8</b>	0.02	0.11	0.16	<0.0050*	--	1.90	27	--	--	27	<0.25	<0.50	0.24	
MW-23	03/27/07	<b>8.4</b>	--	--	--	--	<b>1.8</b>	0.019	0.16	0.16	--	--	2.40	--	--	--	--	--	--	--	
MW-23	06/19/07	<b>8.7</b>	--	--	--	--	<b>1.8</b>	0.021	0.23	0.23	<0.0050	--	1.20	13	--	--	18	<0.25	<1.0	0.19	
MW-23	09/25/07	<b>6.9</b>	--	--	--	--	<b>1.5</b>	0.021	0.085	0.11	--	--	2.90	--	--	--	--	--	--	--	
MW-23	12/11/07	<b>9.1</b>	--	--	--	--	<b>1.3</b>	0.022	0.053	0.097	--	--	2.77	--	--	--	--	--	--	--	
MW-23	03/04/08	<b>7.8</b>	--	--	--	--	<b>1.5</b>	0.018	0.089	0.10	--	--	2.40	--	--	--	--	--	--	--	
MW-23	06/04/08	<b>19</b>	--	--	--	--	<b>2.4</b>	0.061	0.59	3.2	<0.0050	--	1.70	12	--	--	63	<0.25	1.0	0.48	
MW-23	09/08/08	<b>6.4</b>	--	--	--	--	<b>0.79</b>	0.014	0.07	0.038	--	--	--	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-23	12/04/08	5.4	--	--	--	--	0.52	0.0088	0.091	0.063	--	--	0.53	--	--	--	--	--	--	--	
MW-23	03/04/09	4.8	--	--	--	--	0.81	0.012	0.27	0.11	--	--	0.80	--	--	--	--	--	--	--	
MW-23	06/02/09	5.7	--	--	--	--	0.21	0.0061	0.17	0.054	<0.0050	--	0.42	9.5	--	--	17	<0.25	57	0.92	
MW-23	09/21/09	5.9	--	--	--	--	0.64	0.013	0.26	0.025	--	--	0.60	--	--	--	--	--	--	--	
MW-23	11/16/09	6.2	--	--	--	--	0.80	0.017	0.45	0.036	--	--	0.43	--	--	--	--	--	--	--	
MW-23	03/08/10	4.8	--	--	--	--	0.25	0.0077	0.19	0.031	--	--	0.26	--	--	--	--	--	--	--	
MW-23	06/08/10	5.5	--	--	--	--	0.39	0.0082	0.17	0.025	<0.0050	--	0.15	11.00	--	--	22.00	<0.25	4.20	0.52	
MW-23	09/10/10	4.9	--	--	--	--	0.21	0.0044	0.11	0.019	--	--	3.49	--	--	--	--	--	--	--	
MW-23	11/16/10	4.5	--	--	--	--	0.37	0.010	0.23	0.02	--	--	0.46	--	--	--	--	--	--	--	
MW-23	03/02/11	5.0	--	--	--	--	0.21	0.0060	0.15	0.023	--	--	0.00	--	--	--	--	--	--	--	
MW-23	05/24/11	6.0	--	--	--	--	0.32	0.0053	0.16	0.027	<0.0050	--	0.33	14.00	--	--	31.00	<0.25	0.80	0.10	
MW-23	08/30/11	6.0	--	--	--	--	0.15	0.0030	0.093	0.015	--	--	1.10	--	--	--	--	--	--	--	
MW-23	12/02/11	5.3	--	--	--	--	0.29	0.0076	0.13	0.017	--	--	0.89	--	--	--	--	--	--	--	
MW-23	03/02/12	4.0	--	--	--	--	0.12	0.0029	0.13	0.027	--	--	0.65	--	--	--	--	--	--	--	
MW-23	05/30/12	4.5	--	--	--	--	0.087	<0.0025	0.14	0.022	<0.0050	--	0.00	5.50	--	--	41.00	<0.25	74.00	0.38	
MW-23	08/25/12	2.6	--	--	--	--	0.050	<0.0025	0.059	0.0046	--	--	--	--	--	--	--	--	--	--	
MW-23	11/08/12	2.3	--	--	--	--	0.021	<0.001	0.065	0.0038	--	--	--	--	--	--	--	--	--	--	
MW-23	02/28/13	2.6	--	--	--	--	0.034	<0.0025	0.16	0.010	--	--	--	--	--	--	--	--	--	--	
MW-23	04/10/13	0.54	--	--	--	--	0.015	<0.001	0.015	0.0013	<0.0050	--	--	1.9	--	--	92	<0.25	1,000	<0.10	
MW-23	07/29/13	1.7	--	--	--	--	0.0097	<0.001	0.025	0.0011	--	--	--	--	--	--	--	--	--	--	
MW-23	10/02/13	0.39	--	--	--	--	0.015	<0.001	0.0019	<0.001	--	--	0.00	--	--	--	--	--	--	--	
MW-23	01/21/14	0.27	--	--	--	--	0.011	<0.001	<0.001	<0.001	--	--	5.42	--	--	--	--	--	--	--	
MW-23	04/23/14	1.7	--	--	--	--	0.039	<0.001	<0.001	0.0026	<0.0050	--	--	3.1	--	--	23	<0.25	470	<0.10	
MW-23	07/15/14	2.5	--	--	--	--	0.11	0.0020	0.063	0.0071	--	--	0.30	--	--	--	--	--	--	--	
MW-23	03/18/15	2.1	--	--	--	--	0.056	0.0013	0.028	0.0039	--	--	--	--	--	--	--	--	--	--	Surrogate recovery above lab limits
MW-23 (DUP)	03/18/15	1.4	--	--	--	--	0.045	0.0011	0.024	0.0029	--	--	0.07	6.5	--	--	9.5	<0.25	260	0.15	
MW-23	10/01/15	1.68	--	--	--	--	0.0873	<0.005	0.00684	0.00331	--	--	0.19	6.03	--	--	6.48 T8	<0.10	58.3	<0.05	
MW-23	03/31/16	1.39	--	--	--	--	0.0139	<0.005	0.0180	<0.003	--	--	0.36	6.08	--	--	7.93	<0.10	26.0	<0.05	
MW-23 (DUP)	03/31/16	1.36	--	--	--	--	0.0121	<0.005	0.0157	<0.003	--	--	--	--	--	--	--	--	--	--	
MW-23	10/14/16	1.63	--	--	--	--	0.0852	<0.005	<0.001	<0.003	<0.002	<0.002	0.70	5.36	--	--	15.4	<0.10	42.3	<0.05	
MW-23	03/29/17	0.433	--	--	--	--	0.00210	<0.001	<0.001	<0.003	--	--	0.20	--	--	--	--	--	--	--	
MW-23 (DUP)	03/29/17	0.489	--	--	--	--	0.00248	0.001	<0.001	<0.003	--	--	--	--	--	--	--	--	--	--	
MW-23	10/11/17	1.73	--	--	--	--	0.0665	0.00106	0.0134	<0.00300	<0.00200	<0.00100	0.56	8.26	--	--	4.89 T8	<0.100	<5.00	<0.0500	
MW-23	03/28/18	2.06	--	--	--	--	0.06	0.00154	0.00648	<0.003	--	--	0.28	--	--	--	--	--	--	--	
MW-23	10/04/18	2.61	--	--	--	--	0.307	0.00449	0.0011	<0.003	<0.002	<0.002	0.05	13.8	--	--	5.22 T8	<0.1	<5.0	<0.05	
MW-23	04/03/19	1.74	--	--	--	--	0.240	0.00369	0.00231	0.00760	--	--	0.09	--	--	--	--	--	--	--	
MW-23 (DUP)	04/03/19	1.65	--	--	--	--	0.255	0.00397	0.00245	0.00630	--	--	0.09	--	--	--	--	--	--	--	Duplicate of MW-23

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-23	10/04/19	3.17	--	--	--	--	0.360	0.00797	0.00370	0.00539	<0.00200	<0.00200	0.22	18.7	--	--	14.9 T8	<0.100	<5.00	<0.0500	
MW-23	03/27/20	1.66	--	--	--	--	0.258	0.00539	0.00555	<0.0150	--	--	0.16	--	--	--	--	--	--	--	
MW-23 (DUP)	03/27/20	1.60	--	--	--	--	0.305	0.00562	0.00635	0.00662	--	--	0.16	--	--	--	--	--	--	--	Duplicate of MW-23
MW-23	10/22/20	3.77	--	--	--	--	0.309	0.00859	0.00968	<0.0150	<0.00500	<0.00500	0.09	17.7	--	--	13.0 T8	0.105	<5.00	<0.0500	
MW-24	11/19/03	34	6.4	--	0.54	--	2.8	0.54	1.4	6.0	--	--	--	--	--	--	--	--	--	--	
MW-24	02/25/04	26	3.0	--	<0.50	--	4.3	0.085	1.0	3.3	<0.0050*	--	1.70	15	--	--	22	<0.25 b	6.40	0.3	
MW-24	05/12/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	08/26/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	12/14/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	03/08/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	06/07/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	09/20/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	12/13/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	12/14/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	03/15/06	26	0.34	--	<0.50	--	4.4	0.064	0.88	4.2	0.0069	--	--	25	--	--	46	<0.25	<0.50	0.23	
MW-24	06/08/06	21	<0.25	--	<0.50	--	1.5	0.039	0.86	4.9	0.0068	--	1.60	7.6	--	--	9.1	<0.25	<0.50	0.42	
MW-24	09/12/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-24	12/12/06	20	1.1	--	<0.50	--	1.5	0.037	0.69	3.2	0.0078*	--	2.30	16	--	--	3.2	<0.25	<0.50	0.31	
MW-24	03/27/07	27	--	--	--	--	3.4	0.062	1.3	4.6	--	--	2.20	--	--	--	--	--	--	--	
MW-24	06/19/07	31	--	--	--	--	3.0	0.063	1.0	5.7	0.022	--	1.40	15	--	--	68	<0.25	<0.50	1.7	
MW-24	09/25/07	16	--	--	--	--	2.0	0.036	0.79	2.3	--	--	2.30	--	--	--	--	--	--	--	
MW-24	12/11/07	40	--	--	--	--	1.5	0.066	1.8	9.2	--	--	1.19	--	--	--	--	--	--	--	
MW-24	03/04/08	41	--	--	--	--	1.8	0.052	1.4	7.7	--	--	2.20	--	--	--	--	--	--	--	
MW-24	06/04/08	5.5	--	--	--	--	1.2	0.013	0.027	0.027	<0.0050	--	2.10	15	--	--	17	<0.25	7.4	0.85	
MW-24	09/08/08	46	--	--	--	--	3.5	0.081	1.9	7.3	--	--	1.38	--	--	--	--	--	--	--	
MW-24	12/05/08	32	--	--	--	--	2.4	0.061	1.6	4.3	--	--	0.33	--	--	--	--	--	--	--	
MW-24	03/04/09	26	--	--	--	--	2.3	0.056	1.5	5.3	--	--	0.83	--	--	--	--	--	--	--	
MW-24	06/02/09	37	--	--	--	--	2.5	0.064	1.7	4.4	0.0062	--	0.46	12	--	--	37	<0.25	<0.50	<0.10	
MW-24	09/21/09	28	--	--	--	--	1.6	0.042	1.3	4.2	--	--	0.77	--	--	--	--	--	--	--	
MW-24	11/16/09	20	--	--	--	--	1.1	0.027	0.94	2.7	--	--	0.78	--	--	--	--	--	--	--	
MW-24	03/08/10	31	--	--	--	--	2.5	0.058	1.6	5.1	--	--	0.29	--	--	--	--	--	--	--	
MW-24	06/08/10	37	--	--	--	--	3.1	0.084	2.2	7.1	0.019	--	0.00	12.00	--	--	35.00	<0.25	<0.50	0.23	
MW-24	09/10/10	28	--	--	--	--	2.4	0.066	1.8	4.3	--	--	3.70	--	--	--	--	--	--	--	
MW-24	11/16/10	26	--	--	--	--	1.3	0.051	1.5	5.8	--	--	0.47	--	--	--	--	--	--	--	
MW-24	03/02/11	26	--	--	--	--	2.2	0.057	1.3	4.8	--	--	0.00	--	--	--	--	--	--	--	
MW-24	05/24/11	11	--	--	--	--	1.2	0.028	0.51	1.3	<0.0050	--	0.53	12.00	--	--	26.00	<0.25	0.78	0.11	
MW-24	08/30/11	30	--	--	--	--	2	0.057	1.4	4.2	--	--	0.39	--	--	--	--	--	--	--	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-24	12/02/11	18	--	--	--	--	0.37	0.016	0.42	2.56	--	--	0.48	--	--	--	--	--	--	--	
MW-24	03/02/12	8.7	--	--	--	--	0.53	0.014	0.25	1.1	--	--	1.52	--	--	--	--	--	--	--	
MW-24	05/30/12	7.3	--	--	--	--	0.39	0.013	0.3	0.88	<0.0050	--	0.00	7.50	--	--	31.00	<0.25	2.40	0.15	
MW-24	08/25/12	11	--	--	--	--	0.56	<0.020 V	0.41	1.4	--	--	--	--	--	--	--	--	--	--	
MW-24 (DUP)	08/25/12	8.0	--	--	--	--	0.41	<0.015 V	0.30	1.1	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	11/08/12	20	--	--	--	--	1.7	0.057	1.4	4.1	--	--	--	--	--	--	--	--	--	--	
MW-24	11/08/12	19	--	--	--	--	1.7	0.057	1.4	4.2	--	--	--	--	--	--	--	--	--	--	
MW-24	02/28/13	6.6	--	--	--	--	0.29	<0.01	0.39	0.84	--	--	--	--	--	--	--	--	--	--	
MW-24	02/28/13	9.0	--	--	--	--	0.48	0.016	0.59	1.3	--	--	--	--	--	--	--	--	--	--	
MW-24	04/10/13	20	--	--	--	--	1.1	0.048	0.22	3.8	--	--	--	19	--	--	35	<0.25	1.0	<0.10	
MW-24	04/10/13	23	--	--	--	--	1.2	0.061	1.7	4.1	0.01	--	--	--	--	--	--	--	--	--	
MW-24	07/29/13	27	--	--	--	--	1.1	0.059	2.1	4.7	--	--	--	--	--	--	--	--	--	--	
MW-24	10/02/13	33	--	--	--	--	1.1	0.072	2.6	6.3	--	--	0.00	--	--	--	--	--	--	--	
MW-24 (DUP)	10/02/13	29	--	--	--	--	1.4	0.076	2.5	5.6	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	01/22/14	3.1	--	--	--	--	0.088	0.0034	0.18	0.33	--	--	--	--	--	--	--	--	--	--	
MW-24 (DUP)	01/22/14	2.2	--	--	--	--	0.056	0.0026	0.12	0.2	--	--	0.00	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	04/23/14	23	--	--	--	--	1.0	0.051	1.7	3.6	0.0085	--	--	13	--	--	52	0.95	2.3	<0.10	
MW-24 (DUP)	04/23/14	24	--	--	--	--	1.0	0.048	1.7	3.7	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	07/15/14	24	--	--	--	--	1.1	0.055	1.7	3.7	--	--	0.20	--	--	--	--	--	--	--	
MW-24 (DUP)	07/15/14	22	--	--	--	--	1.1	0.05	1.7	3.6	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	03/18/15	28	--	--	--	--	1.4	0.066	1.8	2.6	--	--	0.18	23	--	--	40	<0.25	1.2	<0.10	
MW-24	10/01/15	13.6	--	--	--	--	0.641	<0.100	1.13	1.80	0.00282	<0.002	0.29	10.4	--	--	31.3 T8	<0.10	<5.0	<0.05	
MW-24 (DUP)	10/01/15	14.5	--	--	--	--	0.637	0.0264	0.934	1.51	0.00249	<0.002	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	03/31/16	3.44	--	--	--	--	0.136	0.00605	0.106	0.115	--	--	0.45	9.40	--	--	12.6	<0.10	<5.0	<0.05	
MW-24	10/14/16	5.28	--	--	--	--	0.106	<0.05	0.201	0.280	0.00390	<0.002	0.30	2.53	--	--	6.23	<0.10	<5.0	<0.05	
MW-24 (DUP)	10/14/16	5.59	--	--	--	--	0.113	<0.05	0.206	0.287	0.00404	<0.002	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	03/29/17	12.8	--	--	--	--	0.160	<0.100	0.446	0.452	--	--	3.51	--	--	--	--	--	--	--	
MW-24	10/11/17	7.22	--	--	--	--	0.649	0.0260	0.773	0.732	0.00281	<0.00100	0.58	14.4	--	--	22.9 T8	<0.100	<5.00	<0.0500	
MW-24 (DUP)	10/11/17	7.12	--	--	--	--	0.649	0.0252	0.735	0.641	0.00266 B	<0.00100	0.58	13.3	--	--	25.7 T8	<0.100	<5.00	<0.0500	Duplicate of MW-24
MW-24	03/28/18	10.5	--	--	--	--	0.829	0.023	1.04	0.612	--	--	0.11	--	--	--	--	--	--	--	
MW-24 (DUP)	03/28/18	9.3	--	--	--	--	0.591	0.0260	0.869	0.535	--	--	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	10/04/18	10.4	--	--	--	--	0.337	0.0168	0.643	0.208	<0.002	<0.002	0.11	12.9	--	--	15.7 T8	<0.1	<5.0	<0.05	
MW-24 (DUP)	10/04/18	10.8	--	0.568	--	<0.25	0.378	0.0173	0.815	0.259	<0.002	<0.002	--	--	--	--	--	--	--	--	Duplicate of MW-24
MW-24	04/03/19	13.6	--	--	--	--	0.719	0.0274	1.23	0.309	--	--	0.09	--	--	--	--	--	--	--	
MW-24	10/04/19	10.3	--	--	--	--	0.581	0.0173	0.643	0.112	<0.00200	<0.00200	0.76	19.6	--	--	53.0 T8	<0.100	<5.00	<0.0500	
MW-24	03/27/20	2.15	--	--	--	--	0.222	<0.010	0.144	0.0412	--	--	0.32	--	--	--	--	--	--	--	
MW-24	10/22/20	9.00	--	--	--	--	0.859	0.0371	0.708	0.244	<0.00500	<0.00500	0.12	18.7	--	--	55.2 T8	<0.100	<5.00	<0.0500 J6	



Appendix E  
Historical Groundwater Analytical Results  
Kinder Morgan Liquids Terminals, LLC  
Harbor Island Terminal  
2720 13th Avenue Southwest, Seattle, Washington



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		1.0	10	10	10	10	0.071	200	29.0	N/A	0.0058										
MW-25	11/20/03	<0.25	1.3	--	<0.50	--	0.0061	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-25	02/26/04	0.38	8.9	--	<0.50	--	0.0011	<0.0005	0.0027	<0.0005	<b>0.012*</b>	--	1.30	1.5	--	--	27	<0.25 b	120.00	0.9	
MW-25	05/12/04	<0.25	1.6	--	<0.50	--	<0.0005	<0.0005	0.0034	<0.0005	<0.0050*	--	1.90	2.0	--	--	12	<0.25	140.00	0.10	
MW-25	08/26/04	<0.25	0.27	--	<0.50	--	0.013	<0.0005	<0.0005	<0.0005	<b>0.034*a</b>	--	1.78	1.7	--	--	5.4	<0.25	380.00	0.13	
MW-25	12/14/04	<0.25	1.4	--	<0.50	--	0.0035	<0.001	<0.001	<0.001	<0.0050*	--	2.10	0.40	--	--	2.7	<0.25	370.00	<0.10	
MW-25	03/10/05	0.31	3.7	--	<0.50	--	0.0014	<0.0005	0.00064	<0.0005	<0.0050*	--	2.10	2.0	--	--	3.5	<0.25	180.00	0.21	
MW-25	06/07/05	0.40	3.2	--	<0.50	--	<0.001	<0.001	0.0014	<0.001	<0.0050*	--	1.75	2.2	--	--	4.7	<0.25	160.00	0.7	
MW-25	09/20/05	0.30	1.4	--	<0.50	--	0.0016	<0.0005	<0.0005	<0.0005	<b>0.059*a</b>	--	1.30	0.91	--	--	1.8	<0.25	270.00	0.12	
MW-25	12/13/05	<0.25	1.2	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	<0.0050*	--	2.50	1.8	--	--	1.8	<0.25	140.00	0.23	
MW-25	03/15/06	<0.25	1.0	--	<0.50	--	0.0019	<0.001	<0.001	<0.001	<0.0050*	--	2.50	0.92	--	--	4.6	<0.25	210.00	0.38	
MW-25	06/08/06	<0.25	1.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.20	1.9	--	--	6.5	<0.25	120.00	0.13	
MW-25	09/12/06	<0.25	0.31	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.80	0.84	--	--	5.9	<0.25	250.00	<0.10	
MW-25	12/12/06	<0.25	0.86	--	<0.50	--	0.0052	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.10	1.6	--	--	15	<0.25	400.00	<0.10	
MW-25	06/19/07	<0.50	1.6	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	--	2.10	--	--	--	--	--	--	--	
MW-25	06/04/08	<0.25	0.26	--	<0.50	--	0.0020	<0.0005	<0.0005	<0.0005	<0.0050	--	2.40	--	--	--	--	--	--	--	
MW-25	06/03/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.62	--	--	--	--	--	--	--	
MW-25	06/09/10	<0.25	0.32	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	<0.0050	--	0.00	--	--	--	--	--	--	--	
MW-25	05/25/11	<0.50	1.4	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	--	1.17	--	--	--	--	--	--	--	
MW-25	06/01/12	<0.25	<0.25	--	<0.50	--	0.0011	<0.0010	<0.0010	<0.0010	<0.0050	--	0.00	--	--	--	--	--	--	--	
MW-25	04/10/13	<0.25	--	<0.25	<0.50	--	0.0013	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
MW-25	04/23/14	<0.25	0.65	0.25	<0.50	<0.50	0.0014	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	--	
MW-25	10/02/15	<0.100	--	1.19	--	1.19	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.19	--	--	--	--	--	--	--	
MW-25	10/13/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.62	--	--	--	--	--	--	--	
MW-25	10/11/17	0.110	--	1.60	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.46	--	--	--	--	--	--	--	
MW-25	10/02/18	<0.1	--	0.669	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.12	--	--	--	--	--	--	--	
MW-25	10/03/19	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.16	--	--	--	--	--	--	--	
MW-25	10/23/20	<0.100	--	0.633	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.07	--	--	--	--	--	--	--	
MW-26	10/25/11	<0.25		<0.25		<0.50	<0.00050	<0.00050	<0.00050	<0.00050	--	--	--	--	--	--	--	--	--	--	
SH-02	12/20/00	0.078	<0.25	--	<0.5	--	0.001	<0.001	<0.001	<0.003	<b>0.015**</b>	--	--	5.40	--	--	0.86	0.040	14.00	0.32	
SH-02	Destroyed during construction activities																				
SH-02R	02/13/02	<0.25	0.56	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
SH-02R	05/21/02	<0.25	2.4	--	<0.5	--	0.037	<0.0005	<0.0005	<0.0005	0.005*	--	--	--	--	--	--	--	--	--	
SH-02R	08/28/02	<0.25	4.3	--	<0.5	--	<b>0.087</b>	0.0038	0.00061	0.0023	<b>0.006*</b>	--	1.50	4.90	--	--	17.00	<0.25	3.80	<0.1	
SH-02R	11/05/02	<0.25	1.1	--	<0.5	--	0.016	<0.0005	<0.0005	<0.0005	0.005*	--	2.10	6.10	--	--	20.00	<0.25	13.00	<0.1	
SH-02R	02/19/03	<0.25	<0.5	--	<0.5	--	<0.0005	0.00086	<0.0005	<0.0005	<0.005*	--	2.50	0.29	--	--	2.40	0.33	10.00	0.60	
SH-02R	06/10/03	<0.25	0.97	--	<0.25	--	<0.0005	0.00051	<0.0005	<0.0005	<b>0.0059*</b>	--	1.30	1.40	--	--	5.10	<0.25	6.80	0.30	
SH-02R	09/16/03	<0.25	3.0	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.010*</b>	--	1.90	5.20	--	--	19.00	<0.25 b	5.10	0.40	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
SH-02R	11/19/03	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.10	1.50	--	--	4.60	0.34 b	7.10	0.20	
SH-02R	02/25/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	3.40	5.00	--	--	14.00	0.46 b	5.20	0.40	
SH-02R	05/12/04	<0.25	0.74	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.00	3.20	--	--	7.40	<0.25	4.40	<0.10	
SH-02R	08/26/04	<0.25	0.58	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.24	2.10	--	--	3.80	<0.25	5.80	<0.10	
SH-02R	12/15/04	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.98	0.092	--	--	0.055	0.44	100.00	<0.10	
SH-02R	03/09/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.59	0.38	--	--	1.50	<0.25	380.00	<0.10	
SH-02R	06/08/05	<0.25	0.31	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.00	1.20	--	--	0.11	<0.25	110.00	<0.2	
SH-02R	09/21/05	<0.25	0.58	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.50	4.40	--	--	0.72	<0.25	31.00	<0.10	
SH-02R	12/14/05	<0.25	0.30	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0078*	--	0.70	2.20	--	--	0.28	<0.25	11.00	<0.10	
SH-02R	03/14/06	<0.25	0.30	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0072*	--	0.70	0.42	--	--	1.40	<0.25	25.00	<0.10	
SH-02R	06/07/06	<0.25	0.59	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050*	--	0.90	3.10	--	--	4.40	<0.25	20.00	<0.10	
SH-02R	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050*	--	1.70	3.90	--	--	5.50	<0.25	24.00	<0.10	
SH-02R	12/13/06	<0.25	0.49	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	0.90	0.38	--	--	1.30	0.34	10.00	<0.10	
SH-02R	06/20/07	<0.25	0.77	--	<0.50	--	<0.0010	<0.0010	<0.0010	0.0016	<0.0050	--	2.00	--	--	--	--	--	--	--	
SH-02R	06/05/08	<0.25	0.28	--	<0.50	--	<0.0005	<0.0005	<0.0005	0.00073	<0.0050	--	3.10	--	--	--	--	--	--	--	
SH-02R	06/01/09	<0.25	0.37	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.25	--	--	--	--	--	--	--	
SH-02R	06/08/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.24	--	--	--	--	--	--	--	
SH-02R	05/23/11	<0.25	0.29	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	--	0.41	--	--	--	--	--	--	0.0050	
SH-02R	06/01/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	--	--	--	--	--	--	0.0050	
SH-02R	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	<0.10	
SH-02R	04/23/14	<0.25	0.28	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	<0.10	
SH-02R	09/30/15	<0.100	--	1.00	--	0.298	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.38	4.26	--	--	3.88	<0.1	<5	<0.05	
SH-02R	10/12/16	<0.100	--	<0.250	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.61	--	--	--	--	--	--	--	
SH-02R	10/11/17	0.145 B	--	0.331	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.61	--	--	--	--	--	--	--	
SH-02R	10/04/18	0.129	--	0.594	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.08	--	--	--	--	--	--	--	
SH-02R	10/03/19	<0.100	--	0.565	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.17	--	--	--	--	--	--	--	
SH-02R	10/21/20	0.220 B	--	0.252	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.08	--	--	--	--	--	--	--	
SH-05	12/20/00	<0.05	1.0	--	<0.5	--	<0.001	<0.001	<0.003	<0.001	<b>0.017**</b>	--	--	0.010	--	--	1.80	0.14	6.00	<0.01	
SH-05R	05/21/02	0.71	<b>11</b>	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
SH-05R	08/28/02	0.77	<b>10</b>	--	<0.5	--	<0.0005	0.0015	<0.0005	<0.0005	<b>0.006*</b>	--	1.40	1.00	--	--	11.00	<0.25	1.40	0.50	
SH-05R	11/05/02	<b>1.4</b>	7.1	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.008*</b>	--	1.50	1.20	--	--	17.00	<0.25	6.30	<0.1	
SH-05R	02/19/03	0.8	6.8	--	<0.5	--	<0.001	0.0016	<0.001	<0.001	<0.005*	--	2.60	2.90	--	--	32.00	<0.25	28.00	<0.1	
SH-05R	06/10/03	<b>1.1</b>	<b>45</b>	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.04*</b>	--	1.40	1.50	--	--	33.00	<0.25	2.80	0.60	
SH-05R	09/16/03	<0.25	<b>23</b>	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.074*</b>	--	1.20	1.60	--	--	41.00	<0.25 b	0.46	0.90	
SH-05R	11/19/03	0.62	<b>19</b>	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.075*</b>	--	3.10	1.60	--	--	36.00	<0.25 b	71.00	0.50	
SH-05R	02/25/04	<0.25	5.3	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.50	0.56	--	--	0.087	0.76 b	120.00	0.20	
SH-05R	05/12/04	0.43	4.3	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.12	2.10	--	--	16.00	<0.25	4.60	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
SH-05R	08/26/04	0.63	3.0	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.96	2.00	--	--	6.40	<0.25	0.63	<0.10	
SH-05R	12/15/04	0.30	10	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0056*	--	2.80	3.70	--	--	26.00	<0.25	26.00	<0.10	
SH-05R	03/09/05	0.78	4.3	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.56	3.40	--	--	2.00	<0.25	7.50	<0.10	
SH-05R	06/08/05	0.32	4.0	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.50	3.80	--	--	19.00	<0.25	30.00	<0.2	
SH-05R	09/21/05	0.61	2.8	--	1.0	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	0.80	3.10	--	--	9.10	<0.25	<0.50	<0.10	
SH-05R	12/14/05	0.78	1.3	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.30	5.40	--	--	23.00	<0.25	16.00	<0.10	
SH-05R	03/14/06	<0.25	1.4	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0074*	--	2.30	0.11	--	--	0.087	<0.25	35.00	<0.10	
SH-05R	06/07/06	<0.25	1.4	--	<0.50	--	<0.001	<0.001	<0.001	<0.001	<0.0050*	--	1.20	1.90	--	--	8.40	0.34	21.00	<0.10	
SH-05R	09/13/06	0.34	0.56	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.40	2.20	--	--	7.40	<0.25	<0.50	<0.10	
SH-05R	12/13/06	<0.50	1.9	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050*	--	2.70	0.14	--	--	0.11	2.10	100.00	<0.10	
SH-05R	06/20/07	0.59	1.8	--	<0.50	--	<0.0005	0.00058	<0.0005	<0.0005	<0.0050	--	0.90	--	--	--	--	--	--	--	
SH-05R	06/05/08	<0.25	1.7	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	--	2.90	--	--	--	--	--	--	--	
SH-05R	06/01/09	0.36	0.99	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.01	--	--	--	--	--	--	--	
SH-05R	06/08/10	<0.25	0.28	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	0.00	--	--	--	--	--	--	--	
SH-05R	05/23/11	<0.25	1.4	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	<0.0050	--	1.39	--	--	--	--	--	--	0.0050	
SH-05R	10/01/15	<0.100	--	1.80	--	0.320	<0.001	<0.005	<0.001	0.003	<0.002	<0.002	0.42	--	--	--	--	--	--	--	
SH-05R	10/12/16	0.257	--	0.543	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.61	--	--	--	--	--	--	--	
SH-05R	10/11/17	0.267 B	--	0.586	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.73	--	--	--	--	--	--	--	
SH-05R	10/04/18	0.242	--	0.7	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.07	--	--	--	--	--	--	--	
SH-05R	10/03/19	<0.100	--	0.391	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.13	--	--	--	--	--	--	--	
SH-05R	10/21/20	0.180 B	--	0.314	--	<0.2500	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.14	--	--	--	--	--	--	--	
MW-07R	02/13/02	<0.25	1.2	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	0.035*	--	--	--	--	--	--	--	--	--	
MW-07R	05/21/02	<0.25	2.1	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	0.005*	--	--	--	--	--	--	--	--	--	
MW-07R	08/28/02	<0.25	2.4	--	<0.5	--	<0.0005	0.0028	<0.0005	0.0012	0.006*	--	1.60	0.17	--	--	6.90	<0.25	9.00	0.10	
MW-07R	11/05/02	<0.25	3.7	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	1.60	0.16	--	--	12.00	<0.25	2.70	<0.1	
MW-07R	02/19/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-07R	06/10/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Not Sampled
MW-07R	09/16/03	<0.25	1.9	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.045*	--	1.40	0.26	--	--	26.00	<0.25 b	9.10	1.60	
MW-07R	11/19/03	<0.25	2.1	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.020*	--	2.20	0.017	--	--	4.90	0.77 b	14.00	0.30	
MW-07R	02/25/04	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.10	<0.01	--	--	1.80	0.42 b	5.70	0.30	
MW-07R	05/12/04	<0.25	0.48	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.49	<0.010	--	--	2.20	0.74	3.40	<0.10	
MW-07R	08/26/04	<0.25	0.42	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.05	0.011	--	--	0.12	<0.25	12.00	<0.10	
MW-07R	12/15/04	<0.25	0.85	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	0.0076*	--	2.00	0.034	--	--	1.40	0.36	10.00	<0.10	
MW-07R	03/09/05	<0.25	0.54	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.15	0.030	--	--	4.20	<0.25	120.00	<0.10	
MW-07R	06/08/05	<0.25	0.46	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.98	<0.010	--	--	0.25	0.89	5.70	<0.2	
MW-07R	09/21/05	<0.25	0.70	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.80	0.13	--	--	<0.050	<0.25	15.00	<0.10	
MW-07R	12/14/05	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.50	<0.010	--	--	<0.050	0.29	5.70	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**



Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
MW-07R	03/14/06	<0.25	0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.50	0.23	--	--	2.30	0.51	8.90	<0.10	
MW-07R	06/07/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	2.20	<0.010	--	--	0.28	2.40	3.90	<0.10	
MW-07R	09/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<b>0.0065</b>	--	1.20	0.26	--	--	3.40	<0.25	8.50	<0.10	
MW-07R	12/13/06	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*	--	1.90	<0.010	--	--	<0.050	1.90	23.00	<0.10	
MW-07R	06/20/07	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.70	--	--	--	--	--	--	--	
MW-07R	06/05/08	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.90	--	--	--	--	--	--	--	
MW-07R	06/01/09	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.29	--	--	--	--	--	--	--	
MW-07R	06/08/10	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.11	--	--	--	--	--	--	--	
MW-07R	05/23/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	3.20	--	--	--	--	--	--	0.0050	
MW-07R	06/01/12	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	1.03	--	--	--	--	--	--	0.0050	
MW-07R	04/09/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	<0.10	
MW-07R	04/23/14	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050	--	--	--	--	--	--	--	--	<0.10	
MW-07R	10/01/15	<0.100	--	2.61	--	0.373	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.37	1.54	--	--	11.8 T8	<0.1	<5	<0.05	
MW-07R	10/12/16	<0.100	--	0.280	--	<0.500	<0.001	<0.005	<0.001	<0.003	<0.002	<0.002	0.58	--	--	--	--	--	--	--	
MW-07R	10/11/17	0.423	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00100	0.67	--	--	--	--	--	--	--	
MW-07R	10/04/18	<0.1	--	<0.2	--	<0.25	<0.001	<0.001	<0.001	<0.003	<0.002	<0.002	0.05	--	--	--	--	--	--	--	
MW-07R	10/03/19	<0.100	--	0.229	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.13	--	--	--	--	--	--	--	
MW-07R	10/20/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00500	<0.00500	0.17	--	--	--	--	--	--	--	
TMW-B1	10/29/09	<b>5.7</b>	<0.25	--	<0.50	--	<b>0.12</b>	0.0070	0.058	0.15	--	--	--	--	--	--	--	--	--	--	
TMW-B1	06/09/10	--	--	--	--	--	--	--	--	--	--	--	1.06	--	--	--	--	--	3.60	--	
TMW-B1	09/09/10	--	--	--	--	--	--	--	--	--	--	--	0.25	--	--	--	--	--	<0.50	--	
TMW-B1	05/25/11	<b>9.1</b>	--	--	--	--	0.024	<0.0050	0.24	0.56	--	--	1.51	--	--	--	--	--	--	--	
TMW-B1	12/02/11	<b>6.6</b>	--	--	--	--	<b>0.091</b>	<0.0050	0.15	0.26	--	--	0.33	--	--	--	--	--	--	--	
TMW-B1	03/01/12	<b>8.0</b>	--	--	--	--	<b>0.079</b>	<0.0025	0.28	0.55	--	--	0.30	--	--	--	--	--	--	--	
TMW-B1	11/08/12	<b>3.7</b>	--	--	--	--	<b>0.16</b>	0.010	0.019	0.036	--	--	--	--	--	--	--	--	--	--	
TMW-B1	02/28/13	<b>14</b>	--	--	--	--	0.026	<0.01	0.50	0.87	--	--	--	--	--	--	--	--	--	--	
TMW-B1	10/02/13	<b>5.8</b>	--	--	--	--	0.039	<0.005	0.16	0.24	--	--	0.00	--	--	--	--	--	--	--	
TMW-B1	09/29/15	<b>7.22</b>	--	--	--	--	0.0355	<0.01	0.213	0.106	--	--	0.33	--	--	--	--	--	--	--	
TMW-B1	10/14/16	<b>7.03</b>	--	--	--	--	0.0227	<0.05	0.0690	<0.03	--	--	0.23	9.42	--	--	15.2	<0.10	<5.0	<0.05	
TMW-B1	10/12/17	<b>6.71</b>	--	--	--	--	0.0304	0.00266	0.0738	0.0276	--	--	0.62	11.4	--	--	12.7 T8	<0.100	<5.00	<0.0500	
TMW-B1	10/04/18	<b>6.36</b>	--	--	--	--	<b>0.0827</b>	0.00427	0.0428	0.01	--	--	0.14	6.6	--	--	8.34 T8	<0.1	<5.0	<0.05	
TMW-B1	10/04/19	<b>5.68</b>	--	--	--	--	0.0599	0.00758	0.0259	0.00913	--	--	0.08	6.57	--	--	<1.25 T8	<0.100	<5.00	<0.0500	
TMW-B1	10/22/20	<b>6.00</b>	--	--	--	--	<b>0.0796</b>	0.00869	0.0293	0.0124	--	--	0.05	10.8	--	--	12.1 T8	<0.100	<5.00	<0.0500	
TMW-1	06/21/13	<0.25	<0.25	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	0.41 *c	11	<0.10	Baseline monitoring event
TMW-1	07/30/13	<0.25	--	--	--	--	--	--	--	--	--	--	--	0.075	10	<0.30	--	0.28	1,900	<0.10	
TMW-1	08/26/13	<0.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
TMW-1	10/03/13	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	2.92	0.081	13	5.2	--	<0.50 *c	980	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
TMW-1	01/22/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	9.27	--	--	--	--	--	450	<0.10	
TMW-1	04/21/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	<0.25	670	<0.10	
TMW-1	07/14/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.87	<0.010	4.0	3.1	--	--	650	<0.10	
TMW-1	03/17/15	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	5.42	0.040	--	--	0.65	0.32	640	<0.10	
TMW-1	09/29/15	<b>2.03</b>	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	1.80	<0.010	--	--	1.40 T8	0.571	1,090	<0.05	
TMW-1	03/30/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	6.11	<0.010	--	--	1.74	<0.10	816	<0.05	
TMW-1	10/12/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	4.86	--	--	--	--	--	314	--	
TMW-1	03/28/17	<0.100	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	6.65	--	--	--	--	--	511	--	
TMW-1	10/13/17	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.73	--	--	--	--	--	851	--	
TMW-1	03/29/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	8.20	--	--	--	--	--	667	--	
TMW-1	10/03/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	1.92	--	--	--	--	--	810	--	
TMW-1	04/02/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	6.77	--	--	--	--	--	627	--	
TMW-1	10/02/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	3.94	--	--	--	--	--	641	--	
TMW-1	03/25/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	9.59	--	--	--	--	--	669	--	
TMW-1	10/20/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	4.46	--	--	--	--	--	331	--	
TMW-2	06/21/13	0.25	0.28	--	--	--	0.0075	0.00097	<0.0005	0.00068	--	--	--	--	--	--	--	<0.25 *c	0.83	<0.10	Baseline monitoring event
TMW-2	07/30/13	0.26	--	--	--	--	--	--	--	--	--	--	--	17	29	1.2	--	<0.25	6.4	<0.10	
TMW-2	08/26/13	0.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
TMW-2	10/03/13	0.50	--	--	--	--	0.013	0.00074	<0.0005	0.0024	--	--	0.00	15	160	110	--	<0.50 *c	2,000	<0.10	
TMW-2	01/22/14	0.28	--	--	--	--	0.011	<0.0005	<0.0005	<0.0005	--	--	6.12	--	--	--	--	--	3,000	<0.10	
TMW-2	04/21/14	<0.25	--	--	--	--	<0.001	<0.001	<0.001	<0.001	--	--	--	--	--	--	--	<0.25	2,600	<0.10	
TMW-2	07/14/14	<0.25	--	--	--	--	0.0028	<0.0005	<0.0005	<0.0005	--	--	0.10	7.1	68	67	--	--	2,700	<0.10	
TMW-2	03/17/15	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.24	2.7	--	--	16	<0.25	1,500	<0.10	
TMW-2	10/01/15	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.34	0.0843	--	--	34.8 T8	<0.10	1,810	<0.05	
TMW-2	03/30/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.32	6.71	--	--	9.26	<0.10	1,340	<0.05	
TMW-2	10/12/16	<0.100	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.23	--	--	--	--	--	1,200	--	
TMW-2	03/28/17	<0.100	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.41	--	--	--	--	--	1,480	--	
TMW-2	10/13/17	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.56	--	--	--	--	--	1,390	--	
TMW-2	03/29/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.08	--	--	--	--	--	1,250	--	
TMW-2	10/03/18	<0.1	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.12	--	--	--	--	--	1,730	--	
TMW-2	04/02/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.09	--	--	--	--	--	1,480	--	
TMW-2	10/02/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.22	--	--	--	--	--	1,370	--	
TMW-2	03/25/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	7.42	--	--	--	--	--	1,390	--	
TMW-2	10/20/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.03	--	--	--	--	--	1,160	--	
TMW-3	06/24/13	0.86	0.85	--	--	--	<0.0005	0.00052	<0.0005	0.00087	--	--	--	--	--	--	--	<0.25	4.4	<0.10	Baseline monitoring event
TMW-3	07/30/13	0.98	--	--	--	--	--	--	--	--	--	--	--	2.6	10	<0.30	--	<0.25	3.1	<0.10	
TMW-3	08/26/13	<b>1.2</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
TMW-3	10/03/13	0.92	--	--	--	--	0.00057	0.0018	0.0076	0.0072	--	--	0.00	3.8	43	18	--	<0.50 *c	1,100	<0.10	
TMW-3	01/22/14	0.75	--	--	--	--	<0.001	0.0022	<0.001	<0.001	--	--	0.00	--	--	--	--	--	3,800	<0.10	
TMW-3	04/24/14	0.51	--	--	--	--	<0.0005	0.0046	0.0011	<0.0005	--	--	--	--	--	--	--	<0.25	2,500	<0.10	
TMW-3	07/14/14	<0.25	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.27	1.3	19	17	--	--	3,100	<0.10	
TMW-3	03/18/15	0.62	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	0.07	1.3	--	--	9.3	<0.25	1,300	<0.10	
TMW-3	09/30/15	0.358	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.17	0.890	--	--	13.4 T8	<0.10	984	<0.05	
TMW-3	03/30/16	0.266	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.38	0.494	--	--	5.5	<0.10	1,380	<0.05	
TMW-3	10/12/16	0.607	--	--	--	--	<0.001	<0.005	<0.001	<0.003	--	--	0.24	--	--	--	--	--	1,190	--	
TMW-3	03/29/17	0.170	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.23	--	--	--	--	--	1,800	--	
TMW-3	10/12/17	0.610	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.54	--	--	--	--	--	1,320	--	
TMW-3	03/29/18	0.309	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.12	--	--	--	--	--	1,150	--	
TMW-3	10/04/18	<b>1.15</b>	--	--	--	--	<0.001	<0.001	0.0012	<0.003	--	--	0.24	--	--	--	--	--	1,220	--	
TMW-3	04/03/19	0.553	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.01	--	--	--	--	--	909	--	
TMW-3	10/03/19	0.955	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.16	--	--	--	--	--	513	--	
TMW-3	03/26/20	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.21	--	--	--	--	--	1,100	--	
TMW-3	10/20/20	0.136 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.16	--	--	--	--	--	912	--	
TMW-4	06/24/13	<b>4.9</b>	2.5 Z	--	--	--	<b>0.17</b>	0.084	0.23	0.95	--	--	--	--	--	--	--	<0.25	32	0.11	Baseline monitoring event
TMW-4	07/30/13	<b>5.1</b>	--	--	--	--	--	--	--	--	--	--	--	13	24	5.0	--	0.48	1.4	0.11	
TMW-4	08/26/13	<b>9.2</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
TMW-4	10/03/13	<b>4.7</b>	--	--	--	--	<b>0.13</b>	0.12	0.29	1.3	--	--	0.00	16	410	17	--	0.36 J*	2,800	<0.10	
TMW-4	01/22/14	<b>6.0</b>	--	--	--	--	<b>0.21</b>	0.070	0.40	0.99	--	--	0.00	--	--	--	--	--	2,800	<0.10	
TMW-4	04/24/14	<b>4.0</b>	--	--	--	--	<b>0.16</b>	0.044	0.39	0.84	--	--	--	--	--	--	--	<0.25	1,400	<0.10	
TMW-4	07/14/14	<b>5.6</b>	--	--	--	--	<b>0.19</b>	0.016	0.38	0.35	--	--	0.12	7.9	130	130	--	--	940	<0.10	
TMW-4	03/18/15	<b>7.5</b>	--	--	--	--	<b>0.21</b>	0.019	0.53	0.38	--	--	0.08	7.5	--	--	30	<0.25	410	<0.10	
TMW-4	09/30/15	<b>3.49</b>	--	--	--	--	<b>0.107</b>	<0.125	0.455	<0.075	--	--	0.12	1.12	--	--	43.4 T8	<0.10	374	<0.05	
TMW-4	03/30/16	<b>2.23</b>	--	--	--	--	0.0471	<0.005	0.343	0.0141	--	--	1.01	1.96	--	--	5.01	<0.10	1,940	<0.05	
TMW-4	10/14/16	<b>3.13</b>	--	--	--	--	0.0250	<0.025	0.211	<0.015	--	--	0.67	--	--	--	--	--	936	--	
TMW-4	03/29/17	<b>3.48</b>	--	--	--	--	0.0139	0.00301	0.194	0.00977	--	--	0.18	--	--	--	--	--	1,880	--	
TMW-4	10/12/17	<b>3.52</b>	--	--	--	--	0.0345	0.0430	0.308	0.117	--	--	0.39	--	--	--	--	--	494	--	
TMW-4	03/29/18	<b>3.85</b>	--	--	--	--	0.00497	0.00913	<b>0.282</b>	0.0439	--	--	0.05	--	--	--	--	--	741	--	
TMW-4	10/04/18	<b>6.35</b>	--	--	--	--	0.0103	0.0451	<b>0.435</b>	0.341	--	--	0.13	--	--	--	--	--	1,360	--	
TMW-4	04/03/19	<b>3.07</b>	--	--	--	--	<0.0100	<0.0100	0.257	<0.0300	--	--	0.07	--	--	--	--	--	696	--	
TMW-4	10/03/19	<b>6.02</b>	--	--	--	--	0.00347	0.0532	0.263	0.337	--	--	0.10	--	--	--	--	--	446	--	
TMW-4	03/26/20	<b>1.35</b>	--	--	--	--	0.00132	0.00324	0.275	0.00576	--	--	3.36	--	--	--	--	--	1,520	--	
TMW-4	10/20/20	<b>2.49 B</b>	--	--	--	--	<0.00500	<0.00500	0.00512	<0.0150	--	--	0.15	--	--	--	--	--	1,680	--	
TMW-5	06/21/13	<b>1.3</b>	0.65 K	--	--	--	<b>0.10</b>	0.0097	0.022	0.02	--	--	--	--	--	--	--	<0.25 *c	4.3	<0.10	Baseline monitoring event
TMW-5	07/30/13	<b>4.3</b>	--	--	--	--	--	--	--	--	--	--	--	7.6	11	<0.30	--	<0.25	0.67	0.25	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
TMW-5	08/26/13	4.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
TMW-5	10/03/13	1.9	--	--	--	--	0.044	0.0063	0.00380	0.0088	--	--	0.00	5.6	39	16	--	<0.50 *c	2,500	0.10	
TMW-5	01/22/14	1.9	--	--	--	--	0.0039	0.0031	0.00120	0.0023	--	--	7.18	--	--	--	--	--	2,600	0.10	
TMW-5	04/24/14	1.4	--	--	--	--	<0.0015	0.0026	0.0017	0.0021	--	--	--	--	--	--	--	<0.25	4,000	<0.10	
TMW-5	07/14/14	1.4	--	--	--	--	0.01	0.0016	<0.0005	0.00062	--	--	0.09	2.4	8.0	0.82	--	--	1,300	<0.10	
TMW-5	03/18/15	3.0	--	--	--	--	0.046	0.0069	0.016	0.016	--	--	0.04	8.9	--	--	0.069	<0.25	700	0.20	
TMW-5	09/30/15	1.20	--	--	--	--	0.00943	<0.005	<0.001	<0.003	--	--	0.09	2.00	--	--	43.1 T8	<0.10	734	6.72	
TMW-5	03/30/16	0.865	--	--	--	--	0.0220	<0.005	0.00831	<0.003	--	--	0.27	4.12	--	--	2.21	<0.10	1,500	<0.05	
TMW-5	10/12/16	1.27	--	--	--	--	0.00812	<0.005	<0.001	<0.003	--	--	0.17	--	--	--	--	--	765	--	
TMW-5	03/29/17	1.53	--	--	--	--	0.01580	0.00107	0.0053	<0.003	--	--	0.28	--	--	--	--	--	1,730	--	
TMW-5	10/12/17	1.06	--	--	--	--	0.00928	0.00139	<0.00100	<0.00300	--	--	0.38	--	--	--	--	--	686	--	
TMW-5	03/29/18	1.42	--	--	--	--	<0.001	<0.001	0.00304	<0.003	--	--	0.09	--	--	--	--	--	727	--	
TMW-5	10/04/18	0.99	--	--	--	--	<0.001	<0.001	<0.001	<0.003	--	--	0.09	--	--	--	--	--	1,210	--	
TMW-5	04/03/19	1.04	--	--	--	--	<0.00100	<0.00100	0.00200	<0.00300	--	--	0.01	--	--	--	--	--	832	--	
TMW-5	10/02/19	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.29	--	--	--	--	--	581	--	
TMW-5	03/26/20	0.316	--	--	--	--	<0.00100	<0.00100	0.00506	<0.00300	--	--	0.21	--	--	--	--	--	1,940	--	
TMW-5	10/20/20	0.790	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.23	--	--	--	--	--	1,210	--	
TMW-6	06/24/13	4.9	1.8 Z	--	--	--	0.067	0.0099	0.1500	0.55	--	--	--	--	--	--	--	<0.25	16	0.14	Baseline monitoring event
TMW-6	07/30/13	7.8	--	--	--	--	--	--	--	--	--	--	--	5.4	13	2.4	--	<0.25	5.0	0.14	
TMW-6	08/26/13	8.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
TMW-6	10/03/13	5.4	--	--	--	--	0.028	0.010	0.18000	0.42	--	--	0.00	5.6	290	250	--	<0.50 *c	1,700	<0.10	

**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

Well ID	Date Sampled	GRO mg/L	DRO mg/L	DRO, SGC mg/L	HO mg/L	HO, SGC mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylenes mg/L	Total Lead mg/L	Dissolved Lead mg/L	Dissolved Oxygen mg/L	Methane mg/L	Total Iron mg/L	Dissolved Iron mg/L	Ferrous Iron mg/L	Nitrate mg/L	Sulfate mg/L	Sulfide mg/L	Comments
<b>Site-Specific Cleanup Levels:</b>		<b>1.0</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>0.071</b>	<b>200</b>	<b>29.0</b>	<b>N/A</b>	<b>0.0058</b>										
TMW-6	01/22/14	7.0	--	--	--	--	0.06	0.010	0.28000	0.53	--	--	3.60	--	--	--	--	--	2,300	<0.10	
TMW-6	04/24/14	5.1	--	--	--	--	0.015	0.0036	0.19000	0.37	--	--	--	--	--	--	--	<0.25	1,800	<0.10	
TMW-6	07/14/14	3.9	--	--	--	--	0.064	0.0047	0.1600	0.21	--	--	0.22	6.5	100	98	--	--	1,600	<0.10	
TMW-6	03/18/15	5.0	--	--	--	--	0.003	0.0028	0.15	0.12	--	--	0.09	0.54	--	--	2.0	<0.25	1,000	<0.10	
TMW-6	09/30/15	5.09	--	--	--	--	0.00287	<0.005	0.133	0.189	--	--	0.19	1.15	--	--	41.7 T8	<0.10	1,400	<0.05	
TMW-6	03/30/16	2.00	--	--	--	--	<0.001	<0.005	0.05630	0.0546	--	--	0.66	0.254	--	--	14.9	<0.10	1,560	<0.05	
TMW-6	10/12/16	5.82	--	--	--	--	0.00278	0.00667	0.26700	0.392	--	--	0.27	--	--	--	--	--	1,530	--	
TMW-6	04/20/17	3.85	--	--	--	--	<0.010	<0.010	0.12400	0.144	--	--	0.36	--	--	--	--	--	1,770	--	
TMW-6	10/12/17	9.33	--	--	--	--	<0.0100	0.0109	0.5790	0.526	--	--	0.54	--	--	--	--	--	1,400	--	
TMW-6	03/28/18	9.31	--	--	--	--	<0.001	0.00212	0.286	0.27	--	--	0.08	--	--	--	--	--	796	--	
TMW-6	10/03/18	9.79	--	--	--	--	0.00157	0.00623	0.548	0.374	--	--	0.07	--	--	--	--	--	1,250	--	
TMW-6	04/03/19	4.77	--	--	--	--	<0.00100	<0.00100	0.289	0.413	--	--	0.05	--	--	--	--	--	344	--	
TMW-6	10/02/19	11.6	--	--	--	--	<0.00100	0.00486	0.640	1.09	--	--	0.13	--	--	--	--	--	416	--	
TMW-6	03/26/20	2.16	--	--	--	--	<0.00100	<0.00100	0.145	0.0812	--	--	0.26	--	--	--	--	--	3,720	--	
TMW-6	10/21/20	6.74	--	--	--	--	<0.00100	0.00123	0.300	0.313	--	--	0.20	--	--	--	--	--	1,010	--	



**Appendix E**  
**Historical Groundwater Analytical Results**  
**Kinder Morgan Liquids Terminals, LLC**  
**Harbor Island Terminal**  
**2720 13th Avenue Southwest, Seattle, Washington**

**Notes:**

Highlighted = data from most recent monitoring event

-- = Sample not analyzed for this parameter

< = Denotes compound was not detected at designated detection limit.

**Bold** = Concentration detected above the Site-Specific Cleanup Level

mg/L = milligrams per liter (parts per million [ppm])

N/A = not applicable

^ = Analysis could not be run due to excess particulate matter.

\* = Also tested for Dissolved Lead (EPA-200.8), results are below detection limit of 0.0050 ppm.

\*a = Also tested for Dissolved Lead (EPA-200.8), results are at or above detection limit of 0.0050 ppm.

\*b = Lab did not receive sample container to run analysis.

\*c = The laboratory analyzed nitrate samples using preserved samples. Concentrations may be biased high due to possible oxidation of nitrite to nitrate

\*d = Lab received broken volatile organic analyzer (VOA), not able to run analysis.

\*\* = Also tested for Dissolved Lead (EPA-7421), results are below detection limit of 0.004 ppm.

\*\*\* = Also tested for Dissolved Lead (EPA-SW6020), results are below detection limit of 0.0050 ppm.

a = Insulating oil range hydrocarbons were reported for MW-22 at concentration of 0.87 ppm.

b = The lab analyzed these samples for nitrate only, using sulfuric acid preserved samples (submitted for nitrate analysis). Holding time for preserved samples for nitrate analysis is 28 days. The lab analyzed these for nitrate because non-preserved samples were received outside of 48 hours.

c = The lab analyzed these samples for nitrate and sulfate together, using non-preserved samples (submitted for sulfate analysis). Holding time for non-preserved samples for nitrate analysis is 48 hours and for sulfate analysis is 28 days. These samples were received within the 48-hour holding time.

d = Dissolved oxygen was not recorded at this well due to a technical error with the data recording system.

o = Reporting Limits were increased due to sample foaming.

B = The same analyte is found in the associated blank.

V = Reporting Limits were increased due to high concentration of target analytes.

K = DRO concentration may include contributions from lighter-end hydrocarbons that elute in the DRO range.

Z = DRO concentration may include contributions from lighter-end and heavier-end hydrocarbons that elute in the DRO range

1. Total Petroleum Hydrocarbons (TPH) as gasoline range organics (GRO) - Analysis by Washington Method WTPH-G prior to 5/20/98; analysis by Northwest Method NWTPH-Gx from 5/20/98 through present.

2. Total Petroleum Hydrocarbons (TPH) as diesel range organics (DRO) and heavy oil range organics (HO) - Analysis by Washington Method WTPH-D+ extended prior to 5/20/98; analysis by Northwest Method NWTPH-Dx from 5/20/98 through present.

3. Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) Compounds - Analysis by EPA Method 8020 prior to 5/20/98; analysis by EPA Method 8260B from 5/20/98 through present.

J3 = The associated batch quality control (QC) was outside the established quality control range for precision.

J5 = The sample matrix interfered with the ability to make any accurate determination; spike value is high.

J6 = The sample matrix interfered with the ability to make any accurate determination; spike value is low.

J = Estimated value between the method reporting limit (MRL) and the detection limit

P1 = Relative percent difference value not applicable for sample concentrations less than 5 times the reporting limit.

T8 = Sample was received by the lab outside the hold time for the analyte; value should be considered a minimum.

SGC = A silica gel wash as performed on the solvent extract before analysis. Silica gel cleanup was completed for samples with TPH-DRO and TPH-HO detections above the method reporting limit. All samples analyzed since September 2015 were performed with SGC for all TPH-DRO and TPH-HO analysis.

Arcadis U.S., Inc.

1100 Olive Way

Suite 800

Seattle, Washington 98101

Tel 206 325 5254

Fax 206 325 8218

[www.arcadis.com](http://www.arcadis.com)

A decorative graphic consisting of three thin orange lines. One line is horizontal, extending across the bottom of the page. Two other lines are diagonal, starting from the bottom left and extending towards the top right, crossing the horizontal line.