Kinder Morgan Liquids Terminals, LLC

2023 Annual Groundwater Monitoring Report

Harbor Island Terminal
Seattle, Washington

January 24, 2024

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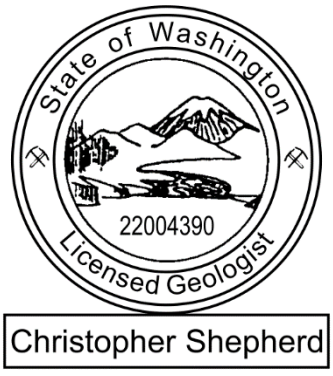

Contents

Tables

Figures

Graphs

Appendices

Acronyms and Abbreviations

ABOx	Anaerobic biologic oxidation
AST	Aboveground storage tank
Arcadis	Arcadis U.S., Inc.
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CD	Consent Degree
COC	Constituent of concern
DO	Dissolved oxygen
DRO	Diesel-range organics
Ecology	Washington State Department of Ecology
ft	Feet
ft/ft	Foot per foot
GRO	Gasoline-range organics
HO	Heavy oil
mg/L	Milligrams per liter
MNA	Monitored natural attenuation
NAVD 88	North American Vertical Datum of 1988
ORP	Oxygen-reduction potential
Pace	Pace National Center for Testing and Innovation
SPH	Separate-phase hydrocarbon
SSCL	Site Specific Cleanup Level
Sqft	Square feet
The site	Harbor Island Terminal
USEPA	United States Environmental Protection Agency

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 2023 groundwater monitoring events at the Harbor Island Terminal (the site). The site is located at 2720 13th Avenue Southwest in Seattle, Washington. A site location map is presented on **Figure 1**.

Groundwater monitoring events were completed between March 1 and March 3, 2023, and September 19 and September 23, 2023, in accordance with the Compliance Monitoring Plan (KHM 1999) and associated addenda, included as **Appendix A**. Remedial performance monitoring was performed periodically in 2023.

1.1 Site Description

The site is a 14-acre bulk petroleum storage facility located east of 13th 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 (ft) 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

The Washington Department of Ecology (Ecology) established site-specific cleanup levels (SSCLs) for groundwater 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 groundwater 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

DRO = diesel-range organics
GRO = gas-range organics
HO = heavy oil
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 at concentrations above SSCLs, and most recent separate-phase hydrocarbons (SPHs) observations in monitoring wells at the site are presented in **Table 1**.

1.3 Remedial Sulfate Application

In June 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 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 (sqft) of permeable soil to supply sulfate to the vadose-zone soils and indirectly to 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, December 2019, July 2021, September 2022, and October 2023. 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 20,500 sqft in the B, C and D Yards.
- October 2016 – 15,000 pounds of Epsom salt were distributed over approximately 16,000 sqft in the B, C and D Yards.
- April 2018 – 10,000 pounds of Epsom salt were distributed over approximately 15,000 sqft in the B, C and D Yards.
- November 2018 – 5,000 pounds of Epsom salt were distributed over approximately 5,000 sqft in the C and D Yard near MW-19.
- December 2019 – approximately 14,400 pounds of Epsom salt were distributed over approximately 15,000 sqft in the B, C, and D Yards.
- July 2021 – 10,000 pounds of Epsom salt were distributed over approximately 10,000 sqft in the B, C, and D Yards.
- September 2022 – 15,000 pounds of Epsom salt were distributed over approximately 18,000 sqft in the B, C and D Yards.
- October 2023 – 15,000 pounds of Epsom salt were distributed over approximately 18,000 sqft in the B, C, and D Yards.

The remedial sulfate application extents are presented on **Figure 3**. The field memorandum sent to Ecology is presented in Appendix F.

2 Scope of Work

The following sections describe the work performed at the site during 2023.

2.1 Semiannual Groundwater Monitoring Events

The 2023 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 2023 semiannual monitoring events included:

- Measuring depth to water and SPHs (where present) in 50 monitoring wells in March and September 2023. A-11, MW-16, and MW-25 were inaccessible in March 2023, A-11, and MW-25 were inaccessible in September 2023 (**Table 2**).
- 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 (**Table 3**) from:
  - 19 monitoring wells in the first semiannual groundwater monitoring event.
  - 39 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 as **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**, as reported in **Table 3**:

- GRO by Northwest Method NWTPH-Gx;
- DRO and HO by Northwest Method NWTPH-Dx (with silica gel cleanup);
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX, collectively) by United States Environmental Protection Agency (USEPA) Method 8260D;
- Dissolved lead by USEPA Method 6020B;
- Total lead by USEPA Method 6020B;
- Sulfate by USEPA Method 9056A.

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

- Methane by USEPA Method RSK-175;
- Ferrous iron by Standard Method 3500Fe B-2011;
- Nitrate by USEPA Method 9056A;
- Sulfide by Standard Method 4500S2 D-2011.

Blind duplicate samples were collected from MW-7 and MW-21 in both groundwater monitoring events 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 groundwater remedy in the B, C, and D Yards has been performed periodically since the initial sulfate application was completed in July 2013. Specific conductivity was measured at nine monitoring wells within the remedial treatment 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 mechanisms 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. During the reporting period, the irrigation system was

operated from April 11, 2023 through November 1, 2023. Irrigation connections to D yard sprinklers were not operating, but B and C yard irrigation connections were functioning throughout the 2023 irrigation period.

Per Ecology's approval of the Revised Site Groundwater Monitoring Plan (Ecology 2014), Arcadis conducts quarterly SPH and light non-aqueous phase liquid monitoring. If any SPH or light non-aqueous phase liquid monitoring is found at any well, Arcadis gauges the thickness and removes it from the well using an absorbent sock. On March 1, 2023, June 19, 2023, September 19, 2023, and November 21, 2023 wells A-6 and A-16 were gauged using an oil/water interface probe, and socks were deployed as needed.

3 Summary of Results

Groundwater sample analytical results and field measurements during the first and second semiannual 2023 groundwater monitoring events are presented below.

3.1 Water Level Measurements

Depths to groundwater in monitoring wells were measured on March 1, 2023, and September 19, 2023 using oil/water interface probes. Monitoring wells MW-25 and A-11 could not be accessed during the first and second semiannual monitoring events due to damaged lids. MW-25 is located in the A yard in the direct path of trucks approaching or waiting in line to access the truck loading rack. The weight of these trucks over time has cracked the well monument, rendering the lid difficult to remove. MW-25 is located within 130-ft of five other A yard wells which provide adequate water level information for the area. A-11 is similarly located directly in the path of these trucks, and the lid has become deformed and stuck over time. MW-16 was inaccessible during the first semiannual even in March 2023 as a semi truck was parked over the well vault for the duration of the event.

Groundwater elevations were calculated using depth-to-water measurements and the surveyed elevation of the wellheads obtained in July 2003. Depth to groundwater during the March 1, 2023 gauging event ranged from 1.13 ft (monitoring well 12) to 10.04 ft (monitoring well A-27). Groundwater elevations (relative to NAVD 88) at the Site for the April event ranged from 5.49 ft (A-6) to 9.56 ft (MW-19) with an average groundwater elevation of 7.9 ft. In March 2023, an apparent groundwater mound was observed in the vicinity of MW-19. Groundwater flow directions were generally toward the northwest in the C yard, and east to southeast in the B yard with an approximate hydraulic gradient of 0.003 foot per foot (ft/ft).

Depth to groundwater during the September 19, 2023 monitoring event ranged from 2.74 ft (monitoring well 12) to 10.83 ft (monitoring well A-27) with groundwater elevations (relative to NAVD 88) ranging from 5.94 ft (A-6) to 8.01 ft (MW-19. In September 2023, an apparent groundwater mound was observed in the vicinity of MW-19. Groundwater directions were generally to the west in the C yard and to the east in the B Yard with an approximate hydraulic gradient of 0.0037 ft/ft. 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

As discussed in Section 2.2 above, SPH monitoring and recovery efforts were conducted at monitoring wells A-6 and A-16 on March 1, 2023, June 19, 2023, September 19, 2023, and November 21, 2023 wells. On March 1, 2023 a sheen was observed in both A-6 and A-16, and the socks in the wells were left in place. No SPH was

observed in either well on June 19, 2023 and the sock was removed from A-6; no sock was present in A-16. On September 19, 2023 SPH was observed in A-6 and A-16. A sheen was observed in A-6, and A-16 had an SPH thickness of 0.07 ft. Socks were installed in both wells, as well as monitoring well A-4. Although no SPH was observed in monitoring wells A-6 or A-16 on November 21, 2023, both socks were removed and replaced.

Quarterly gauging and sock management will continue through 2024 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 2023 are summarized below:

COC	Number of Wells Exceeding SSCL	Number of Wells Analyzed	SSCL (mg/L)	Maximum Concentration (mg/L)	Location of Maximum Concentration
First Semiannual Groundwater Monitoring Event					
GRO	8	19	1.0	7.160	MW-24
Benzene	1	19	0.071	0.301	MW-24
Second Semiannual Groundwater Monitoring Event					
GRO	8	39	1.0	7.730	MW-24
Benzene	2	39	0.071	0.552	MW-24
Total Lead	3	18	0.0058	0.0104	MW-8
Dissolved Lead	1	18	0.0058	0.00698	MW-8

During the first semiannual 2023 groundwater monitoring event, groundwater sampled from 10 monitoring wells (11, 12, MW-7, MW-19, and TMW-1 through TMW-6) within the remedial treatment area were additionally sampled and analyzed for sulfate. These results are discussed in section 3.4 - Remedial Performance Results.

During the second semiannual 2023 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 13th Avenue Southwest:

- Methane was detected in all five monitoring wells at concentrations ranging from 2.91 mg/L (A-27) to 12.5 mg/L (MW-24).
- Ferrous iron was detected in all five monitoring wells at concentrations ranging from 9.39 mg/L (A-27) to 54.7 mg/L (MW-24).
- Sulfide was analyzed but not detected at concentration above laboratory reporting limits in any monitoring well.
- Sulfate was detected in monitoring well A-28R at a concentration of 9.67 mg/L.
- Nitrate was detected in all five monitoring wells at concentrations ranging from 0.102 mg/L (A-27) to 0.225 mg/L (TMW-B1).

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 2023 monitoring events, samples from 10 monitoring wells (11, 12, MW-7, MW-19, and TMW-1 through TMW-6) within the remedial treatment area were additionally sampled and analyzed for sulfate. The results were then compared to the target concentration of 900 mg/L designed to support ABOx of petroleum hydrocarbons (KHM 2001b).

During the first semiannual event, sulfate concentrations in the remedial treatment area ranged from 6.23 mg/L in monitoring well MW-9 to 2,800 mg/L in monitoring well TMW-6. Sulfate concentrations during the second semiannual event ranged from below the laboratory reporting limit of 5 mg/L in monitoring wells A-27, MW-12R, MW-23, MW-24, and TMW-B1 to 1,080 mg/L in monitoring well MW-19. Sulfate concentrations equal to or greater than the target of 900 mg/L within the remedial treatment area were observed in the following locations:

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

In October 2023, a supplemental sulfate application was conducted to replenish sulfate in the remedial treatment area and sustain concentrations above the target concentration of 900 mg/L. Groundwater analytical results for geochemical parameters are presented in **Table 4**. Constituent trend graphs for the performance monitoring of wells within the remedial treatment 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 2023 groundwater monitoring events (sample delivery groups L1592302, L1658709, L1658771, L1658798, L1659629, and L1659770 [**Appendix C**]) were reviewed for completeness and technical compliance. All field samples from both semiannual monitoring events were analyzed within their specified hold times, except for 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-21 during the first semiannual event, MW-7 during the second semiannual event) and DUP-2 (MW-7 during the first semiannual event, MW-21 during the second semiannual event) during both events, were collected and analyzed. The relative percent differences between the parent and the duplicates were acceptable at slightly above 20 percent for DUP-1 (MW-7), and DUP-1 (MW-21). DUP-2 (MW-7) had a difference of 22% between the duplicate and parent samples for GRO, these GRO values were below the SSCLs in both samples. DUP-2 (MW-21) had a 28% difference for DRO within the parent and duplicate samples, these values were below the SSCL value. 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 occurrence of measurable SPH during a semiannual monitoring event (Ecology 2014). On March 1, 2023, a sheen was observed during the groundwater monitoring event in wells A-6 and A-16. Both socks were left in place. No SPH was observed during the June 19, 2023 performance monitoring event and the sock was removed from A-6 (no sock present in A-16). SPH was observed in A-6 and A-16 on September 19, 2023 during a groundwater monitoring event. A-6 had a sheen and A-16 had a thickness of 0.07 ft. New socks were installed in both wells. During a performance monitoring event November 21, 2023, no SPH was observed in either well but both socks were removed and replaced.

Wells A-6 and A-16 will continue to be gauged quarterly to monitor for SPH in accordance with the Revised Site Groundwater Monitoring Plan (Arcadis 2014), and absorbent socks will be deployed as needed when measurable SPH occurrences are observed.

Groundwater samples were collected from within the A Yard at one monitoring well (A-5) during the first groundwater monitoring event and four monitoring wells (A-5, A-8, A-10, and A-14R) during the second groundwater monitoring event. COCs in groundwater samples collected from the A Yard monitoring wells have been below SSCLs since 2012, except for GRO in monitoring well A-5, which was detected at a concentration above the SSCL of 1.0 mg/L during the first semiannual monitoring event in 2021. There were no exceedances of groundwater SSCLs in samples collected from the A Yard in 2023. Analytical results are presented on **Figures 6** and **7** and presented in **Table 3**.

4.2 B, C, and D Yards

4.2.1 Remedial Treatment Area

Concentrations of COCs during the first and second semiannual 2023 groundwater monitoring events in the 10 performance monitoring wells within the remedial treatment area (11, 12, MW-7, MW-19, and TMW-1 through TMW-6) were generally consistent with concentrations observed during previous groundwater monitoring events.

Concentrations of COCs were below SSCLs for all six constituents in six performance monitoring wells (11, MW-19, TMW-1, TMW-2, TMW-3, TMW-5) during the first semiannual groundwater monitoring event. Samples collected from four wells during the first event (12, MW-19, TMW-4, and TMW-6) contained GRO concentrations exceeding the SSCL. Seven wells during the second semiannual groundwater monitoring event (11, MW-7, MW-19, TMW-1, TMW-2, TMW-3, TMW-5) had no concentrations of COCs above SSCLs for all six constituents. Three wells (12, TMW-4, TMW-6) had concentrations of GRO above the SSCL, and one, well 12, had a concentration of total lead above the SSCL. Analytical results from the 10 performance monitoring wells within the remedial treatment area for the first and second semiannual 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 treatment area demonstrate stable to decreasing trends.

Sulfate concentrations in groundwater generally decreased between the first and second semiannual monitoring events and were below the target concentration of 900 mg/L in most locations during the second semiannual event. The additional sulfate application in October 2023 targeted locations where sulfate concentrations had decreased and concentrations of GRO were above the SSCLs to increase sulfate concentrations above the target threshold of 900 mg/L. Performance monitoring was conducted in November 2023 and groundwater conductivity measurements indicated that concentrations of sulfate had increased within the remedial treatment area. Sulfate concentrations in monitoring wells downgradient of the remedial treatment area (MW-9 and A-27) were less than 6.23 mg/L, indicating the sulfate amendment is being reduced and is not migrating outside of the target treatment area. The observed sulfate concentrations are below the secondary water quality level of 250 mg/L.

During the second semiannual 2023 groundwater monitoring event, total lead was detected in monitoring well 12 at a concentration of 0.00903 mg/L, exceeding the SSCL (0.0058 mg/L). Lead impacts at the site have been attributed to former off-site smelting operations and the former smelter located on Harbor Island. Lead-impacted shallow soil was removed from the B and C Yards 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 Outside Remedial Treatment Area

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) are sampled either annually or semiannually and are not located within the remedial treatment area. Concentrations of all site COCs were below SSCLs in five of the seven monitoring wells and comply with the requirements of the CD. Concentrations of total lead measured in monitoring wells MW-8 (0.0104 mg/L) and MW-9 (0.0104 mg/L) during the second semiannual event exceeded the SSCL (0.0058 mg/L). Concentrations of dissolved lead measured in monitoring well MW-8 (0.00698 mg/L) during the second semiannual event exceeded the SSCL (0.0058 mg/L). SPH has not been observed in the B Yard since April 2014, the C Yard since gauging was initiated in 2000 (KHM 2001a), or the D yard since May 2002 (KHM 2002). Analytical results for both semiannual groundwater monitoring events 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, MW-9 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 13th 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. Constituent trends are shown on graphs 14 through 18.

In the 13th Avenue Southwest MNA area, concentrations of GRO in all four of the wells sampled in the first semiannual monitoring event (A-27, A-28R, MW-23, and MW-24) and all five wells sampled in the second semiannual monitoring event exceeded the SSCL. Benzene concentrations exceeded the SSCL in MW-24 during the first semiannual event. Constituent trend graphs for monitoring wells exceeding SSCLs are presented on **Graphs 14** through **19.**

Concentrations of geochemical parameters in the 13th Avenue Southwest MNA wells are consistent with those detected in previous groundwater monitoring events. Concentrations of DO in wells A-27, A-28R, TMW-B1, MW-23, and MW-24 are equal to or less than 0.14 mg/L, indicating that groundwater conditions are typically anaerobic. Methane and ferrous iron were generally detected at concentrations above 2.91 mg/L and 9.39 mg/L, respectively. With the exception of well A-28R (9.67 mg/L), sulfate concentrations were not detected above the laboratory reporting limit in A-27, TMW-B1, MW-23, and MW-24. Based on the lack of DO, low to non-detect concentrations of sulfate, and the relatively high concentrations of methane and ferrous iron, reducing conditions are present in the vicinity of these monitoring wells.

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

5 References

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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)	Most Recent Sampling Event	Comments
A-4	A Yard	05/23/11	--	--	--	SPH Skimmer
A-5	A Yard	09/15/03	04/13/21	GRO	9/22/2023	
A-6	A Yard	09/19/23	--	--	--	SPH Skimmer, EFR, PR
A-8	A Yard	11/18/03	--	--	9/22/2023	
A-10	A Yard	05/10/04	06/07/05	DRO	9/22/2023	
A-11	A Yard	09/19/05	--	--	--	
A-12	A Yard	03/08/05	--	--	5/25/2011	
A-14R	A Yard	09/19/05	12/14/04	Total Lead	9/22/2023	
A-16	A Yard	09/19/23	--	--	--	SPH, EFR, PR
A-18	A Yard	09/19/05	--	--	5/25/2011	
A-19	13th Ave	09/11/06	--	--	5/25/2011	EFR
A-20	13th Ave	09/19/05	05/25/11	GRO	5/25/2011	
A-21	13th Ave	05/20/02	08/25/12	GRO	9/21/2023	
A-22R	13th Ave	10/12/05	05/25/11	GRO, Benzene	5/25/2011	EFR
A-23R	13th Ave	Never	12/11/07	Benzene	9/20/2023	
A-25	A Yard	11/15/10	06/16/11	GRO, Benzene	6/16/2011	
A-26R	13th Ave	09/19/05	05/25/11	GRO, Benzene	5/25/2011	EFR
A-27	13th Ave	12/18/00	09/21/23	GRO	9/21/2023	
A-28R	13th Ave	Never	09/21/23	GRO	9/21/2023	
11	B Yard	Never	--	--	9/21/2023	ABOX
12	B Yard	03/28/17	09/21/23	GRO, Total Lead	9/21/2023	ABOX
MW-1	E Yard	Never	11/05/02	Total Lead	9/22/2023	
MW-2	13th Ave	Never	06/08/10	Total Lead	9/20/2023	
MW-3	C Yard	Never	10/02/19	Total Lead	9/20/2023	
MW-4	11th Ave	12/13/04	09/21/05	DRO	9/22/2023	
MW-5	D Yard	Never	04/09/13	Total Lead	9/20/2023	
MW-6	13th Ave	12/18/00	12/13/05	GRO	9/22/2023	
MW-7	B Yard	11/16/09	04/13/21	GRO	9/21/2023	ABOX
MW-8	B Yard	05/20/02	09/21/23	Total Lead, Dissolved Lead	9/21/2023	
MW-9	B Yard	05/23/11	09/20/23	Total Lead	9/20/2023	
MW-12R	11th Ave	Never	08/26/04	Benzene	9/22/2023	
MW-14	D Yard	Never	10/11/16	GRO	9/20/2023	
MW-16	13th Ave	Never	--	--	9/22/2023	
MW-17	13th Ave	Never	--	--	5/23/2011	
MW-18	13th Ave	Never	06/08/06	GRO, Benzene	9/20/2023	
MW-19	D Yard	05/20/02	03/02/23	GRO	9/19/2023	ABOX
MW-20	C Yard	Never	09/25/01	Benzene	9/20/2023	
MW-21	B Yard	03/01/12	09/22/09	GRO	9/21/2023	
MW-22	13th Ave	Never	11/05/02	Benzene	9/20/2023	
MW-23	13th Ave	08/29/11	09/21/23	GRO, Benzene	9/21/2023	EFR
MW-24	13th Ave	08/29/11	09/21/23	GRO, Benzene	9/21/2023	EFR
MW-25	A Yard	02/24/04	09/20/05	Total Lead	9/21/2022	
SH-02R	11th Ave	Never	09/16/03	Total Lead	9/22/2023	
SH-04	13th Ave	Never	--	--	--	
SH-05	11th Ave	Never	12/20/00	Total Lead	12/20/2000	
SH-05R	11th Ave	11/18/03	12/15/04	DRO	9/22/2023	
MW-07R	11th Ave	Never	09/13/06	Total Lead	9/22/2023	
TMW-B1	13th Ave	Never	09/21/23	GRO	9/21/2023	
TMW-1	D Yard	Never	09/29/15	GRO	9/19/2023	ABOX
TMW-2	D Yard	Never	--	--	9/20/2023	ABOX
TMW-3	B Yard	Never	10/04/18	GRO	9/21/2023	ABOX
TMW-4	B Yard	Never	09/21/23	GRO	9/21/2023	ABOX
TMW-5	B Yard	Never	10/11/21	GRO	9/20/2023	ABOX
TMW-6	B Yard	Never	09/20/23	GRO	9/20/2023	ABOX

Notes:

Shading indicates SPH observance or SSCL exceedance in 2023

-- = No data/not applicable

ABOX = Sulfate application area

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)	Most Recent Sampling Event	Comments

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[1] (feet)	Depth to Groundwater (feet BTOC)	SPH Thickness (feet)	Groundwater Elevation[1] (feet)
A-4	03/01/23	13.22	6.46	--	6.76
	09/19/23	13.22	7.19	--	6.03
A-5	03/01/23	14.13	6.29	--	7.84
	09/19/23	14.13	7.93	--	6.20
A-6	03/01/23	12.81	7.32	--	5.49
	09/19/23	12.81	6.87	--	5.94
A-8	03/01/23	14.61	7.46	--	7.15
	09/19/23	14.61	8.02	--	6.59
A-10	03/01/23	13.51	6.47	--	7.04
	09/19/23	13.51	7.08	--	6.43
A-11	03/01/23	14.4	--	--	--
	09/19/23	14.4	--	--	--
A-12	03/01/23	12.95	6.12	--	6.83
	09/19/23	12.95	6.70	--	6.25
A-14R	03/01/23	14.21	7.22	--	6.99
	09/19/23	14.21	7.80	--	6.41
A-16	03/01/23	14.39	7.51	--	6.88
	09/19/23	14.39	8.12	0.07	6.33
A-18	03/01/23	14.74	7.67	--	7.07
	09/19/23	14.74	8.22	--	6.52
A-19	03/01/23	14.57	7.64	--	6.93
	09/19/23	14.57	8.21	--	6.36
A-20	03/01/23	14.19	7.33	--	6.86
	09/19/23	14.19	7.83	--	6.36
A-21	03/01/23	14.35	7.38	--	6.97
	09/19/23	14.35	7.92	--	6.43
A-22R	03/01/23	14.11	7.12	--	6.99
	09/19/23	14.11	7.71	--	6.40
A-23R	03/01/23	15.57	8.63	--	6.94
	09/19/23	15.57	9.16	--	6.41
A-25	03/01/23	13.9	6.94	--	6.96
	09/19/23	13.9	7.62	--	6.28
A-26R	03/01/23	14.19	7.16	--	7.03
	09/19/23	14.19	7.82	--	6.37
A-27	03/01/23	17.22	10.04	--	7.18
	09/19/23	17.22	10.83	--	6.39
A-28R	03/01/23	14.93	7.54	--	7.39
	09/19/23	14.93	8.49	--	6.44
11	03/01/23	12.08	3.52	--	8.56
	09/19/23	12.08	5.23	--	6.85
12	03/01/23	9.79	1.13	--	8.66
	09/19/23	9.79	2.74	--	7.05
MW-1	03/01/23	13.21	4.85	--	8.36
	09/19/23	13.21	6.30	--	6.91
MW-2	03/01/23	15.22	6.18	--	9.04
	09/19/23	15.22	7.91	--	7.31

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[1] (feet)	Depth to Groundwater (feet BTOC)	SPH Thickness (feet)	Groundwater Elevation[1] (feet)
MW-3	03/01/23	11.39	2.10	--	9.29
	09/19/23	11.39	4.06	--	7.33
MW-4	03/01/23	14.69	5.65	--	9.04
	09/19/23	14.69	7.29	--	7.40
MW-5	03/01/23	11.13	1.90	--	9.23
	09/19/23	11.13	3.78	--	7.35
MW-6	03/01/23	15.17	6.15	--	9.02
	09/19/23	15.17	7.77	--	7.40
MW-7	03/01/23	10.62	1.74	--	8.88
	09/19/23	10.62	3.24	--	7.38
MW-8	03/01/23	10.63	2.73	--	7.90
	09/19/23	10.63	4.25	--	6.38
MW-9	03/01/23	9.75	2.09	--	7.66
	09/19/23	9.75	3.30	--	6.45
MW-12R	03/01/23	15.47	6.69	--	8.78
	09/19/23	15.47	8.11	--	7.36
MW-14	03/01/23	11.44	2.29	--	9.15
	09/19/23	11.44	4.23	--	7.21
MW-16	03/01/23	15.23	--	--	--
	09/19/23	15.23	7.74	--	7.49
MW-18	03/01/23	15.49	6.05	--	9.44
	09/19/23	15.49	7.69	--	7.80
MW-19	03/01/23	11.39	1.83	--	9.56
	09/19/23	11.39	3.38	--	8.01
MW-20	03/01/23	11.72	2.35	--	9.37
	09/19/23	11.72	4.13	--	7.59
MW-21	03/01/23	9.41	2.26	--	7.15
	09/19/23	9.41	3.31	--	6.10
MW-22	03/01/23	16.32	7.17	--	9.15
	09/19/23	16.32	8.96	--	7.36
MW-23	03/01/23	14.15	7.12	--	7.03
	09/19/23	14.15	7.71	--	6.44
MW-24	03/01/23	14.34	7.42	--	6.92
	09/19/23	14.34	7.72	--	6.62
MW-25	03/01/23	13.05	--	--	--
	09/19/23	13.05	--	--	--
SH-02R	03/01/23	13.4	4.72	--	8.68
	09/19/23	13.4	6.22	--	7.18
SH-05R	03/01/23	13.89	6.41	--	7.48
	09/19/23	13.89	7.30	--	6.59
MW-07R	03/01/23	13.92	5.27	--	8.65
	09/19/23	13.92	6.96	--	6.96
TMW-B1	03/01/23	--	6.96	--	--
	09/19/23	--	8.31	--	--
TMW-1	03/01/23	--	2.33	--	--
	09/19/23	--	4.08	--	--
TMW-2	03/01/23	--	2.44	--	--
	09/19/23	--	4.22	--	--
TMW-3	03/01/23	--	2.61	--	--
	09/19/23	--	4.14	--	--
TMW-4	03/01/23	--	2.05	--	--
	09/19/23	--	3.04	--	--

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[1] (feet)	Depth to Groundwater (feet BTOC)	SPH Thickness (feet)	Groundwater Elevation[1] (feet)
TMW-5	03/01/23	--	2.34	--	--
	09/19/23	--	3.74	--	--
TMW-6	03/01/23	--	1.57	--	--
	09/19/23	--	2.80	--	--

Notes:
-- = not measured/not applicable
BTOC = below top of casing (TOC); depth to groundwater measured from TOC
SPH = separate-phase hydrocarbons
1. MW cover of A-11 and MW-25 couldnot be removed during 2023 groundwater monitoring event and therefore not gauged.
2. Groundwater elevation at wells with separate-phase hydrocarbons (SPH) corrected for SPH thickness using a specific gravity of 0.8, which is generally within the range of values presented in the American Petroleum Institute's LNAPL Parameters database for gasoline and diesel fuel.
3. MW-16 was blocked 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	DRO, SGC	HO, SGC	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead	Dissolved Lead
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Site-Specific Cleanup Levels:		**1.0**	**10**	**10**	**0.071**	**200**	**29.0**	**N/A**	**0.0058**	**0.0058**
A-5	03/02/23	**0.510 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/22/23	<1.00	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-8	09/22/23	<1.00	**1.400**	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-10	09/22/23	<0.100	**0.525**	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-14R	09/22/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
A-21	03/02/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/21/23	**0.225 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
A-23R	09/20/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
A-27	03/03/23	**1.610**	--	--	**0.0277**	<0.00100	**0.0289**	**0.00486**	--	--
	09/21/23	**1.280**	--	--	**0.00940**	<0.00100	<0.00100	<0.00300	--	--
A-28R	03/03/23	**2.180**	--	--	**0.00294**	**0.00168**	**0.00469**	<0.00300	--	--
	09/21/23	**2.490**	--	--	**0.0378**	**0.00285**	**0.00214**	<0.00300	<0.00200	<0.00200
11	03/03/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/21/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
12	03/03/23	**2.140**	--	--	**0.00793**	**0.00373**	**0.0731**	**0.0439**	--	--
	09/21/23	**2.610**	**1.200**	<0.250	**0.00929**	**0.0108**	**0.0886**	**0.194**	**0.00903**	**0.00403**
MW-1	09/22/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
MW-2	09/20/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
MW-3	09/20/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
MW-4	09/22/23	**0.150**	**1.000**	**1.900**	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-5	09/20/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	**0.00326**	<0.00200
MW-6	09/22/23	**0.229 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
MW-7	03/03/23	**0.128 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/21/23	**0.571**	--	--	<0.00100	**0.00178**	**0.0110**	**0.00670**	**0.00445**	**0.00333**
MW-7 (DUP)	03/03/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/21/23	**0.622**	--	--	<0.00100	**0.00189**	**0.00953**	**0.00697**	**0.00390**	**0.00411**
MW-07R	09/22/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
MW-8	09/21/23	<0.100	**0.290**	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	**0.0104**	**0.00698**
MW-9	03/02/23	**0.148 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/20/23	**0.325 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	**0.00922**	<0.00200
MW-12R	09/22/23	<1.000	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
MW-14	09/20/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-16	09/22/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-18	03/03/23	**0.183 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/20/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-19	03/02/23	**1.330**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/19/23	**0.537 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-20	09/20/23	<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	DRO, SGC	HO, SGC	Benzene	Toluene	Ethylbenzene	Xylenes	Total Lead	Dissolved Lead
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Site-Specific Cleanup Levels:		**1.0**	**10**	**10**	**0.071**	**200**	**29.0**	**N/A**	**0.0058**	**0.0058**
MW-21	03/02/23	<0.100	<0.100	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/21/23	**0.272**	**3.480**	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-21 (DUP)	03/02/23	<0.100	<0.100	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/21/23	**0.248**	**4.820**	<0.500	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-22	09/20/23	<0.100	**0.381**	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--
MW-23	03/03/23	**2.440 B**	--	--	**0.0624**	<0.00500	<0.00500	<0.0150	--	--
	09/21/23	**2.740 B**	--	--	**0.154**	**0.00665**	<0.00500	<0.0150	<0.00200	<0.00200
MW-24	03/03/23	**7.160**	--	--	**0.301**	**0.0178**	**0.508**	**0.150**	--	--
	09/21/23	**7.730**	--	--	**0.552**	**0.0284**	**0.876**	**0.141**	<0.00200	<0.00200
SH-02R	09/22/23	<0.100	<0.200	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
SH-05R	09/22/23	<0.100	**0.247**	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200
TMW-B1	09/21/23	**7.120**	--	--	**0.00764**	**0.00170**	**0.0756**	**0.0149**	--	--
TMW-1	03/02/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/19/23	**0.112 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
TMW-2	03/02/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/20/23	<0.100	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
TMW-3	03/03/23	**0.146 B**	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--
	09/21/23	**0.401**	--	--	<0.00100	<0.00100	**0.00125**	<0.00300	--	--
TMW-4	03/02/23	**2.090**	--	--	<0.00500	<0.00500	**0.00691**	<0.0150	--	--
	09/21/23	**3.080**	--	--	<0.00500	**0.0136**	**0.101**	**0.0349**	--	--
TMW-5	03/02/23	**0.986**	--	--	<0.00100	<0.00100	**0.00776**	<0.00300	--	--
	09/20/23	**0.840**	--	--	**0.00668**	**0.00165**	<0.00100	**0.00455**	--	--
TMW-6	03/02/23	**5.690 B**	--	--	<0.0100	<0.0100	**0.224**	**0.279**	--	--
	09/20/23	**5.620 B**	--	--	<0.0100	<0.0100	**0.522**	**0.618**	--	--

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.

USEPA = United States Environmental Protection Agency

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 USEPA 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

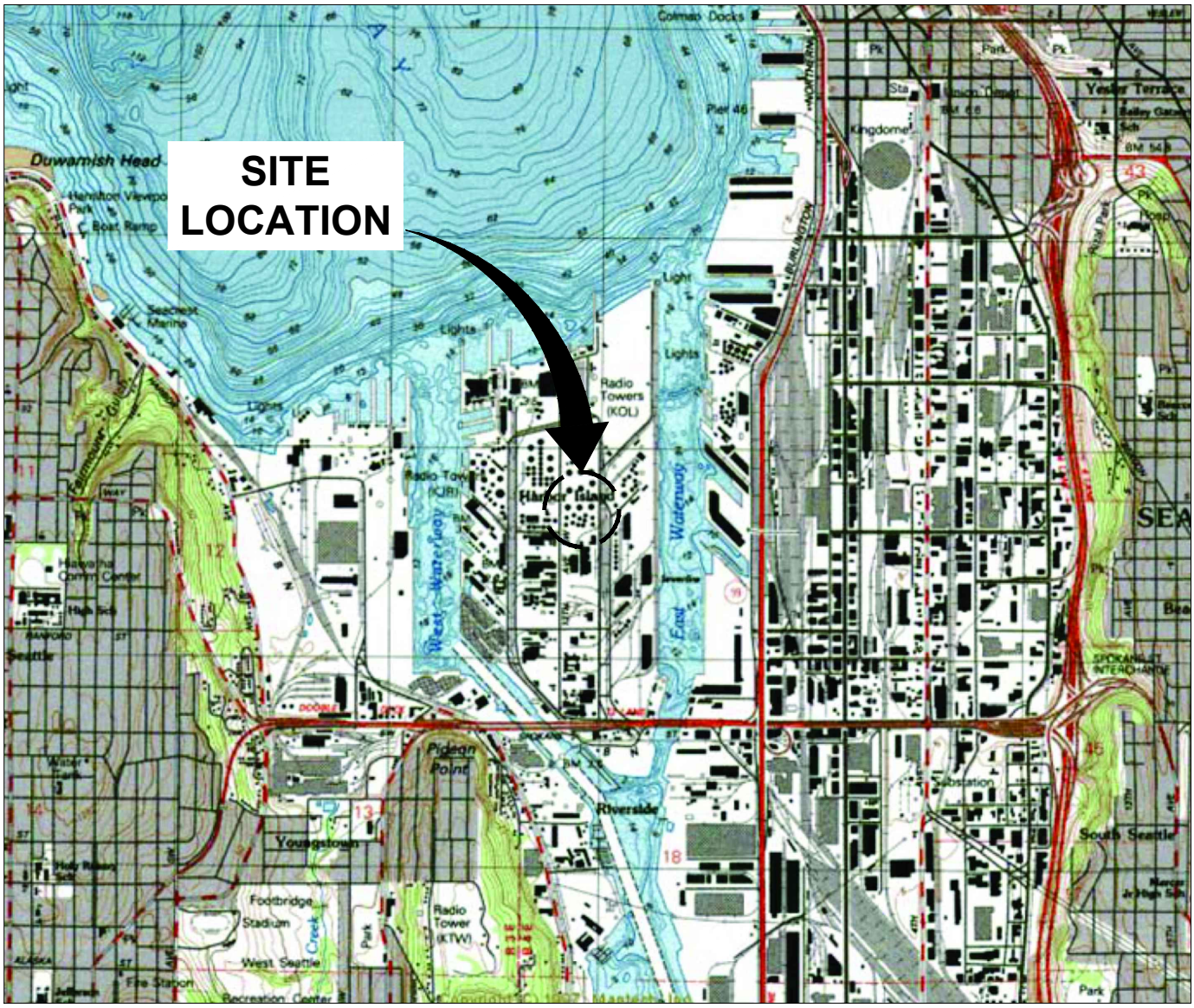
Well ID	Date Sampled	Dissolved Oxygen[1]	Methane	Total Iron	Dissolved Iron	Ferrous Iron	Nitrate	Sulfate	Sulfide
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
A-5	03/02/23	8.32	--	--	--	--	--	--	--
	09/22/23	0.12	--	--	--	--	--	--	--
A-8	09/22/23	0.01	--	--	--	--	--	--	--
A-10	09/22/23	0.05	--	--	--	--	--	--	--
A-14R	09/22/23	0.09	--	--	--	--	--	--	--
A-21	03/02/23	8.96	--	--	--	--	--	--	--
	09/21/23	0.11	--	--	--	--	--	--	--
A-23R	09/20/23	0.10	--	--	--	--	--	--	--
A-27	03/03/23	7.87	--	--	--	--	--	--	--
	09/21/23	0.11	**2.91**	--	--	**9.39 T8**	**0.102 P1**	<5.00	<0.0500
A-28R	03/03/23	8.39	--	--	--	--	--	--	--
	09/21/23	0.06	**6.30**	--	--	**22.5 T8**	**0.216**	**9.67**	<0.0500
11	03/03/23	10.92	--	--	--	--	--	**218**	--
	09/21/23	0.50	--	--	--	--	--	**193**	--
12	03/03/23	0.11	--	--	--	--	--	**1,280**	--
	09/21/23	0.03	--	--	--	--	--	**756**	--
MW-1	09/22/23	0.08	--	--	--	--	--	--	--
MW-2	09/20/23	0.11	--	--	--	--	--	--	--
MW-3	09/20/23	0.33	--	--	--	--	--	--	--
MW-4	09/22/23	0.07	--	--	--	--	--	--	--
MW-5	09/20/23	0.33	--	--	--	--	--	--	--
MW-6	09/22/23	0.10	--	--	--	--	--	--	--
MW-7	03/03/23	2.37	--	--	--	--	--	**694**	--
	09/21/23	0.02	--	--	--	--	--	**525**	--
MW-7 (DUP)	03/03/23	2.37	--	--	--	--	--	**692**	--
	09/21/23	0.02	--	--	--	--	--	**528**	--
MW-07R	09/22/23	0.10	--	--	--	--	--	--	--
MW-8	09/21/23	1.25	--	--	--	--	--	--	--
MW-9	03/02/23	7.03	--	--	--	--	--	**6.23**	--
	09/20/23	0.48	--	--	--	--	--	<5.00	--
MW-12R	09/22/23	0.05	--	--	--	--	--	--	--
MW-14	09/20/23	0.11	--	--	--	--	--	--	--
MW-16	09/22/23	1.28	--	--	--	--	--	--	--
MW-18	03/03/23	0.48	--	--	--	--	--	--	--
	09/20/23	0.13	--	--	--	--	--	--	--
MW-19	03/02/23	9.72	--	--	--	--	--	**764**	--
	09/19/23	0.06	--	--	--	--	--	**1,080**	--
MW-20	09/20/23	0.16	--	--	--	--	--	--	--

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[1]	Methane	Total Iron	Dissolved Iron	Ferrous Iron	Nitrate	Sulfate	Sulfide
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MW-21	03/02/23	0.98	--	--	--	--	--	--	--
	09/21/23	0.02	--	--	--	--	--	--	--
MW-21 (DUP)	03/02/23	0.98	--	--	--	--	--	--	--
	09/21/23	0.02	--	--	--	--	--	--	--
MW-22	09/20/23	0.06	--	--	--	--	--	--	--
MW-23	03/03/23	0.18	--	--	--	--	--	--	--
	09/21/23	0.14	**8.62**	--	--	**13.5 T8**	**0.197**	<5.00	<0.0500
MW-24	03/03/23	7.27	--	--	--	--	--	--	--
	09/21/23	0.10	**12.5**	--	--	**54.7 T8**	**0.161**	<5.00	<0.0500
SH-02R	09/22/23	0.11	--	--	--	--	--	--	--
SH-05R	09/22/23	0.23	--	--	--	--	--	--	--
TMW-B1	09/21/23	0.14	**12.2**	--	--	**31.0 T8**	**0.225**	<5.00	<0.0500
TMW-1	03/02/23	11.55	--	--	--	--	--	**204**	--
	09/19/23	1.01	--	--	--	--	--	**158**	--
TMW-2	03/02/23	11.14	--	--	--	--	--	**901**	--
	09/20/23	0.11	--	--	--	--	--	**1,030**	--
TMW-3	03/03/23	0.40	--	--	--	--	--	**1,830**	--
	09/21/23	0.05	--	--	--	--	--	**573**	--
TMW-4	03/02/23	0.35	--	--	--	--	--	**1,550**	--
	09/21/23	0.02	--	--	--	--	--	**175**	--
TMW-5	03/02/23	1.08	--	--	--	--	--	**2,010**	--
	09/21/23	0.00	--	--	--	--	--	**636**	--
TMW-6	03/02/23	0.20	--	--	--	--	--	**2,800**	--
	09/20/23	0.03	--	--	--	--	--	**415**	--

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
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.
mg/L = milligrams per liter (parts per million)
1. Dissolved oxygen measurements were collected in the field and reflect the final reading recorded following stabilization and prior to sample collection.

Figures



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

N

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

KINDER MORGAN LIQUIDS TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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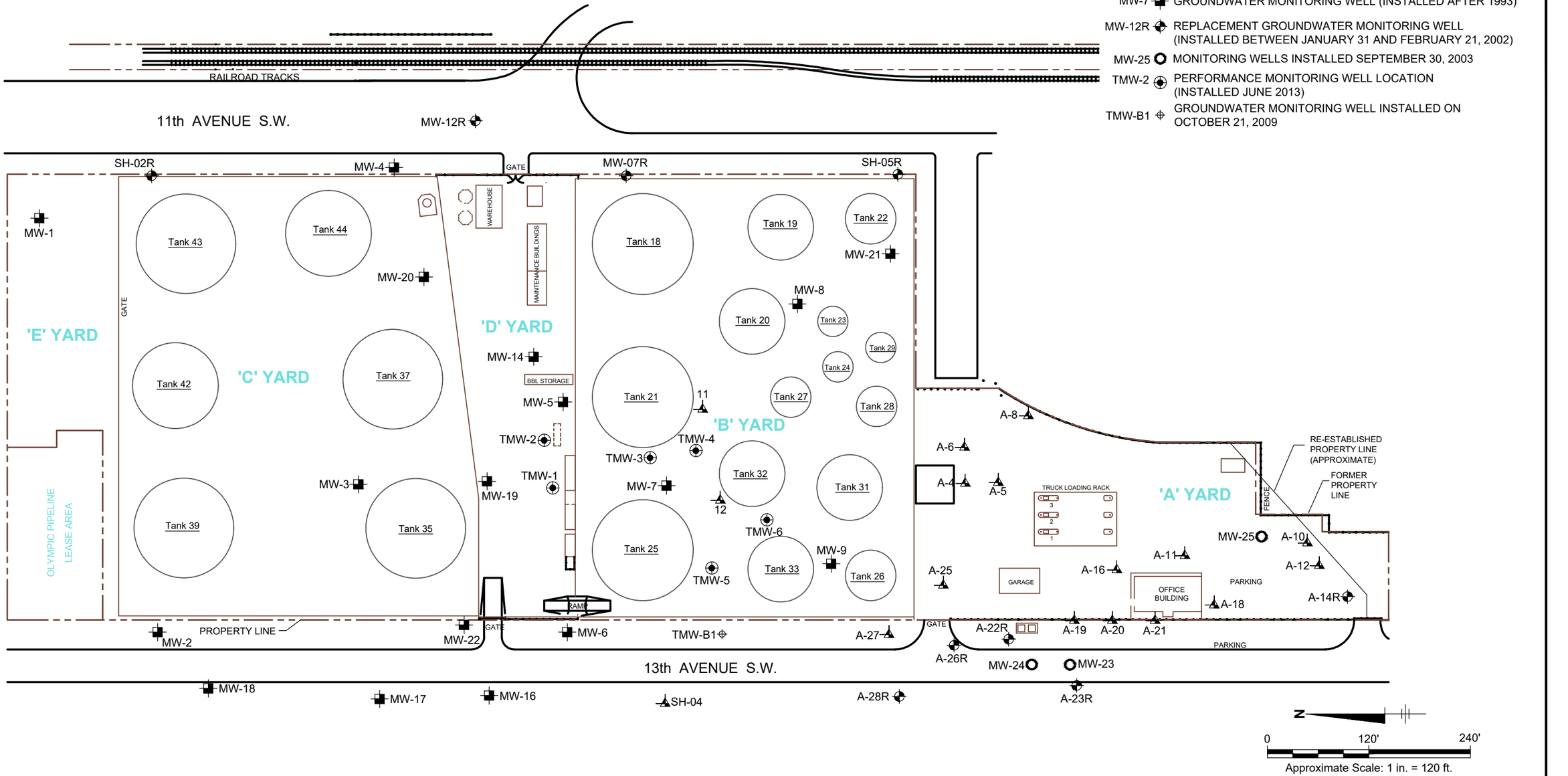
WA000804 GoogleAerial.jpg
WA000804 USGS.jpg



KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

SITE PLAN

ARCADIS

FIGURE
2

'C' YARD

'D' YARD

'B' YARD

Tank 37

Tank 35

Tank 21

Tank 25

Tank 20

Tank 27

Tank 32

Tank 33

BBL STORAGE

RAMP

GATE

MW-14

MW-5

MW-19

MW-22

MW-6

MW-7

TMW-1

TMW-2

TMW-3

TMW-4

TMW-5

TMW-6

TMW-B1

11

12

IRRIGATION PIPING AND ROTOR LOCATION (INSTALLED SEPTEMBER 2015)

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)
- WATER SOURCE LOCATION
- TMW-2 — PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-B1 — GROUNDWATER MONITORING WELL INSTALLED ON OCTOBER 21, 2009
- IRRIGATION ROTOR LOCATION
- IRRIGATION PIPING
- CONCRETE WALL
- SULFATE APPLICATION AREA; JUNE 2013
- APPROXIMATE BOUNDARY OF THE SUPPLEMENTAL SULFATE APPLICATION AREA; APPLIED IN SEPTEMBER 2015
- APPROXIMATE BOUNDARY OF THE SUPPLEMENTAL SULFATE APPLICATION AREA; APPLIED IN OCTOBER 2016
- SULFATE APPLICATION AREA; JULY 2021
- APPROXIMATE BOUNDARY OF THE SUPPLEMENTAL SULFATE APPLICATION AREA; APPLIED IN APRIL 2018, NOVEMBER 2018, DECEMBER 2019, SEPTEMBER 2022, AND OCTOBER 2023
- THERE WAS A STANDING WATER IN OCTOBER 2016 AND THEREFORE EPSOM WAS NOT APPLIED IN THIS AREA.

N

0 40' 80'

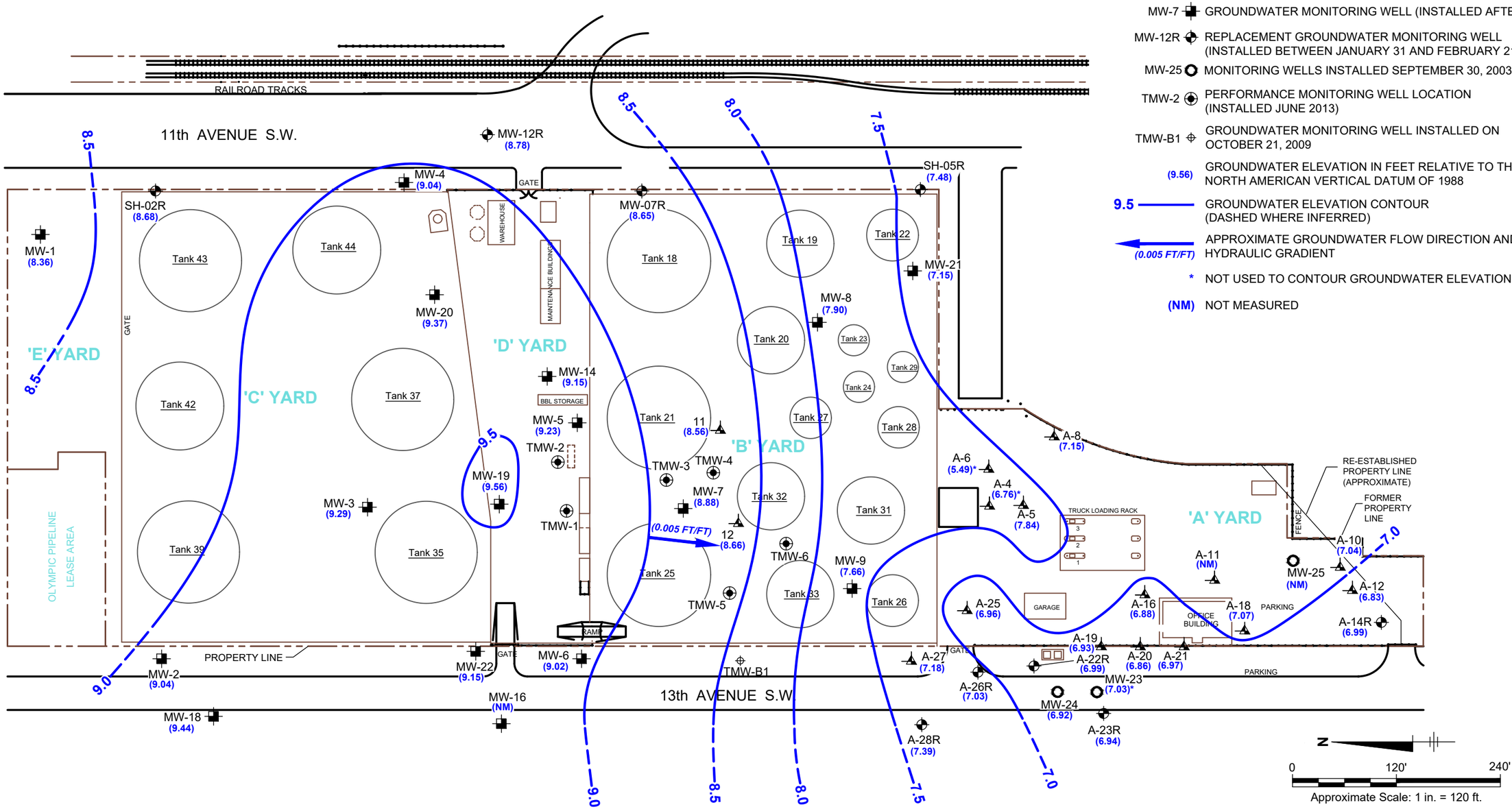
Approximate Scale: 1 in. = 40 ft.

KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

REMEDIAL SULFATE APPLICATION AREA

ARCADIS

FIGURE 3



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
- (9.56) — GROUNDWATER ELEVATION IN FEET RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988
- 9.5 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- (0.005 FT/FT) — APPROXIMATE GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT
- * — NOT USED TO CONTOUR GROUNDWATER ELEVATIONS
- (NM) — NOT MEASURED

KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

GROUNDWATER ELEVATION CONTOURS MARCH 1, 2023

ARCADIS

FIGURE 4

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\agnihots3398\DCACCDocs\Arcadis\AUS-KMI-HARBOR ISLAND TERMINAL-SEATTLE Washington\Project Files\2023\01-In Progress\01-DWG\GWM-2023Q1-F04-GWM-GW ELEVATION CONTOURS.dwg LAYOUT: 4 SAVED: 1/18/2024 5:25 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---
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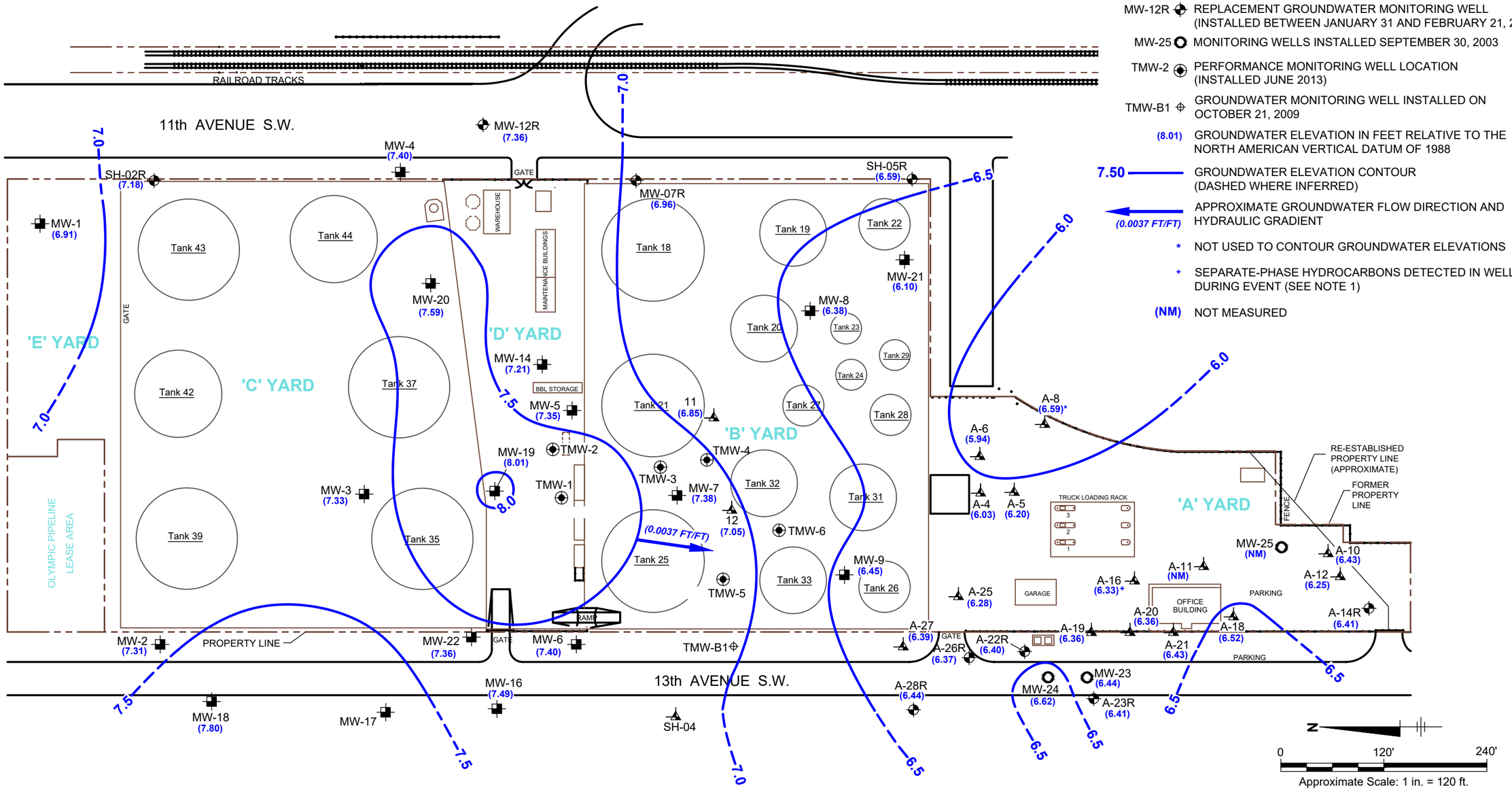

0 120' 240'

Approximate Scale: 1 in. = 120 ft.

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
- (8.01) — GROUNDWATER ELEVATION IN FEET RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988
- 7.50 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- (0.0037 FT/FT) — APPROXIMATE GROUNDWATER FLOW DIRECTION AND HYDRAULIC GRADIENT
- * — NOT USED TO CONTOUR GROUNDWATER ELEVATIONS
- + — SEPARATE-PHASE HYDROCARBONS DETECTED IN WELL DURING EVENT (SEE NOTE 1)
- (NM) — NOT MEASURED

NOTE:
1. GROUNDWATER ELEVATION AT WELLS WITH SEPARATE-PHASE HYDROCARBON (SPH) CORRECTED FOR SPH THICKNESS USING THE SPECIFIC GRAVITY OF DIESEL (0.8).

KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

GROUNDWATER ELEVATION CONTOURS SEPTEMBER 19, 2023

ARCADIS

FIGURE 5

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(On)ON=*;OFF=*REF*
C:\Users\agnihots3396\DCACCDocs\Arcadis\AUS-KM-HARBOR ISLAND TERMINAL-SEATTLE Washington\Project Files\2023\01-In Progress\01-DWG\GWM-2023Q3-F05-GWM-GW ELEVATION CONTOURS.dwg LAYOUT: 5 SAVED: 1/12/2024 1:43 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---
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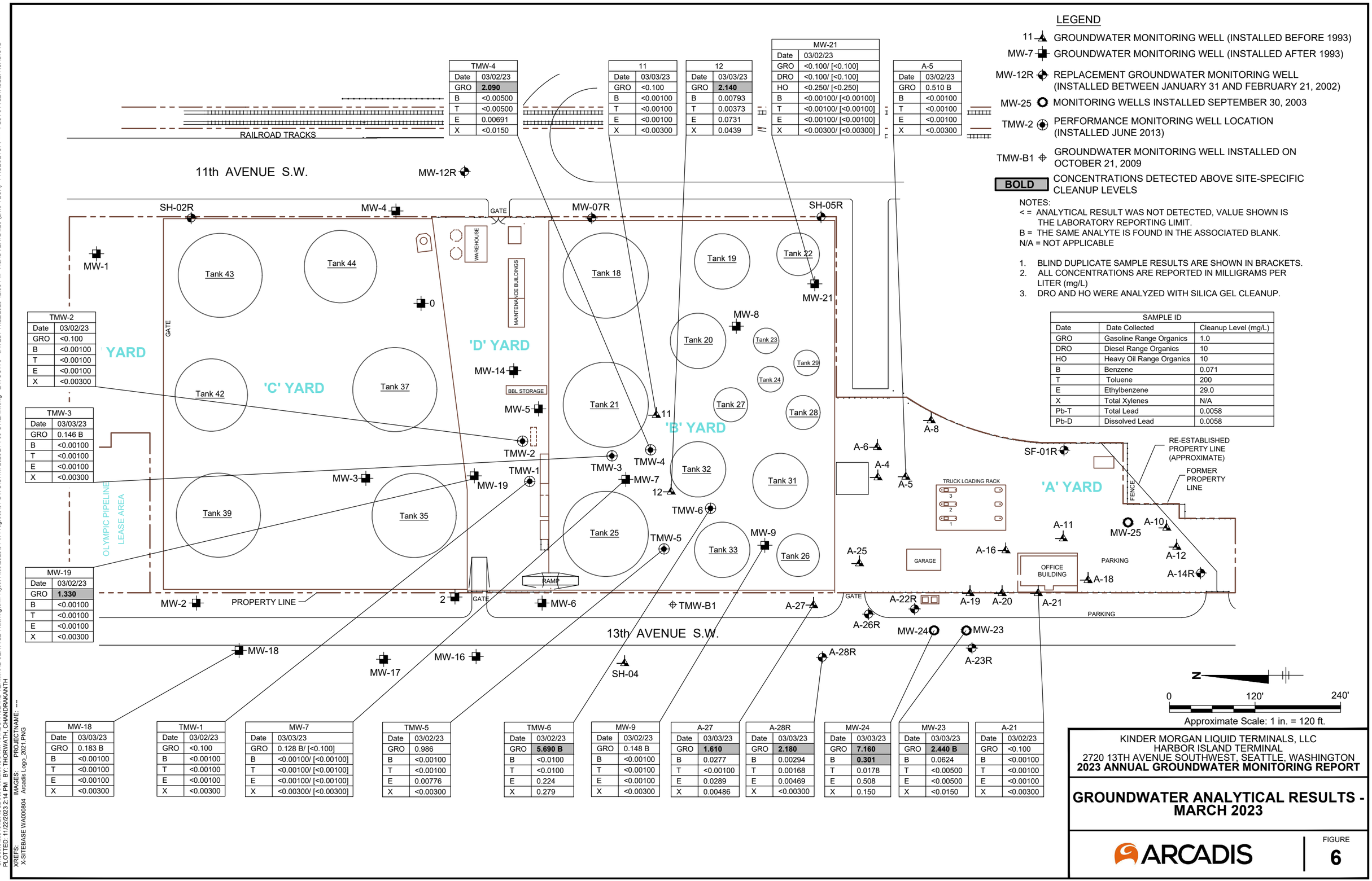


TMW-4	
Date	03/02/23
GRO	**2.090**
B	<0.00500
T	<0.00500
E	0.00691
X	<0.0150

11	
Date	03/03/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

12	
Date	03/03/23
GRO	**2.140**
B	0.00793
T	0.00373
E	0.0731
X	0.0439

MW-21	
Date	03/02/23
GRO	<0.100/ [<0.100]
DRO	<0.100/ [<0.100]
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]

A-5	
Date	03/02/23
GRO	0.510 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-2	
Date	03/02/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-3	
Date	03/03/23
GRO	0.146 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-19	
Date	03/02/23
GRO	**1.330**
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

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.
B = THE SAME ANALYTE IS FOUND IN THE ASSOCIATED BLANK.
N/A = NOT APPLICABLE

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	Cleanup Level (mg/L)
GRO	Gasoline Range Organics	1.0
DRO	Diesel Range Organics	10
HO	Heavy Oil Range Organics	10
B	Benzene	0.071
T	Toluene	200
E	Ethylbenzene	29.0
X	Total Xylenes	N/A
Pb-T	Total Lead	0.0058
Pb-D	Dissolved Lead	0.0058

MW-18	
Date	03/03/23
GRO	0.183 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-1	
Date	03/02/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-7	
Date	03/03/23
GRO	0.128 B/ [<0.100]
B	<0.00100/ [<0.00100]
T	<0.00100/ [<0.00100]
E	<0.00100/ [<0.00100]
X	<0.00300/ [<0.00300]

TMW-5	
Date	03/02/23
GRO	0.986
B	<0.00100
T	<0.00100
E	0.00776
X	<0.00300

TMW-6	
Date	03/02/23
GRO	**5.690 B**
B	<0.0100
T	<0.0100
E	0.224
X	0.279

MW-9	
Date	03/02/23
GRO	0.148 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

A-27	
Date	03/03/23
GRO	**1.610**
B	0.0277
T	<0.00100
E	0.0289
X	0.00486

A-28R	
Date	03/03/23
GRO	**2.180**
B	0.00294
T	0.00168
E	0.00469
X	<0.00300

MW-24	
Date	03/03/23
GRO	**7.160**
B	**0.301**
T	0.0178
E	0.508
X	0.150

MW-23	
Date	03/03/23
GRO	**2.440 B**
B	0.0624
T	<0.00500
E	<0.00500
X	<0.0150

A-21	
Date	03/02/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

Approximate Scale: 1 in. = 120 ft.

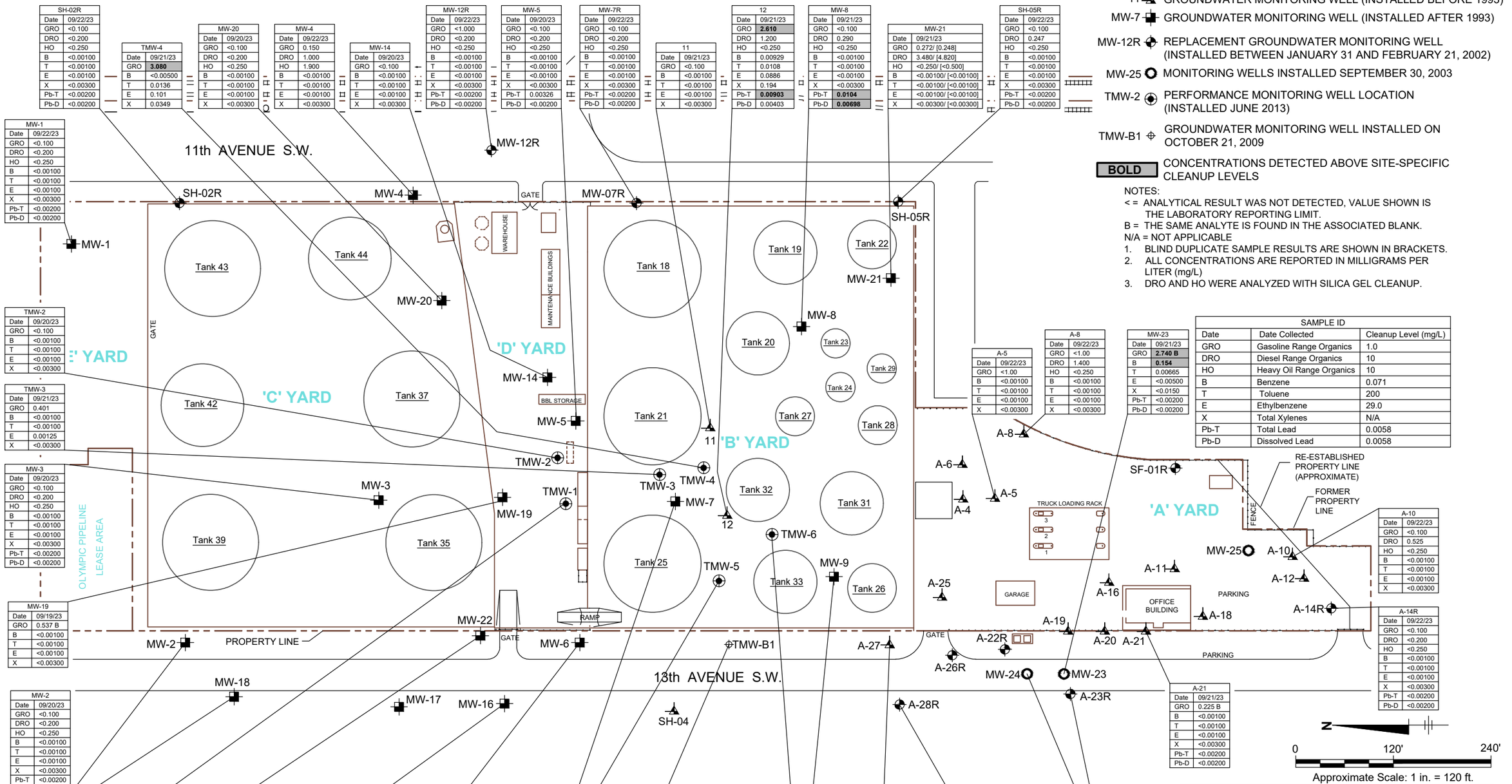
KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

GROUNDWATER ANALYTICAL RESULTS - MARCH 2023

ARCADIS

FIGURE 6

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\cti01012\ACCDocs\Arcadis\AUS-KM-HARBOR ISLAND TERMINAL-SEATTLE Washington\Project Files\2023\01-In Progress\01-DWG\GWM-2023Q1-F06-GWEAM.dwg LAYOUT: 6 SAVED: 11/22/2023 12:38 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ACAD.CTB
PLOTTED: 11/22/2023 2:14 PM BY: THORWATH, CHANDRAKANTH
XREFS: IMAGES: PROJECTNAME: ----
X-SITEBASE WA000804 Arcadis Logo_2021.PNG



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:
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B = THE SAME ANALYTE IS FOUND IN THE ASSOCIATED BLANK.
N/A = NOT APPLICABLE
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	Cleanup Level (mg/L)
GRO	Gasoline Range Organics	1.0
DRO	Diesel Range Organics	10
HO	Heavy Oil Range Organics	10
B	Benzene	0.071
T	Toluene	200
E	Ethylbenzene	29.0
X	Total Xylenes	N/A
Pb-T	Total Lead	0.0058
Pb-D	Dissolved Lead	0.0058

SH-02R	
Date	09/22/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

TMW-4	
Date	09/21/23
GRO	**3.080**
B	<0.00500
T	0.0136
E	0.101
X	0.0349

MW-20	
Date	09/20/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-4	
Date	09/22/23
GRO	0.150
DRO	1.000
HO	1.900
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-14	
Date	09/20/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-12R	
Date	09/22/23
GRO	<1.000
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

MW-5	
Date	09/20/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	0.00326
Pb-D	<0.00200

MW-7R	
Date	09/22/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

11	
Date	09/21/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

12	
Date	09/21/23
GRO	**2.610**
DRO	1.200
HO	<0.250
B	0.00929
T	0.0108
E	0.0886
X	0.194
Pb-T	**0.00903**
Pb-D	0.00403

MW-8	
Date	09/21/23
GRO	<0.100
DRO	0.290
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	**0.0104**
Pb-D	**0.00698**

MW-21	
Date	09/21/23
GRO	0.272/ [0.248]
DRO	3.480/ [4.820]
HO	<0.250/ [<0.500]
B	<0.00100/ [<0.00100]
T	<0.00100/ [<0.00100]
E	<0.00100/ [<0.00100]
X	<0.00300/ [<0.00300]

SH-05R	
Date	09/22/23
GRO	<0.100
DRO	0.247
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

MW-1	
Date	09/22/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

TMW-2	
Date	09/20/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-3	
Date	09/21/23
GRO	0.401
B	<0.00100
T	<0.00100
E	0.00125
X	<0.00300

MW-3	
Date	09/20/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

MW-19	
Date	09/19/23
GRO	0.537 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-2	
Date	09/20/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

A-5	
Date	09/22/23
GRO	<1.00
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

A-8	
Date	09/22/23
GRO	<1.00
DRO	1.400
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-23	
Date	09/21/23
GRO	**2.740 B**
B	**0.154**
T	0.00665
E	<0.00500
X	<0.0150
Pb-T	<0.00200
Pb-D	<0.00200

A-10	
Date	09/22/23
GRO	<0.100
DRO	0.525
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

A-14R	
Date	09/22/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

A-21	
Date	09/21/23
GRO	0.225 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

MW-18	
Date	09/20/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

TMW-1	
Date	09/19/23
GRO	0.112 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-22	
Date	09/20/23
GRO	<0.100
DRO	0.381
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-16	
Date	09/22/23
GRO	<0.100
DRO	<0.200
HO	<0.250
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

MW-6	
Date	09/22/23
GRO	0.229 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

MW-7	
Date	09/21/23
GRO	0.571/ [0.622]
B	<0.00100/ [<0.00100]
T	0.00178/ [0.00189]
E	0.0110/ [0.00953]
X	0.00670/ [0.00697]
Pb-T	0.00445/ [0.00390]
Pb-D	0.00333/ [0.00411]

TMW-5	
Date	09/20/23
GRO	0.840
B	0.00668
T	0.00165
E	<0.00100
X	0.00455

TMW-B1	
Date	09/21/23
GRO	**7.120**
B	0.00764
T	0.00170
E	0.0756
X	0.0149

TMW-6	
Date	09/20/23
GRO	**5.620 B**
B	<0.0100
T	<0.0100
E	0.522
X	0.618

MW-9	
Date	09/20/23
GRO	0.325 B
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300
Pb-T	**0.00922**
Pb-D	<0.00200

A-27	
Date	09/21/23
GRO	**1.280**
B	0.00940
T	<0.00100
E	<0.00100
X	<0.00300

A-28R	
Date	09/21/23
GRO	**2.490**
B	0.0378
T	0.00285
E	0.00214
X	<0.00300
Pb-T	<0.00200
Pb-D	<0.00200

MW-24	
Date	09/21/23
GRO	**7.730**
B	**0.552**
T	0.0284
E	0.876
X	0.141
Pb-T	<0.00200
Pb-D	<0.00200

A-23R	
Date	09/20/23
GRO	<0.100
B	<0.00100
T	<0.00100
E	<0.00100
X	<0.00300

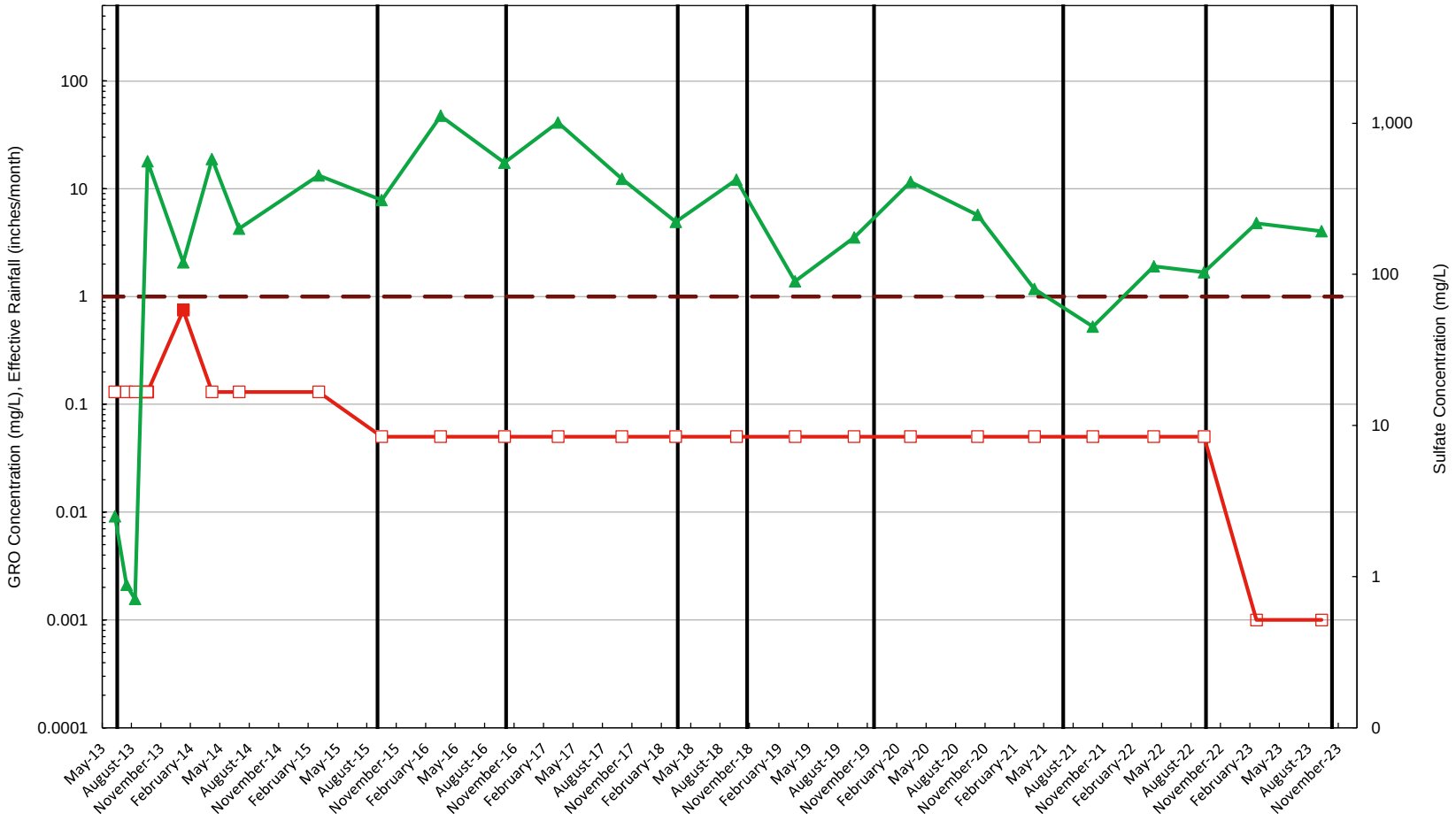
KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

GROUNDWATER ANALYTICAL RESULTS - SEPTEMBER 2023

ARCADIS

FIGURE 7

Graphs



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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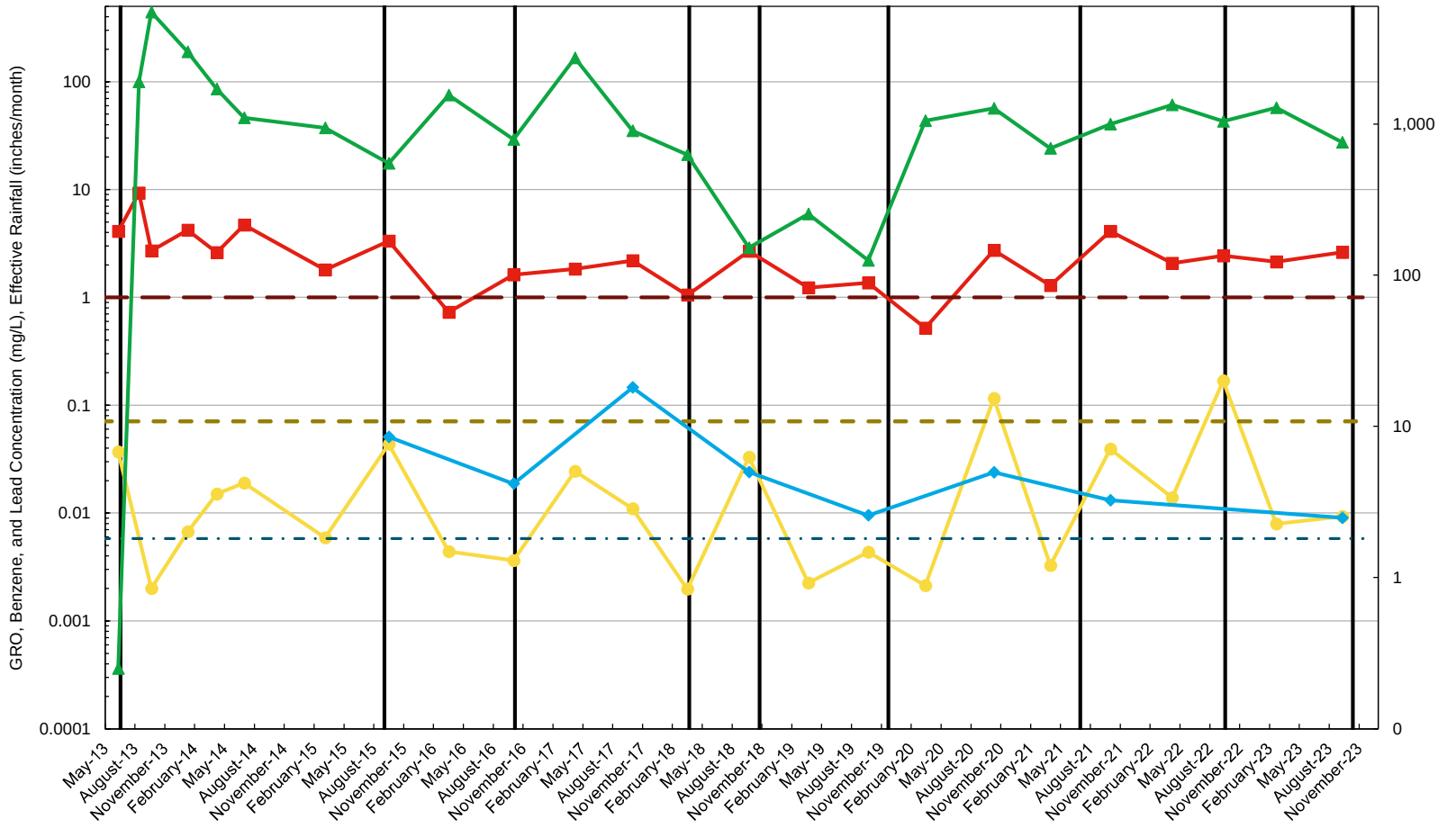
2023 ANNUAL GROUNDWATER MONITORING REPORT

11 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
1



Sulfate Land Application
Site-Specific Cleanup Level; GRO
Site-Specific Cleanup Level; Benzene
Site-Specific Cleanup Level; Total Lead
GRO
Benzene
Total Lead
Sulfate

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

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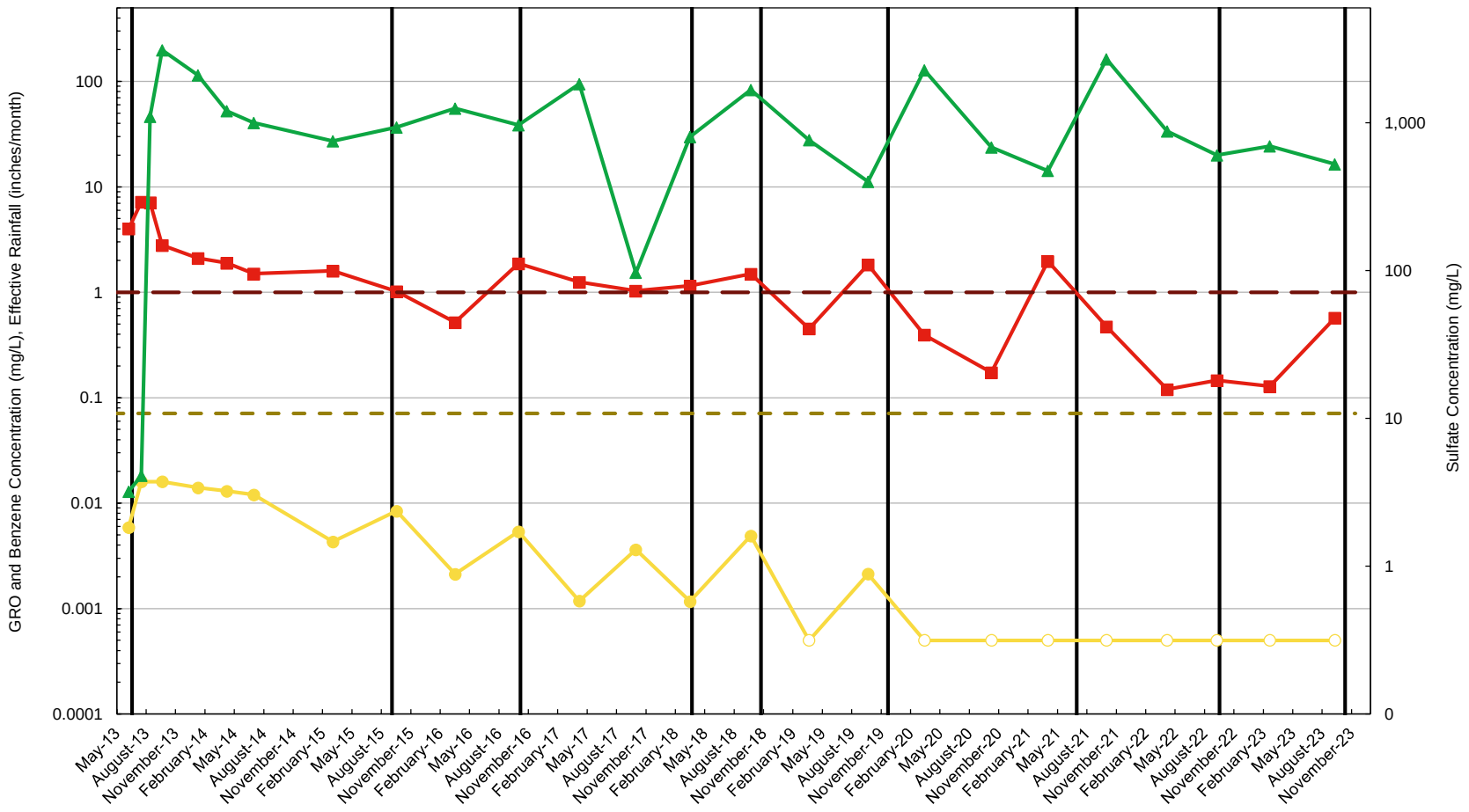
2023 ANNUAL GROUNDWATER MONITORING REPORT

12 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
2



Sulfate Land Application
GRO
Site-Specific Cleanup Level; GRO
Benzene
Site-Specific Cleanup Level; Benzene
Sulfate

Notes:
1. GRO = gasoline range organics
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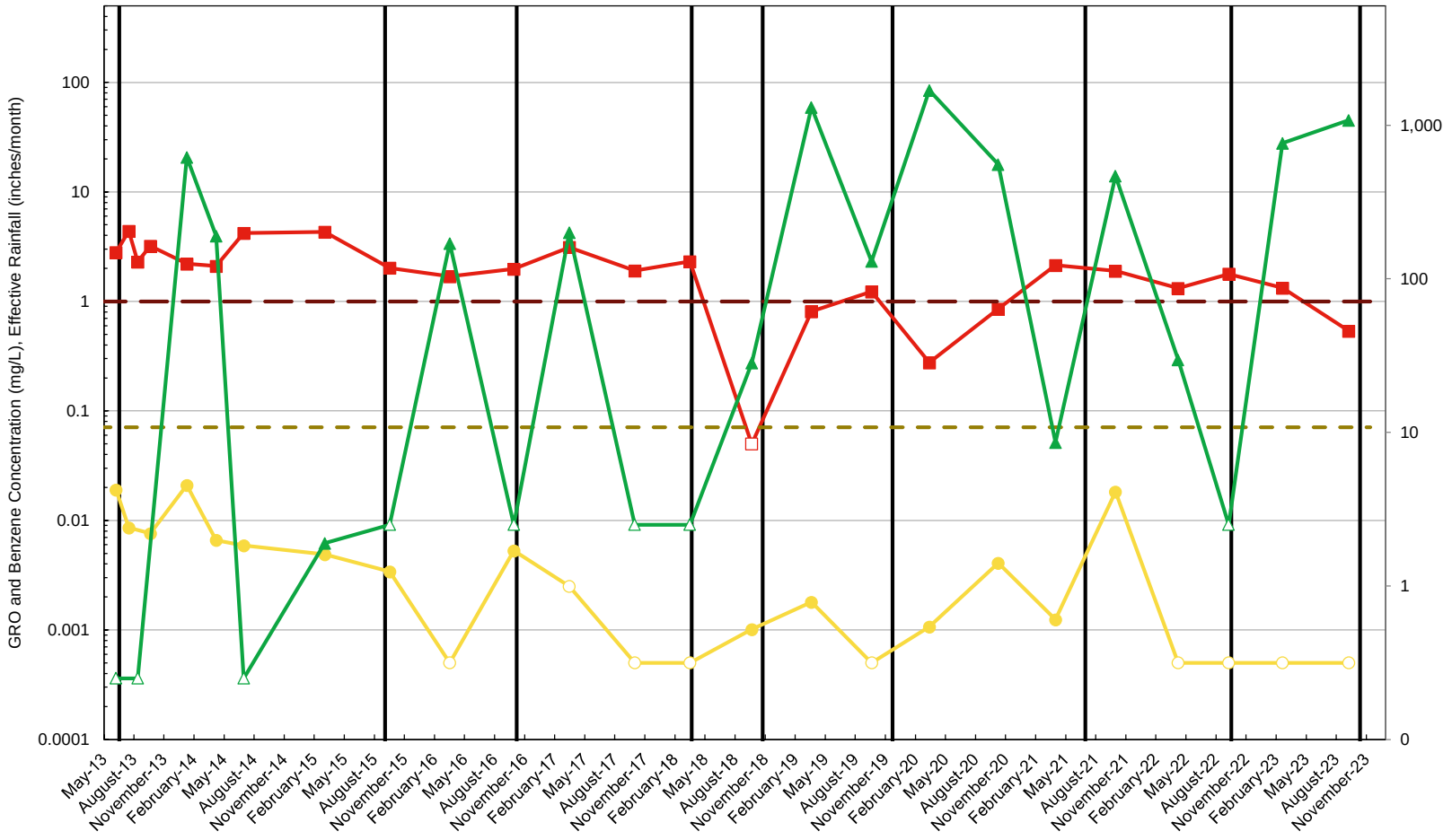
2023 ANNUAL GROUNDWATER MONITORING REPORT

MW-7 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
3



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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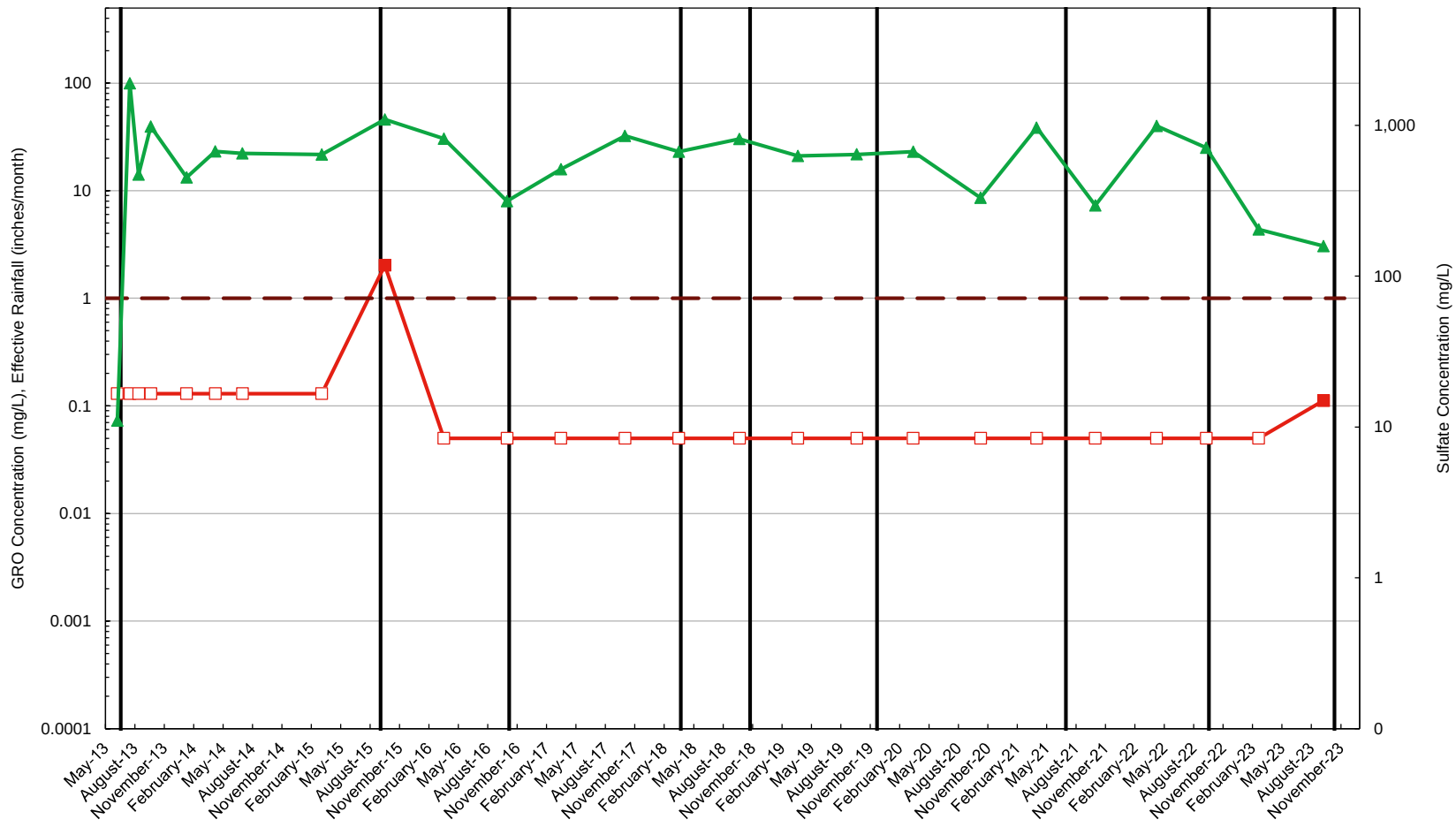
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

MW-19 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
4



Sulfate Land Application

GRO

Site-Specific Cleanup Level; GRO

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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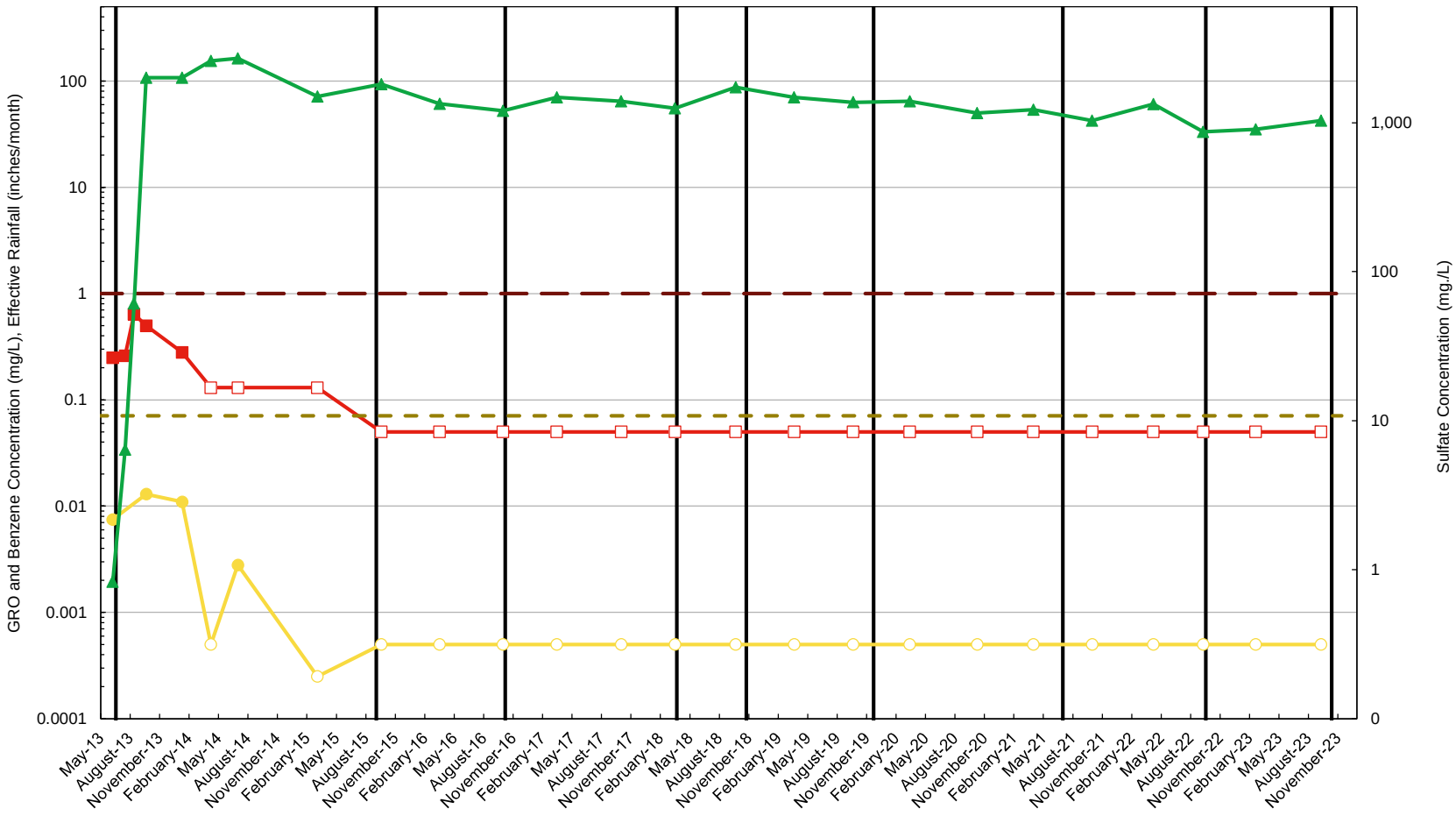
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

TMW-1 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
5



- Sulfate Land Application
- GRO
- Site-Specific Cleanup Level; GRO
- Benzene
- Site-Specific Cleanup Level; Benzene
- 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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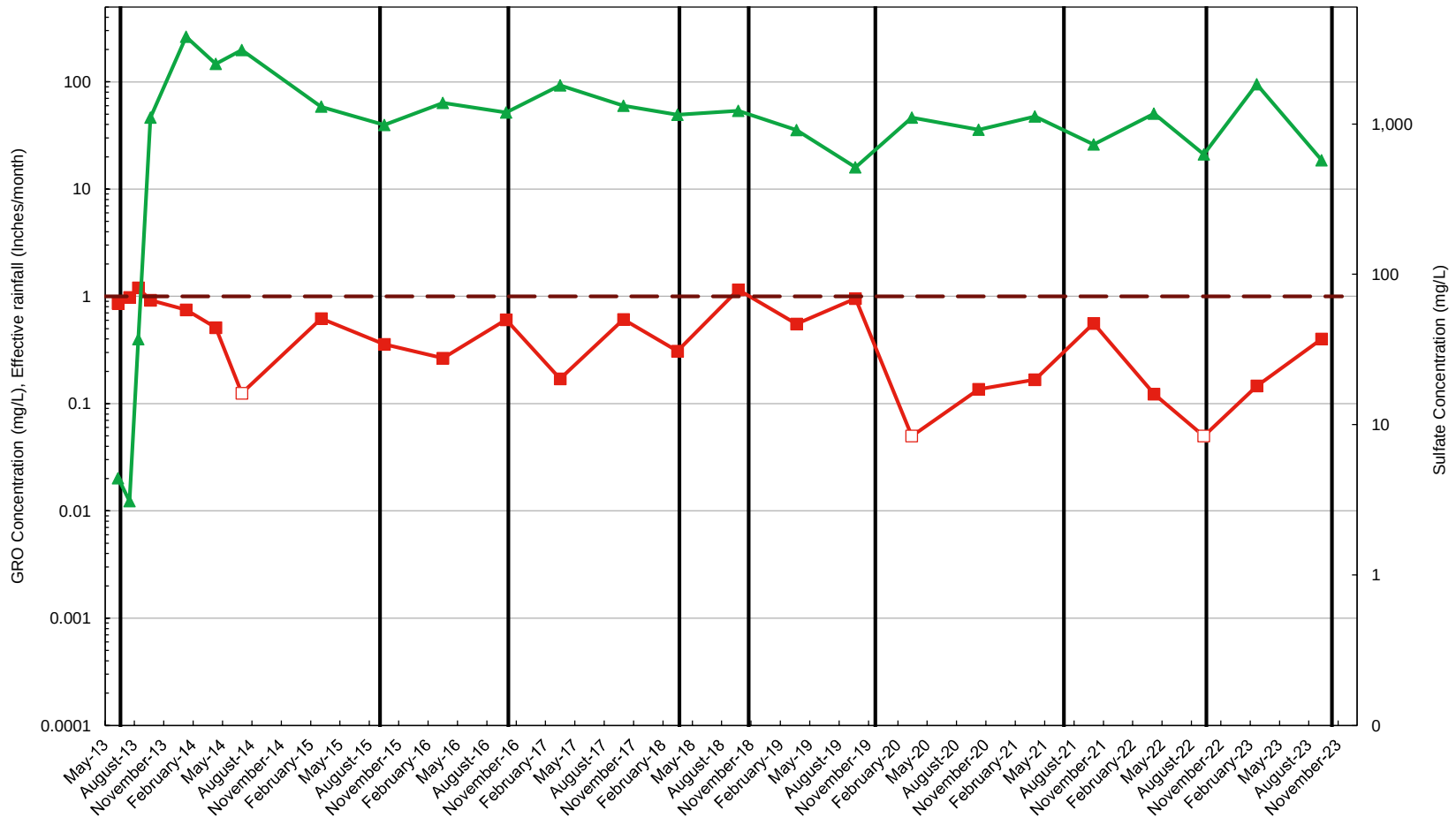
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

TMW-2 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
6



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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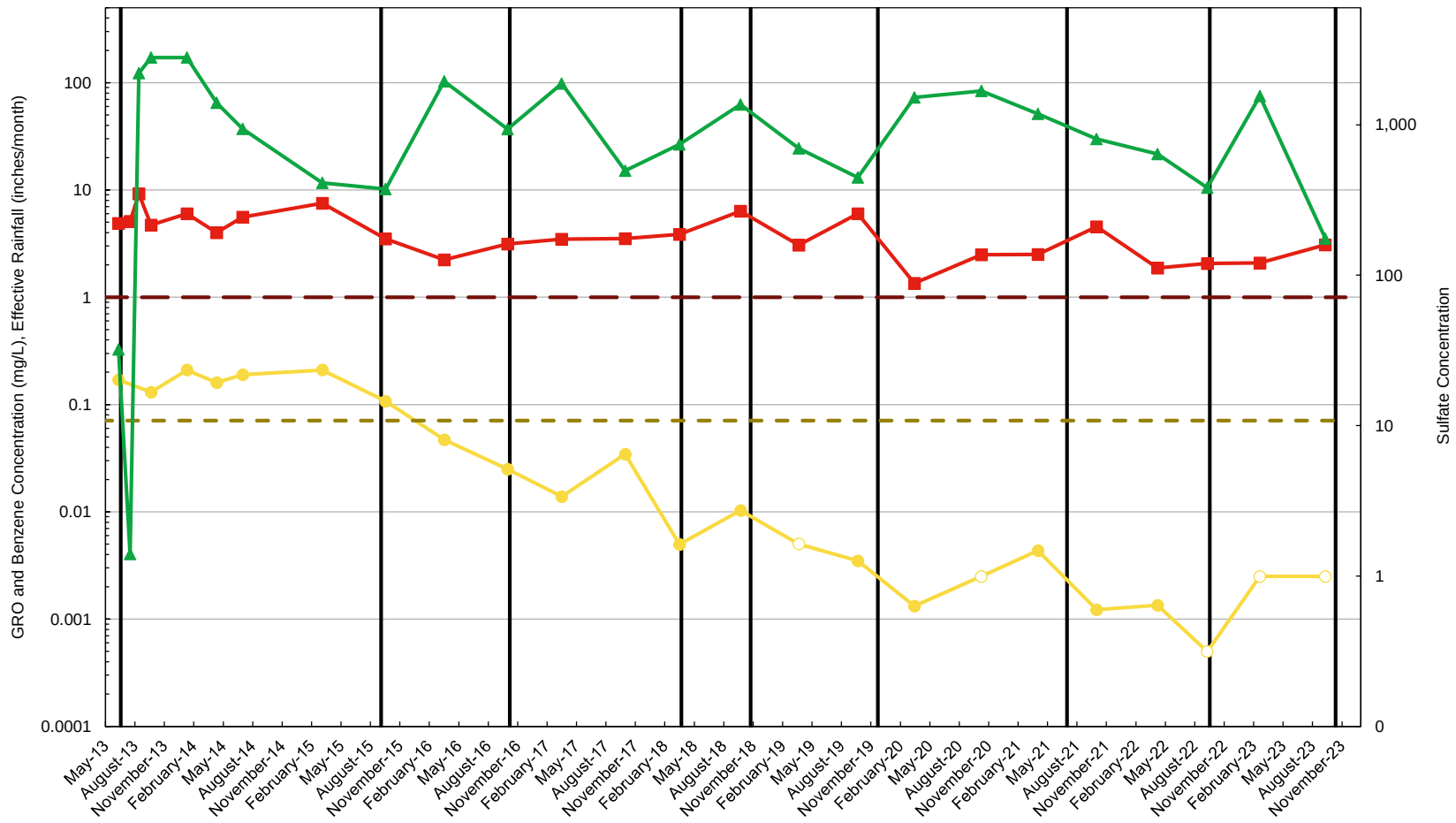
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

TMW-3 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
7



Sulfate Land Application
GRO
Site-Specific Cleanup Level; GRO
Benzene
Site-Specific Cleanup Level; Benzene
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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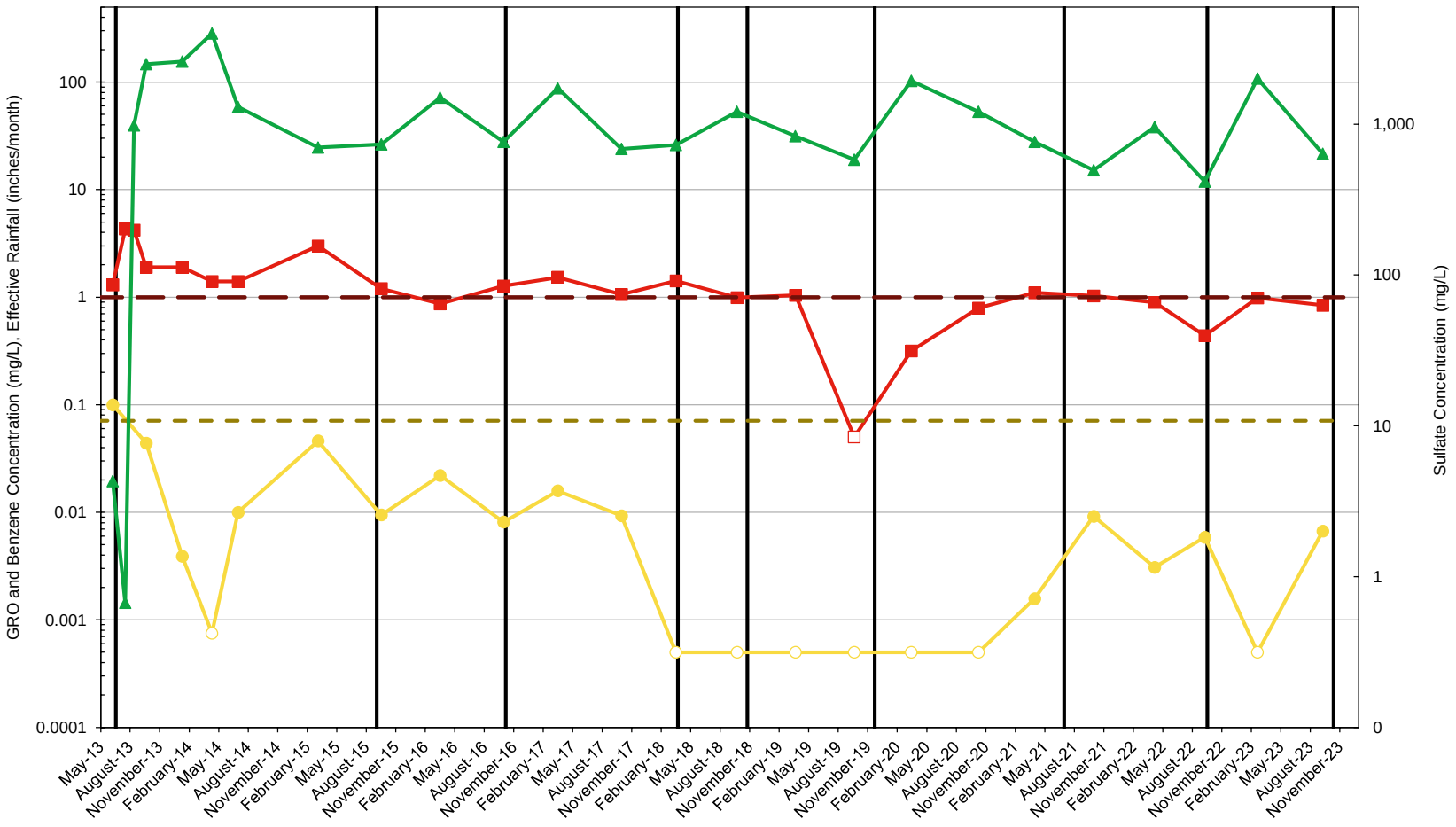
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

TMW-4 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
8



- Sulfate Land Application
- GRO
- Site-Specific Cleanup Level; GRO
- Benzene
- Site-Specific Cleanup Level; Benzene
- 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
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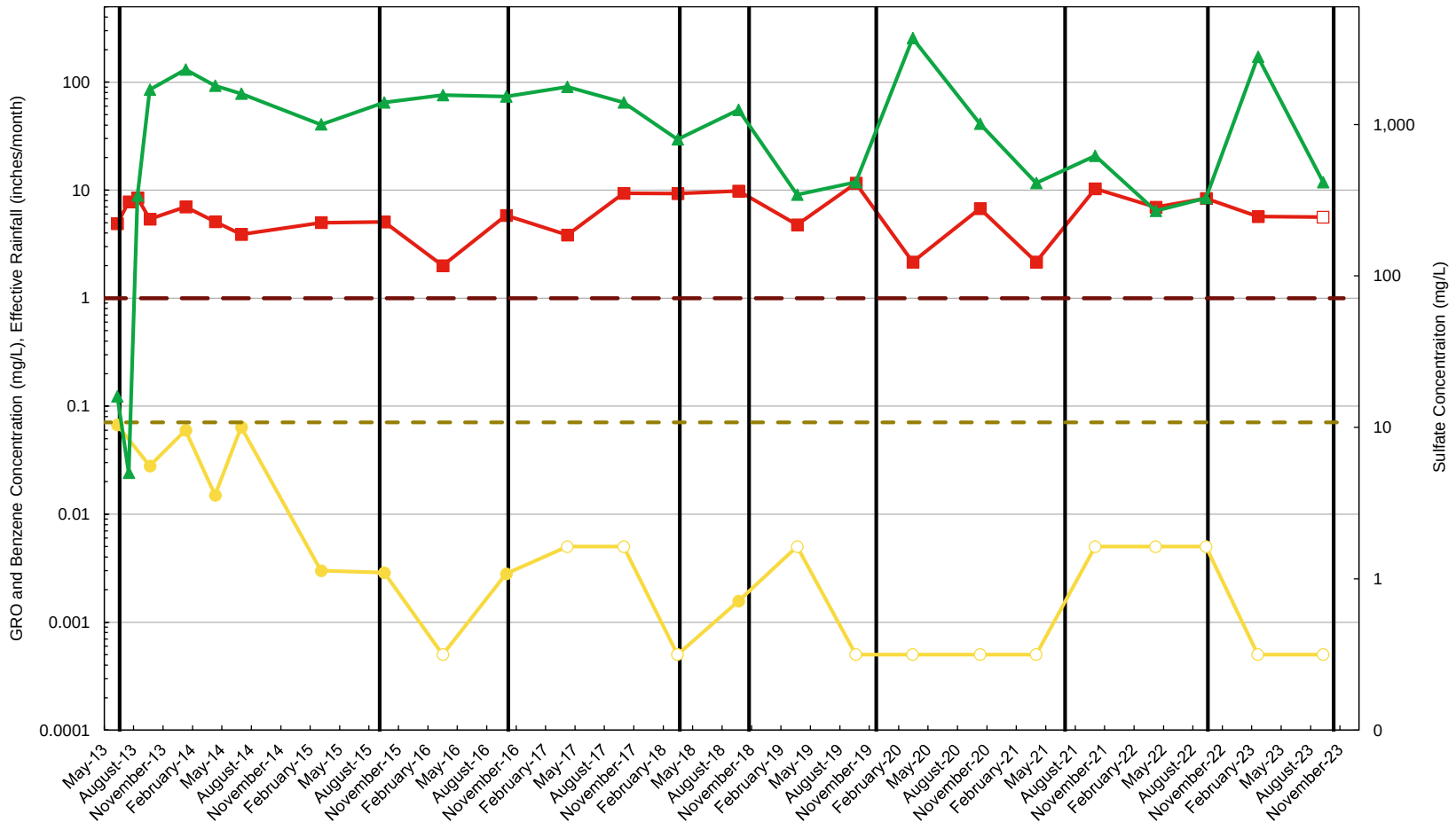
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

TMW-5 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
9



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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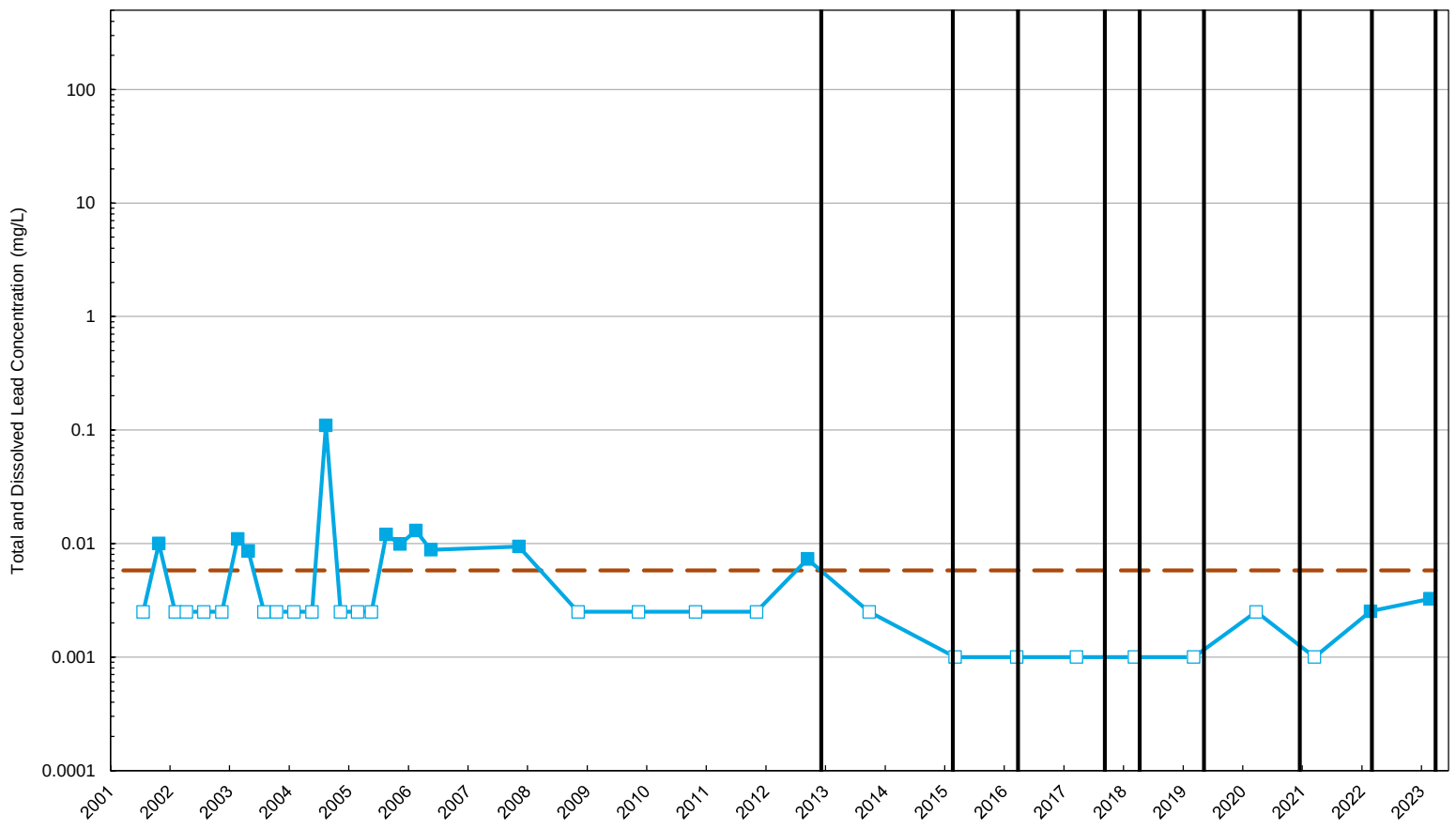
2023 ANNUAL GROUNDWATER MONITORING REPORT

TMW-6 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
10



Site-Specific Cleanup Level; Total and Dissolved Lead

Total Lead

Sulfate Land Application

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

KINDER MORGAN LIQUID TERMINALS, LLC
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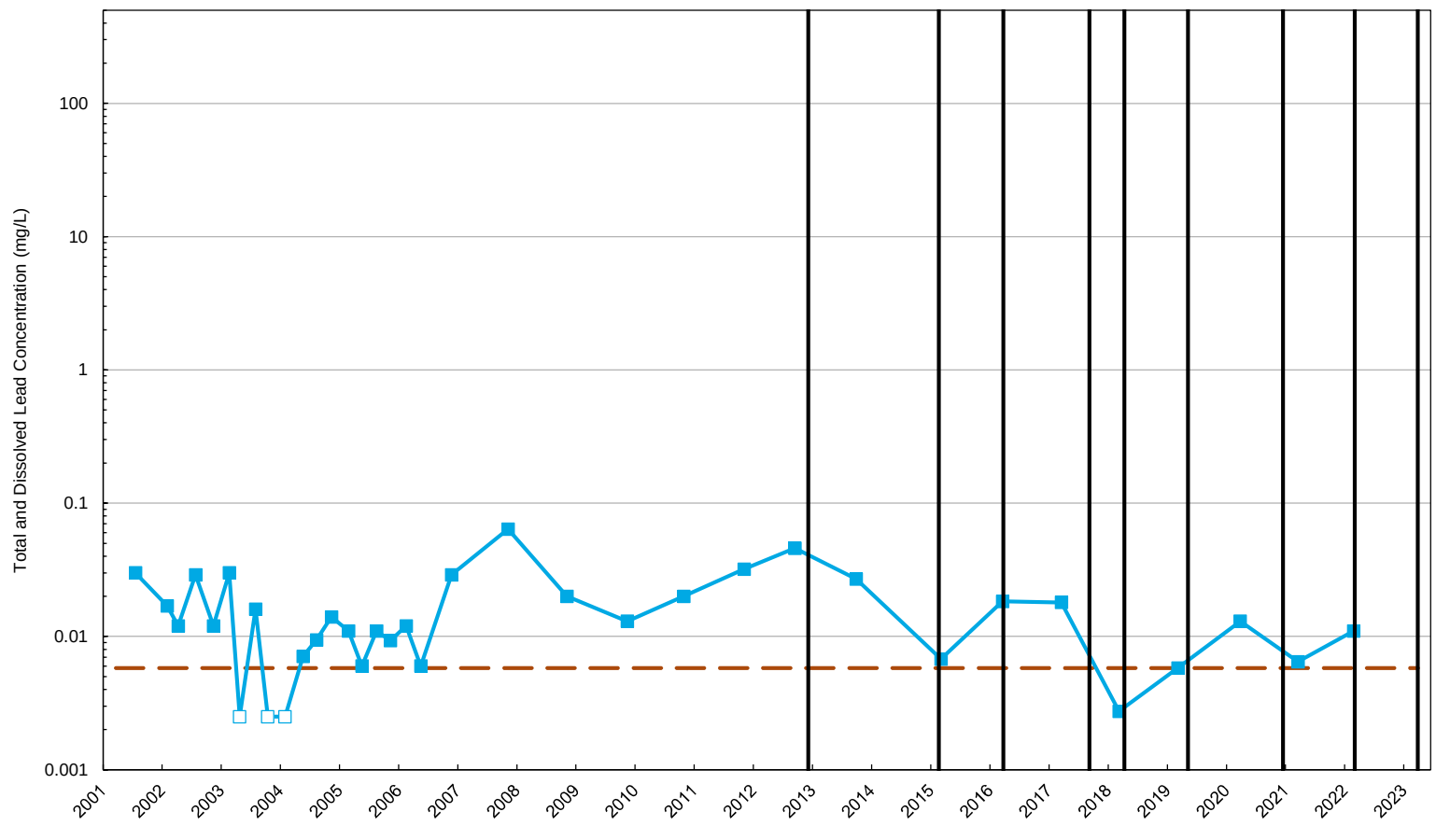
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

MW-5 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
11



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

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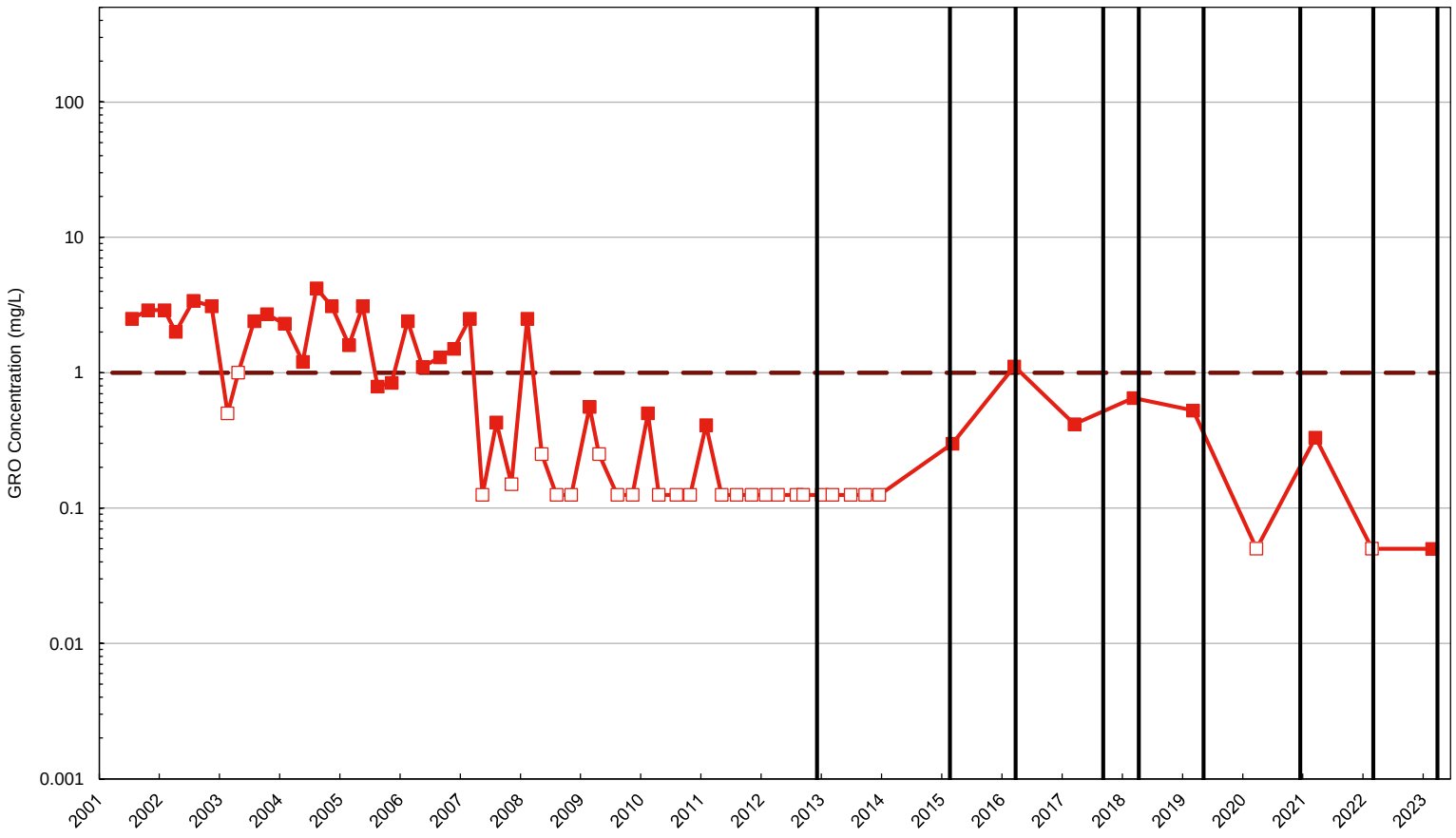
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

MW-8 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
12



- Site-Specific Cleanup Level; GRO
- GRO
- Sulfate Land Application

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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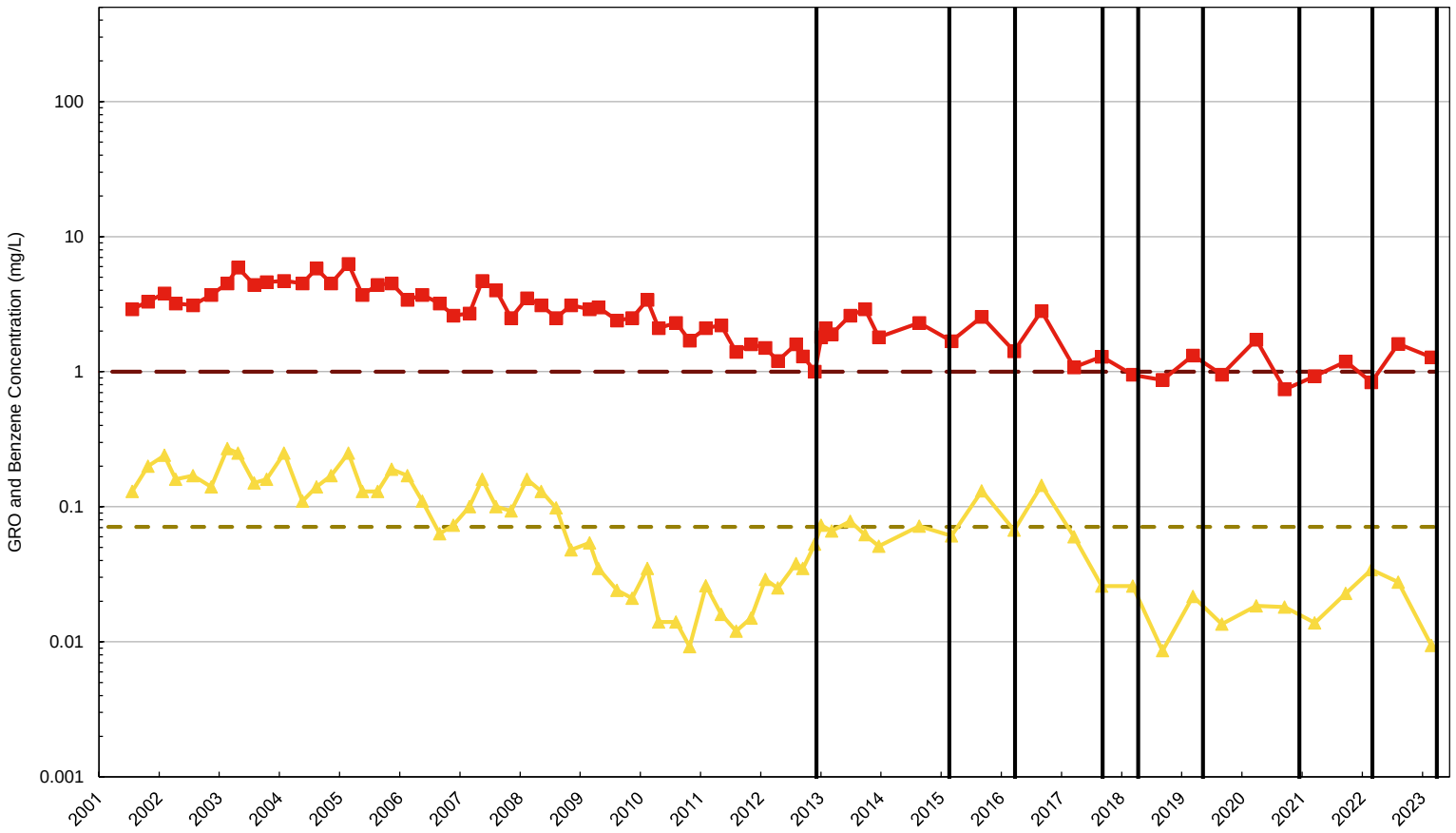
2023 ANNUAL GROUNDWATER MONITORING REPORT

MW-14 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
13



- Site-Specific Cleanup Level; GRO
- GRO
- Site-Specific Cleanup Level; Benzene
- Benzene
- Sulfate Land Application

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

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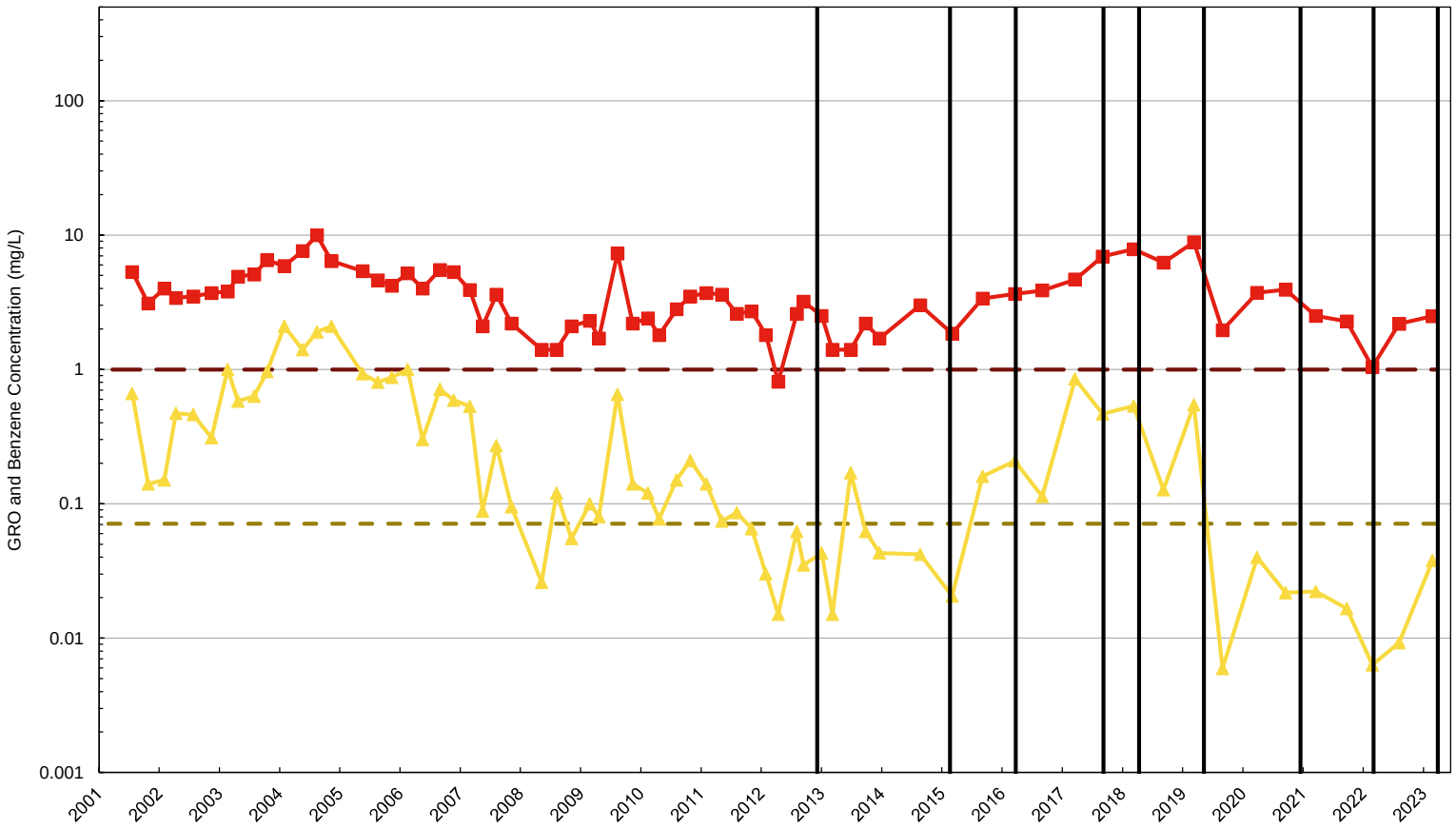
2023 ANNUAL GROUNDWATER MONITORING REPORT

A-27 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
14



- Site-Specific Cleanup Level; GRO
- GRO
- Site-Specific Cleanup Level; Benzene
- Benzene
- Sulfate Land Application

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

KINDER MORGAN LIQUID TERMINALS, LLC
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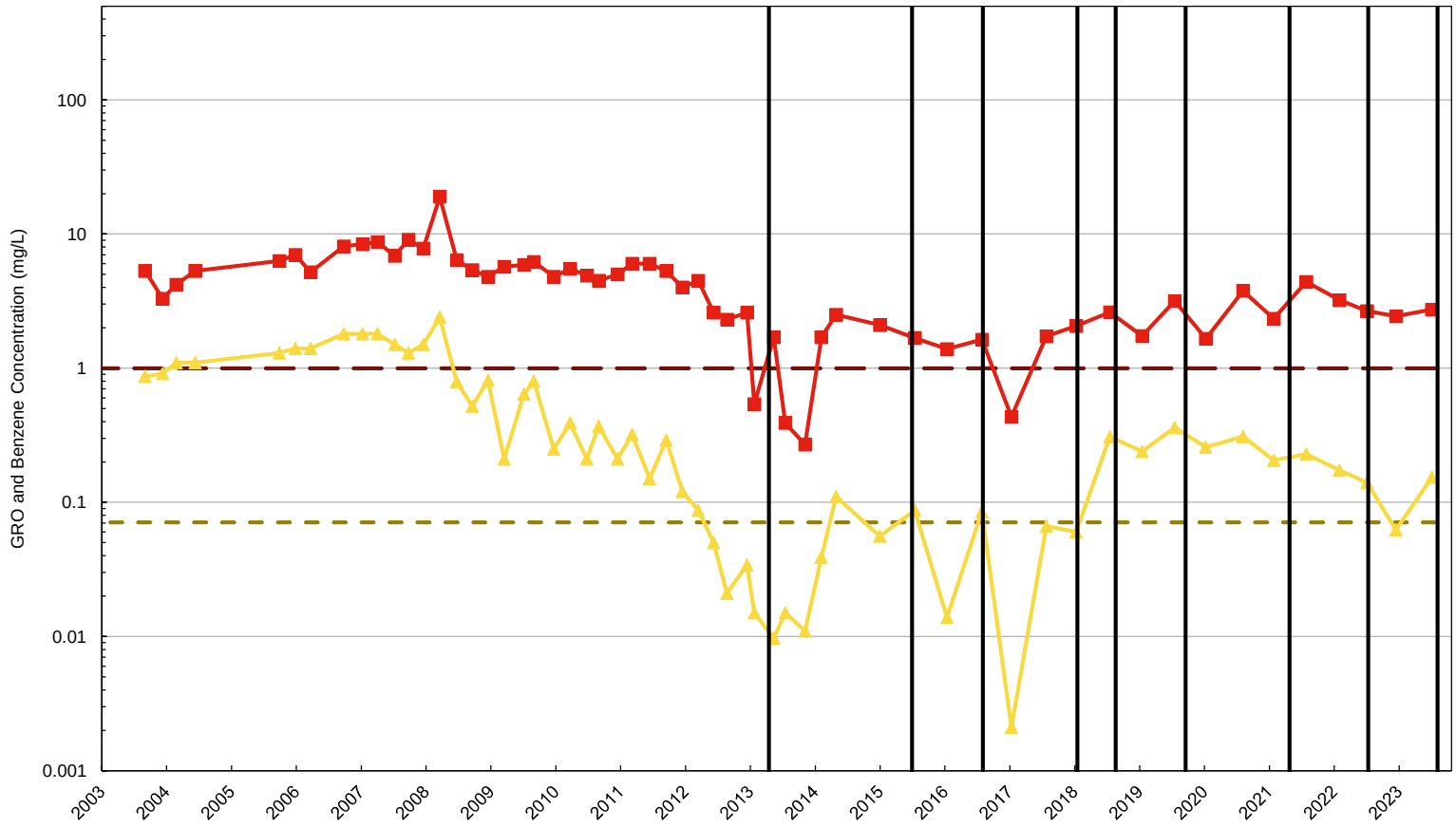
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2023 ANNUAL GROUNDWATER MONITORING REPORT

A-28R CONSTITUENT TREND PLOT

ARCADIS

GRAPH
15



- Site-Specific Cleanup Level; GRO
- GRO
- Site-Specific Cleanup Level; Benzene
- Benzene
- Sulfate Land Application

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

KINDER MORGAN LIQUID TERMINALS, LLC
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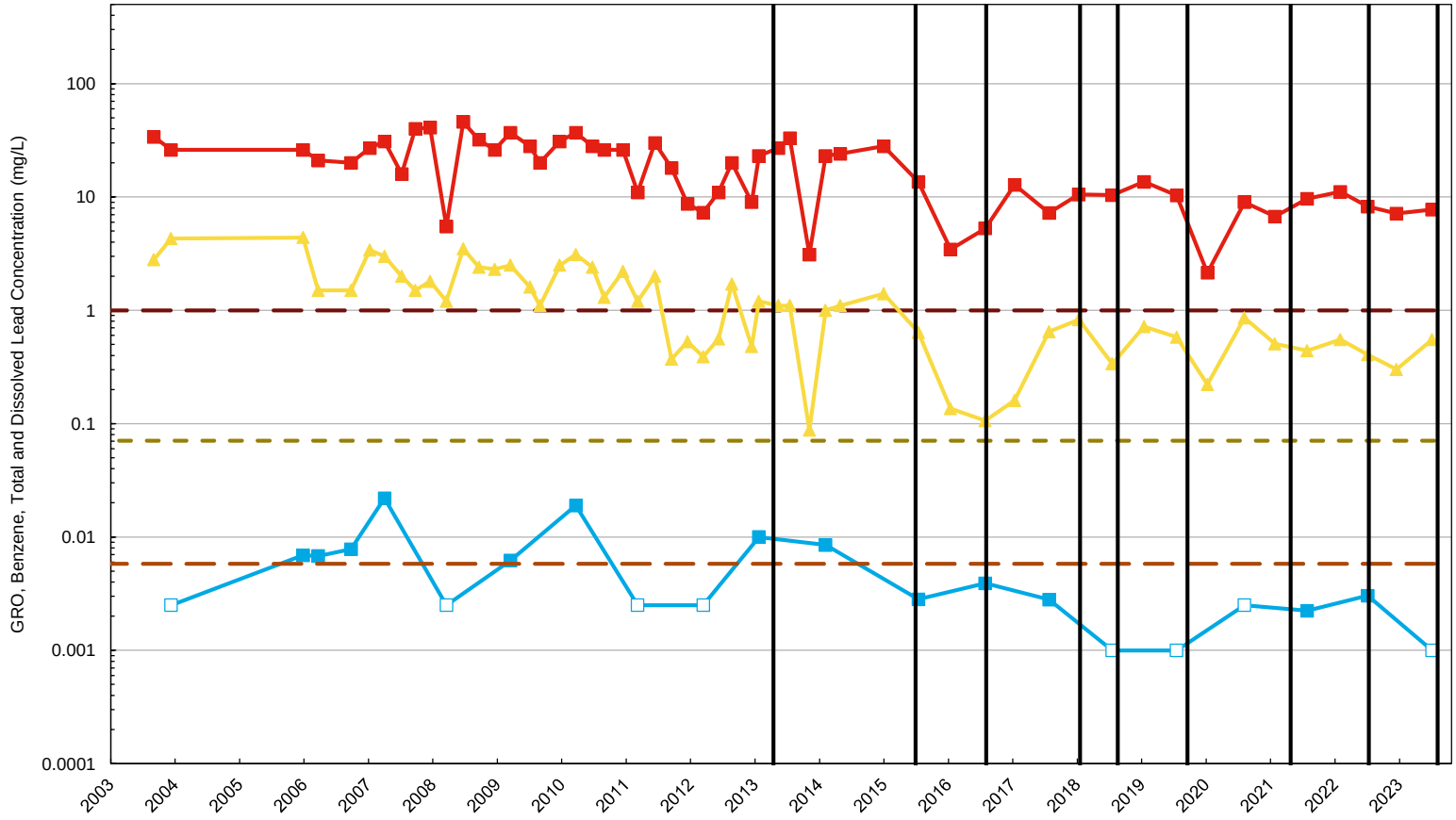
2023 ANNUAL GROUNDWATER MONITORING REPORT

MW-23 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
16



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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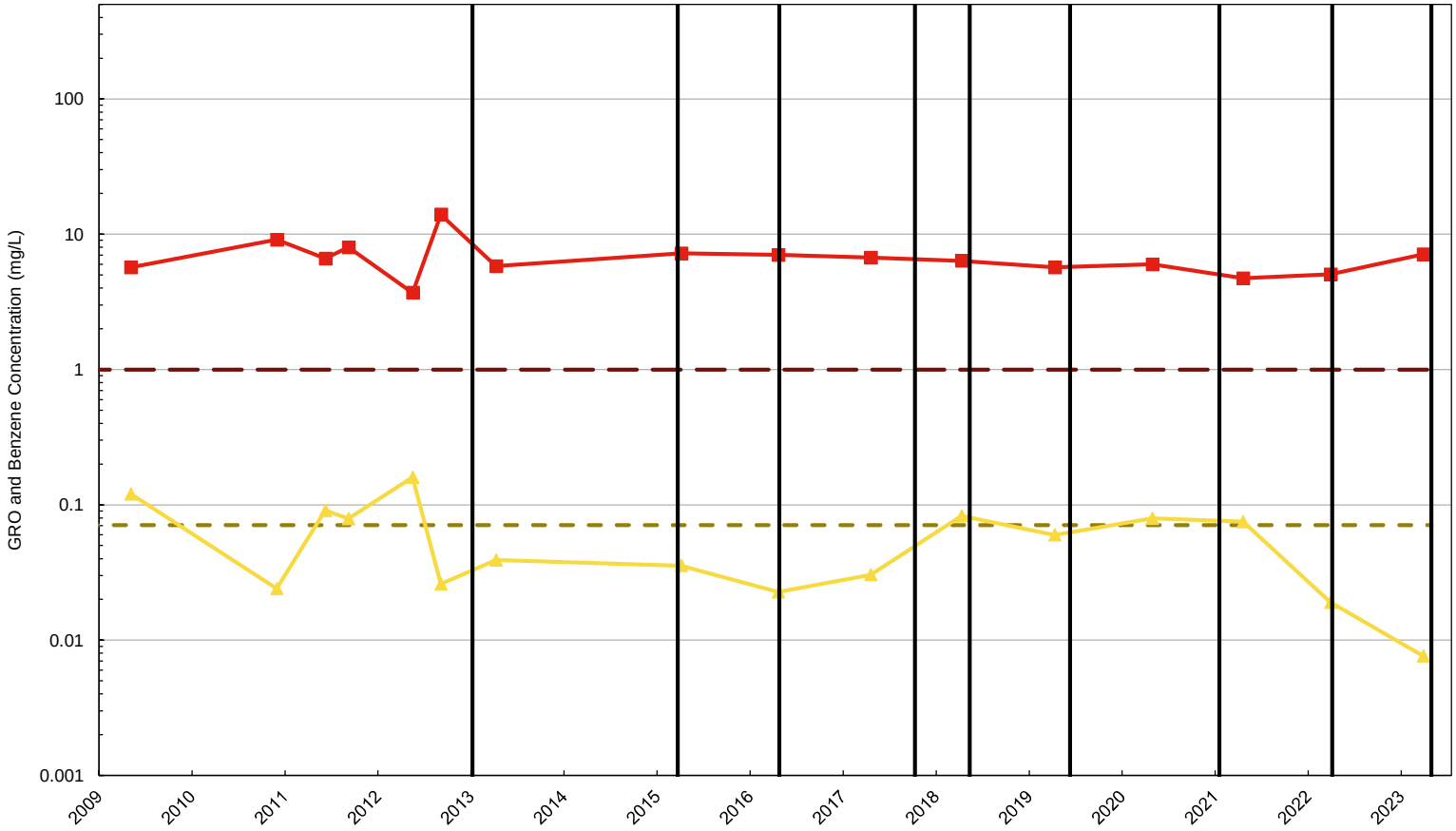
2023 ANNUAL GROUNDWATER MONITORING REPORT

MW-24 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
17



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

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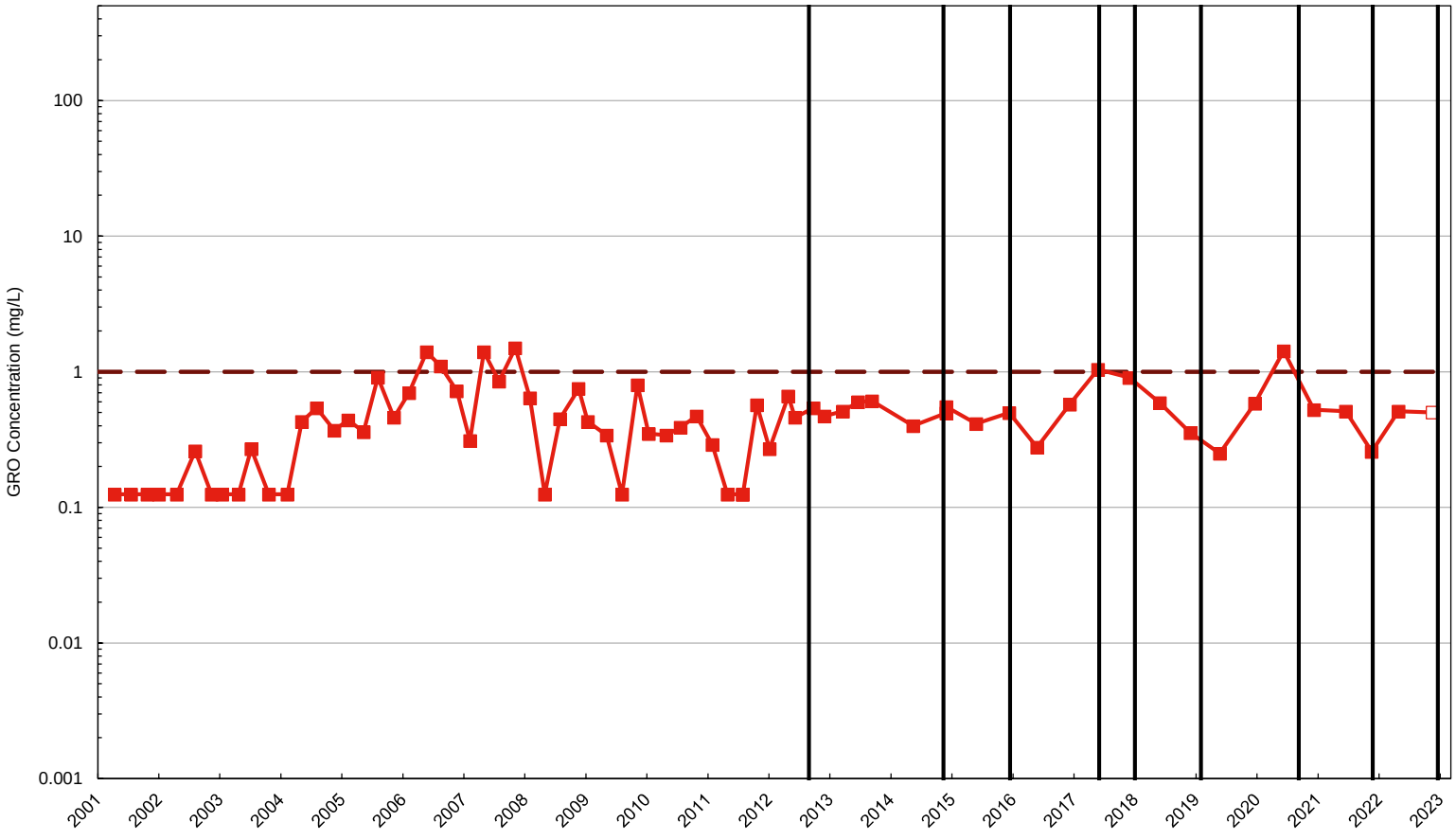
TMW-B1 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
18



Site-Specific Cleanup Level; GRO
GRO
Sulfate Land Application

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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A-5 CONSTITUENT TREND PLOT

ARCADIS

GRAPH
19

Appendix A

Groundwater Monitoring Compliance Program

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 80th Street, Suite 203
REDMOND, WASHINGTON 98052

Table of Contents

figures & Tables

Appendices

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.

1.1 SITE DESCRIPTION

The GATX Harbor Island Terminal is located at 2720 13th 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.

1.2 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.

1.3 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.

1.4 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

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 Fe^{3+} (insoluble) to 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 be come 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^{3+}] can be calculated), ferrous iron (Fe^{2+}), 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.

2.3.3 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).

2.3.4 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.

3.0 Data Evaluation

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

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

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

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

Monitoring Well	Well Location	Compliance Monitoring Objective
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

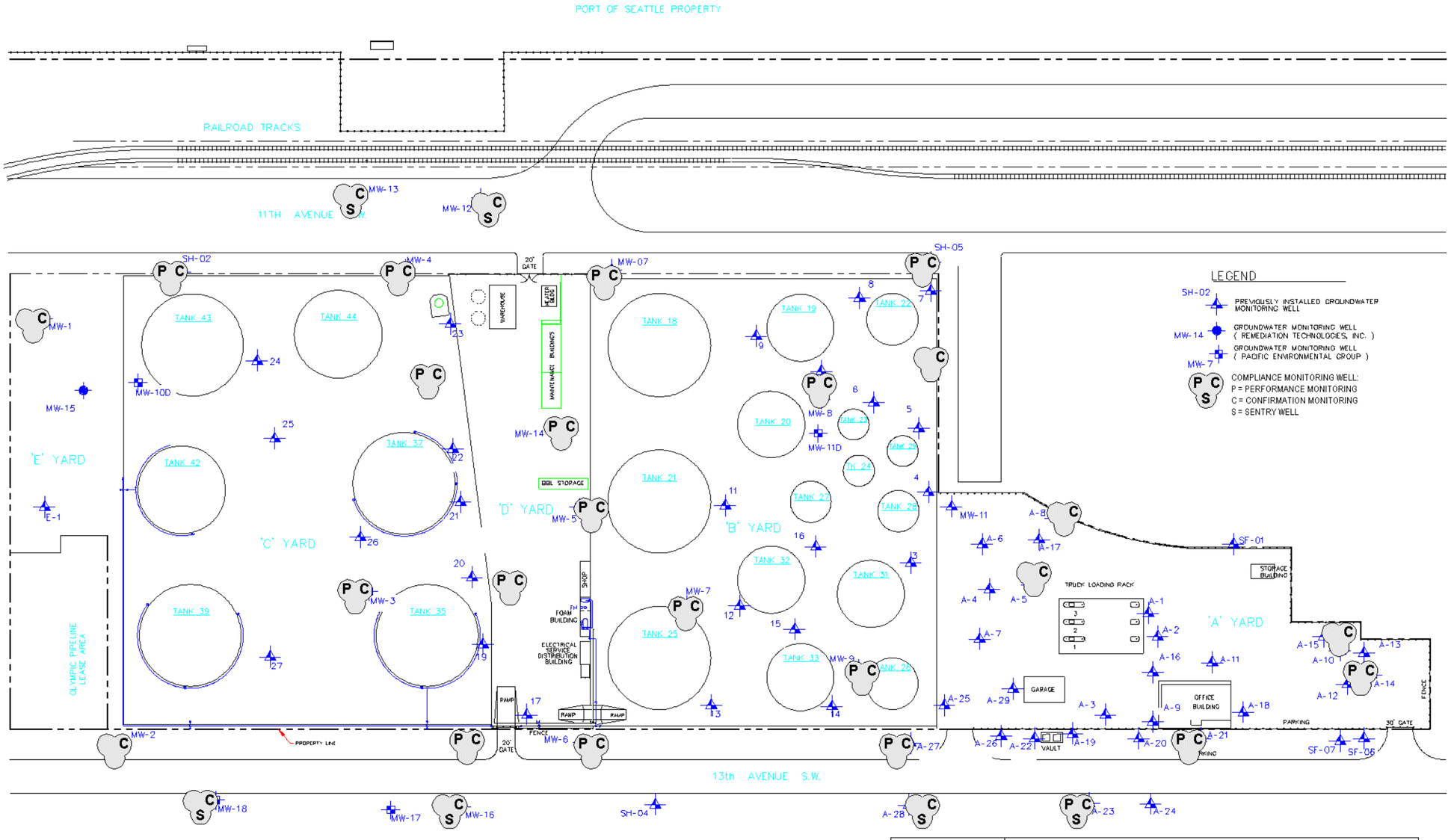
* Located Off-site

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

Constituent	Cleanup Level (mg/L)
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

PARAMETER	METHOD / UNIT
Temperature, pH, alkalinity	Field / variable
Dissolved Oxygen (DO)	Field / mg/l
Carbon dioxide	Field / mg/l
Nitrate (NO_3)	Laboratory / mg/l
Nitrite (NO_2)	Laboratory / mg/l
Dissolved ferrous iron (Fe^{2+})	Laboratory / mg/l
Dissolved Methane (CH_4)	Laboratory / mg/l
Sulfate (SO_4)	Laboratory / mg/l
Sulfide (H_2S)	Laboratory / mg/l
Reduction/Oxidation potential (Redox, Eh)	Field / millivolts



KHM 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 160th 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

DELTA

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 13th 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.

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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

	Indicator Hazardous Substances				Natural Attenuation Parameters				
Well ID	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
ANNUAL TOTAL:	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)	Ethyl-benzene (ppm)	Xylenes (ppm)	Total Lead (ppm)
MW-1	02/13/02	<0.25	2.0	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	05/21/02	<0.25	1.9	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	08/28/02	<0.25	1.0	<0.5	0.0013	0.0067	0.00052	0.0016	<0.005*
	11/05/02	<0.25	0.87	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	0.021*
	02/19/03	<0.25	1.9	<0.5	<0.0005	0.00058	<0.0005	<0.0005	<0.005*
	06/10/03	<0.25	1.1	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	09/16/03	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	11/19/03	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	02/25/04	<0.25	1.3	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	05/11/04	<0.25	0.87	<0.50	<0.0005	0.00068	<0.0005	<0.0005	<0.0050*
	08/25/04	0.83	0.40	<0.50	<0.0005	<0.0005	0.00065	<0.0005	<0.0050*
	12/15/04	<0.25	0.38	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/09/05	<0.25	0.63	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/05	<0.25	0.80	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/21/05	<0.25	0.40	<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	0.0052*
	12/13/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***
MW-2	02/13/02	<0.25	0.71	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	05/21/02	<0.25	0.66	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	08/29/02	<0.25	0.91	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	11/05/02	<0.25	0.73	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	02/19/03	<0.25	0.74	<0.5	<0.0005	0.00062	<0.0005	<0.0005	0.028*
	06/10/03	<0.25	0.61	<0.25	<0.0005	0.00071	<0.0005	<0.0005	0.026*[a]
	09/16/03	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.062*
	11/19/03	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.021*
	02/25/04	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.030*
	05/11/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/25/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	03/10/05	<0.25	0.29	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/07/05	<0.25	0.91	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.036*
	09/20/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/13/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.024*
	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	0.0063*
	09/12/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/12/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***
MW-3	02/13/02	<0.25	1.8	<0.5	0.011	0.0015	0.0045	0.011	<0.005*
	05/20/02	0.38	1.9	<0.5	0.052	0.0028	0.025	0.02	0.01*
	08/28/02	0.62	2.5	<0.5	0.11	0.0071	0.021	0.030	<0.005*
	11/06/02	0.63	1.1	<0.5	0.14	0.0053	0.021	0.015	0.006*
	02/19/03	<0.25	1.8	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	0.014*
	06/11/03	<0.25	1.3	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	0.019*
	09/17/03	<0.25	1.4	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.042*
	11/20/03	<0.25	2.4	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0063*
	02/25/04	<0.25	1.2	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.025*
	05/11/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/25/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0051*
	12/15/04	<0.25	0.33	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.018*
	03/09/05	<0.25	<0.25	<0.50	0.001	<0.0005	<0.0005	<0.0005	<0.0050*
	06/08/05	<0.25	<0.25	<0.50	0.0011	<0.0005	<0.0005	<0.0005	<0.0050*
	09/21/05	<0.25	<0.25	<0.50	0.00094	<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	<0.0050*
	12/13/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***
Dup-2^	06/08/05	<0.25	<0.25	<0.50	0.0011	<0.0005	<0.0005	<0.0005	<0.0050*
	09/21/05	<0.25	0.27	<0.50	0.00098	<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	0.010*
	09/13/06	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/13/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***

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)
MW-4	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
	12/13/06	**<0.25**	**3.7**	**0.62**	**0.0012**	**<0.0005**	**<0.0005**	**0.0023**	**NA**
MW-5	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*
	12/13/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0088***
MW-6	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*
	12/12/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**0.00055**	**<0.0005**	**<0.0005**	**<0.0050***

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)
MW-7	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*[a]
	06/11/03	5.7	8.7	<0.25	0.13	0.092	0.26	0.52	0.081*[a]
	09/17/03	1.4	12	<0.50	0.078	0.031	0.15	0.089	0.11*[a]
	11/20/03	0.26	0.8	<0.50	<0.0005	<0.0005	<0.0005	0.035	0.019*[a]
	02/26/04	15	21	<0.50	0.11	0.34	0.63	3.8	0.034*[a]
	05/11/04	6.3	11	<0.50	0.059	0.15	0.31	1.3	0.0083*[a]
	08/26/04	7.1	20	<0.50	0.054	0.22	0.34	1.7	0.067*[a]
	12/15/04	18	4.4	<0.50	0.14	0.37	0.53	3	0.19*[a]
	03/09/05	3.5	2.1	<0.50	0.045	0.034	0.09	0.27	0.079*[a]
	06/08/05	2.9	2.3	<0.50	0.054	0.05	0.11	0.44	0.069*[a]
	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*[a]
	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*[a]
	12/13/06	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
MW-8	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*
	12/13/06	**<0.25**	**0.82**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**0.0060***
MW-9	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*
	12/13/06	**2.6**	**3.8**	**<0.50**	**<0.0025**	**<0.0025**	**0.024**	**0.190**	**0.025***

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)
MW-12	06/20/01	<0.06	1.7	<0.5	<0.001	<0.001	<0.001	<0.003	<0.004
MW-12R	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*
	12/13/06	**<0.25**	**0.27**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***
	.								
MW-13	06/19/01	<0.05	1.3	<0.5	<0.001	<0.001	<0.001	<0.003	<0.004
MW-13R	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*
	12/13/06	**<0.25**	**0.33**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0077***

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)
MW-14	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
	12/13/06	**1.1**	**1.4**	**<0.50**	**<0.0025**	**<0.0025**	**0.044**	**0.029**	**NA**
MW-16	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
	12/12/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**NA**
MW-18	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
	12/12/06	**0.28**	**<0.25**	**<0.50**	**0.023**	**0.0018**	**0.0019**	**0.0060**	**NA**

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)
MW-19	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
	12/13/06	**8.0**	**1.4**	**<0.50**	**0.016**	**0.052**	**0.30**	**1.4**	**NA**
MW-20	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
	12/13/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**NA**
MW-21	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
	12/13/06	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**

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)
MW-22	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[a]	<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
	12/12/06	**<0.25**	**1.4**	**<0.50**	**<0.001**	**<0.001**	**<0.001**	**<0.001**	**NA**
MW-23	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
	12/12/06	**8.1**	**<0.25**	**<0.50**	**1.8**	**0.020**	**0.11**	**0.16**	**<0.0050***
MW-24	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
	12/12/06	**20**	**1.1**	**<0.50**	**1.5**	**0.037**	**0.69**	**3.2**	**0.0078***
MW-25	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*
	5/12/014	<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*[a]
	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*[a]
	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*
	12/12/06	**<0.25**	**0.86**	**<0.50**	**0.0052**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***

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)
A-5	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
	12/12/06	**0.70**	**0.53**	**<0.50**	**0.079**	**0.0028**	**<0.001**	**0.0025**	**NA**
A-8	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
	12/12/06	**0.27**	**0.87**	**<0.50**	**<0.001**	**0.0011**	**<0.001**	**0.0015**	**NA**
A-10	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
	12/12/06	**<0.25**	**0.98**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**NA**

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)
A-14	12/20/00	<0.05	<0.25	<0.5	<0.001	<0.001	<0.001	<0.003	0.65
A-14R	02/14/02	<0.25	<0.25	<0.5	0.00061	0.0021	<0.0005	<0.0005	0.005*
	05/22/02	<0.25	<0.5	<0.5	0.00053	0.0021	<0.0005	0.00054	0.02*
	08/28/02	<0.25	<0.5	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	11/06/02	<0.25	<0.25	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	02/20/03	<0.25	<0.25	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	06/10/03	<0.25	<0.25	<0.25	<0.0005	<0.0005	<0.0005	<0.0005	0.02*
	09/17/03	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.025*
	11/20/03	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.032*
	02/26/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.018*
	05/12/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	08/25/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/04	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	0.0072*
	03/10/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	06/07/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	09/20/05	NS	NS	NS	NS	NS	NS	NS	NS
	12/13/05	<0.25	<0.25	<0.50	<0.0005	<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	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/12/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***
A-21	02/14/02	<0.25	<0.25	<0.5	<0.0005	0.001	<0.0005	<0.0005	<0.005*
	05/22/02	<0.25	<0.5	<0.5	0.00061	0.0017	<0.0005	0.00057	<0.005*
	08/29/02	<0.25	0.76	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	11/06/02	<0.25	0.37	<0.5	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*
	02/19/03	<0.25	<0.5	<0.5	0.0013	0.0018	<0.0005	0.00061	<0.005*
	06/10/03	0.25	<0.25	<0.25	0.0082	0.00058	<0.0005	<0.0005	0.062*
	09/16/03	<0.25	<0.25	<0.50	0.0034	<0.0005	<0.0005	<0.0005	0.0085*
	11/19/03	0.47	<0.25	<0.50	0.061	0.0019	<0.0005	0.0029	0.0067*
	02/25/04	0.63	<0.50	<0.50	0.013	0.00066	0.045	0.0016	<0.0050*
	05/12/04	0.50	<0.25	<0.50	0.0019	<0.0005	0.0042	0.00072	<0.0050*
	08/25/04	0.26	<0.25	<0.50	0.0015	<0.0005	<0.0005	0.0015	<0.0050*
	12/14/04	0.99	<0.25	<0.50	0.061	0.0025	0.022	0.0083	<0.0050*
	03/10/05	1.5	0.26	<0.50	0.024	0.0021	0.0025	0.011	0.020*
	06/07/05	1.2	0.35	<0.50	0.0076	0.00084	0.00077	0.0043	<0.0050*
	09/20/05	1.3	<0.25	<0.50	0.011	0.0012	0.00066	0.0048	<0.0050*
	12/13/05	1.6	<0.25	<0.50	0.017	0.0016	0.0015	0.0052	<0.0050*
	03/15/06	0.97	<0.25	<0.50	0.0098	0.00097	0.0023	0.0033	<0.0050*
	06/08/06	0.82	<0.25	<0.50	0.0023	0.00059	<0.0005	0.0019	<0.0050*
	09/12/06	0.85	<0.25	<0.50	0.0019	<0.0005	<0.0005	0.0016	<0.0050*
	12/12/06	**0.85**	**<0.25**	**<0.50**	**0.0071**	**<0.0005**	**0.0021**	**0.0014**	**<0.0050***
A-23R	02/14/02	0.26	2.1	<0.5	0.06	0.001	0.0099	0.0072	0.72*[a]
	05/20/02	0.74	6.9	<0.5	0.15	<0.001	0.088	0.0067	0.095*[a]
	08/28/02	0.62	2.1	<0.5	0.2	0.0035	0.021	0.0075	0.23*
	11/05/02	0.74	1.7	<0.5	0.22	<0.0015	0.0059	0.014	0.18*
	02/19/03	0.71	2.3	<0.5	0.26	0.0033	0.0054	0.0059	0.049*
	06/10/03	<0.25	1.8	<0.25	0.0073	<0.001	0.0028	<0.001	<0.005*
	09/16/03	0.70	1.3	<0.50	0.043	0.0029	0.057	0.0018	0.38*
	11/19/03	1.0	0.78	<0.50	0.08	0.0037	0.069	0.0035	0.13*
	02/25/04	1.6	0.78	<0.50	0.26	0.0072	0.061	0.015	0.081*
	05/12/04	0.28	0.45	<0.50	0.020	0.00075	0.0022	0.00082	<0.0050*
	08/25/04	2.3	0.35	<0.50	0.46	0.012	0.074	0.02	0.012*
	12/14/04	2.0	0.65	<0.50	0.37	0.0084	0.041	0.013	0.018*
	03/10/05	0.60	0.31	<0.50	0.035	0.0011	0.0045	0.0014	0.035*
	06/07/05	0.33	<0.25	<0.50	0.0080	<0.0005	0.0012	<0.0005	0.013*
	09/20/05	<0.25	<0.25	<0.50	0.00060	<0.0005	<0.0005	<0.0005	0.0096*[a]
	12/14/05	0.37	<0.25	<0.50	0.019	0.00056	0.00065	0.00058	0.032*
	03/15/06	1.1	<0.25	<0.50	0.34	0.0033	<0.0025	0.0051	<0.0050*
	06/08/06	0.34	<0.25	<0.50	0.033	<0.0005	<0.0005	0.031	0.0081*
	09/12/06	0.42	<0.25	<0.50	0.010	<0.0005	0.032	0.0013	0.035*
	12/12/06	**2.1**	**<0.25**	**<0.50**	**0.520**	**0.0066**	**0.053**	**0.021**	**<0.0050***
Dup-1^	09/20/05	<0.25	<0.25	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	<0.0050*
	12/14/05	0.42	<0.25	<0.50	0.020	0.00064	0.00081	0.00063	0.025*
	03/15/06	1.1	<0.25	<0.50	0.310	0.0036	0.0027	0.0052	0.0099*
	06/08/06	0.33	<0.25	<0.50	0.032	<0.0005	<0.0005	0.031	0.013*
	09/12/06	0.36	<0.25	<0.50	0.009	<0.0005	0.027	0.0011	0.12*
	12/12/06	**2.2**	**<0.25**	**<0.50**	**0.520**	**0.0076**	**0.061**	**0.024**	**0.0077***

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)
A-27	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
	12/12/06	**3.7**	**0.90**	**<0.50**	**0.110**	**0.0096**	**0.10**	**0.12**	**NA**
A-28R	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*
	12/12/06	**4.0**	**0.57**	**<0.50**	**0.30**	**0.0095**	**0.027**	**0.028**	**<0.0050***
SH-02	12/20/00	0.078	<0.25	<0.5	0.001	<0.001	<0.001	<0.003	0.015**
SH-02R	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*
	12/13/06	**<0.25**	**0.49**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***

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)
SH-05	12/20/00	<0.05	1.0	<0.5	<0.001	<0.001	<0.003	<0.001	0.017**
SH-05R	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*
	12/13/06	**<0.50**	**1.9**	**<0.50**	**<0.0025**	**<0.0025**	**<0.0025**	**<0.0025**	**<0.0050***
MW-07R	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
	12/13/06	**<0.25**	**<0.25**	**<0.50**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0005**	**<0.0050***

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.
*[a] = 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.
[a] = 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

	Indicator Hazardous Substances, concentration in mg/L							
Well ID	TPH-G	Benzene	Ethylbenzene	Toluene	TPH-D	TPH-O	Total Lead	Dissolved Lead
Cleanup Criteria	**1.0**	**0.071**	**29.0**	**200.0**	**10**	**10**	**0.0058**	**--**
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 <0.0058 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 0n 12-06	ND
MW-6	ND - 1.1, <1 since 03-06	ND - 0.19, <0.071since 09-01	ND - 0.0050	ND - 0.0070	ND - 7.3	ND	ND - 0.052 <0.0058 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

	Indicator Hazardous Substances				Natural Attenuation Parameters				
Well ID	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

	Indicator Hazardous Substances				Natural Attenuation Parameters				
Well ID	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
Annual Total	74	22	20	2	12	12	12	12	12

North

RAILROAD TRACKS

11th AVENUE S.W.

MW-13 MW-13R MW-12 MW-12R

GATE

SH-02 SH-02R MW-4 MW-07 MW-07R SH-05 SH-05R

MW-1 MW-15 MW-10D

Tank 43 Tank 44 Tank 42 Tank 37 Tank 39 Tank 35 Tank 18 Tank 19 Tank 22 Tank 20 Tank 23 Tank 29 Tank 24 Tank 27 Tank 28 Tank 21 Tank 32 Tank 31 Tank 25 Tank 33 Tank 26

WAREHOUSE

MAINTENANCE BUILDINGS

BBL STORAGE

RAMP

'E' YARD

'C' YARD

'D' YARD

'B' YARD

'A' YARD

E-1

MW-20 MW-14 MW-5 MW-3 MW-19 MW-7 MW-21 MW-8 MW-11D MW-11 MW-25

SF-01 SF-01R

TRUCK LOADING RACK

GARAGE

OFFICE BUILDING

PARKING

VAULT

FENCE

RE-ESTABLISHED PROPERTY LINE (APPROXIMATE)

FORMER PROPERTY LINE

OLYMPIC PIPELINE LEASE AREA

PROPERTY LINE

MW-2 MW-22 MW-6 MW-18 MW-17 MW-16 SH-04 MW-24 MW-23 A-23R A-28R A-28 A-23 A-24

13th AVENUE S.W.

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

0 100 FT

APPROX. SCALE

FIGURE 1

SITE MAP

KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13th 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

DELTA

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,

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 160th 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

DELTA

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.

4006 148TH AVENUE NE REDMOND, WASHINGTON 98052 USA
PHONE 425.882.3528 / 800.477.7411 FAX 425.869.1892 WWW.DELTAENV.COM

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 that 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°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

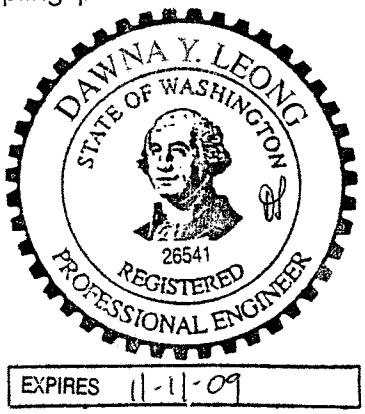
Following purging, samples will be collected for laboratory analyses. Samples will be pumped directly into laboratory-supplied sample containers, and each sample bottle will be labeled with the sample identification number, the sample date, the facility name, and the name of the technician who performed 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)

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 148th 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.

ARCADIS
Infrastructure · Water · Environment · Buildings

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ENVIRONMENT

Ms. Maura O'Brien
Washington State Department of Ecology
Northwest Regional Office
3190 – 160th 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 13th Avenue Southwest
Seattle, Washington 98134

Date:
May 20, 2014

Contact:
Matt Annis

Phone:
206.726.4716

Email:
matt.annis@
arcadis-us.com

Our ref:
WA000804.2014

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 13th 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

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.

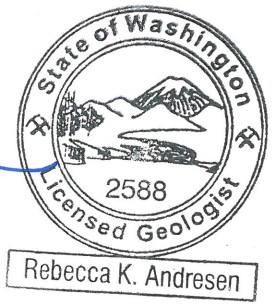
If you have any questions or comments, please contact Matt Annis at 206.726.4716 or by email at matt.annis@arcadis-us.com.

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

ARCADIS

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 [1]	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 [1]	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 [1]	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 [1]	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 [1]	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 [1]	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 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
12 [2]	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 [1]	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 [2]	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-8	1Q							X
	3Q	X	X	X	X	X		X
MW-9 [2]	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 [2]	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 [1]	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

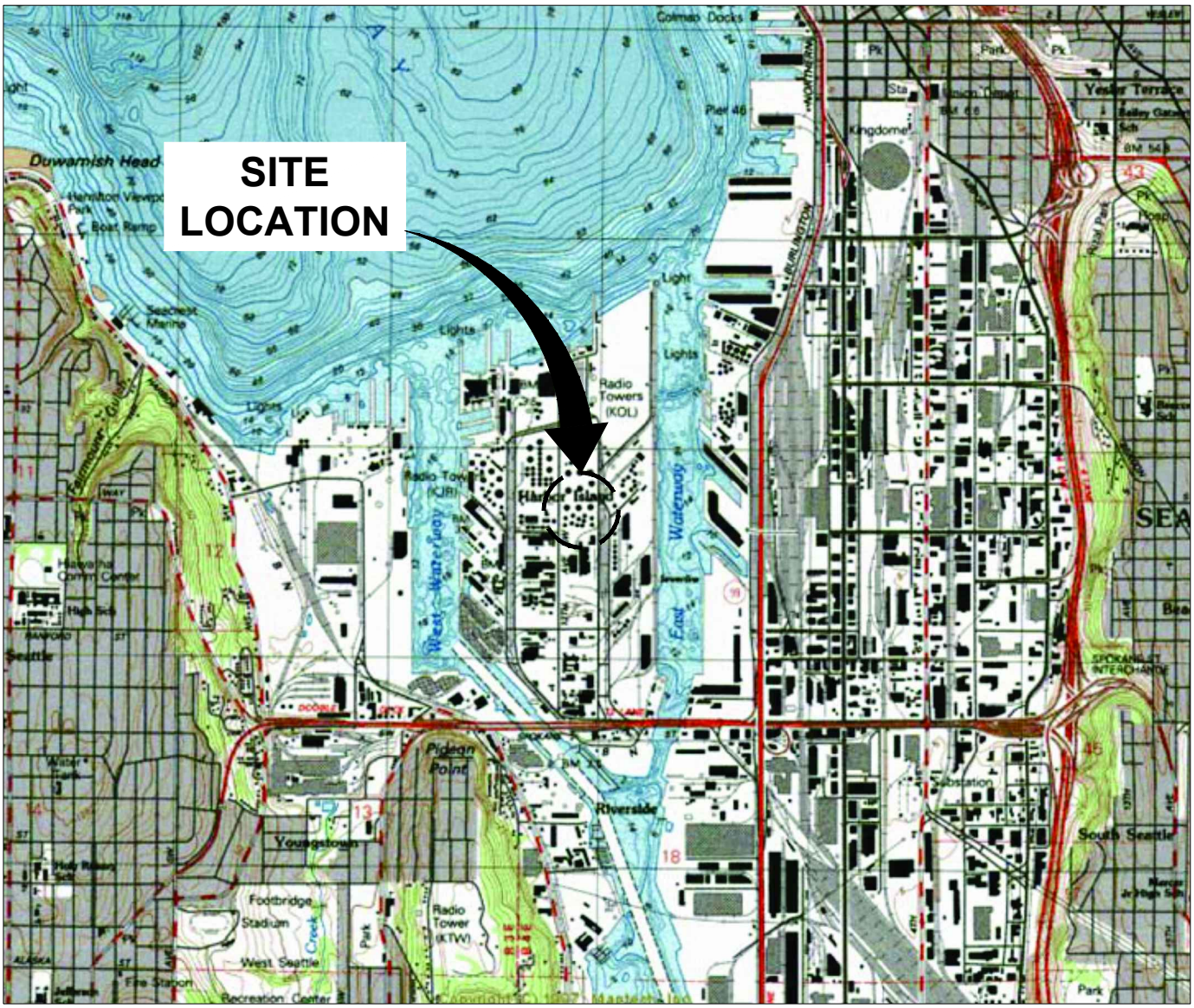
Well	Sampling Schedule	GRO by NWTPH-GX	DRO by NWTPH-DX	HO by NWTPH-DX	BTEX by EPA 8260B	Total and Dissolved Lead by EPA 200.8	MNA Geochemical Parameters [1]	Depth to Water/SPH by downhole meter
TMW-1 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-2 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-3 [2]	1Q	X			X		X	X
	3Q	X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

ARCADIS

Figures



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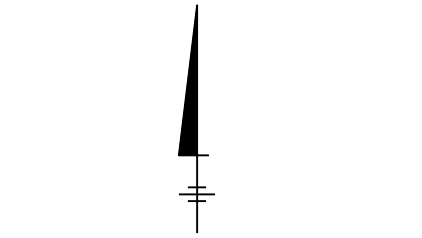
SEATTLE SOUTH, WASHINGTON 1083

WASHINGTON



Approximate Scale: 1 in. = 2000 ft.

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

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Emeryville\ACT\WA000804\2014\000032014 REV GWMP\DWG\WA000804 N01.dwg LAYOUT: 1 SAVED: 4/16/2014 4:42 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 4/16/2014 4:43 PM BY: REYES, ALEC
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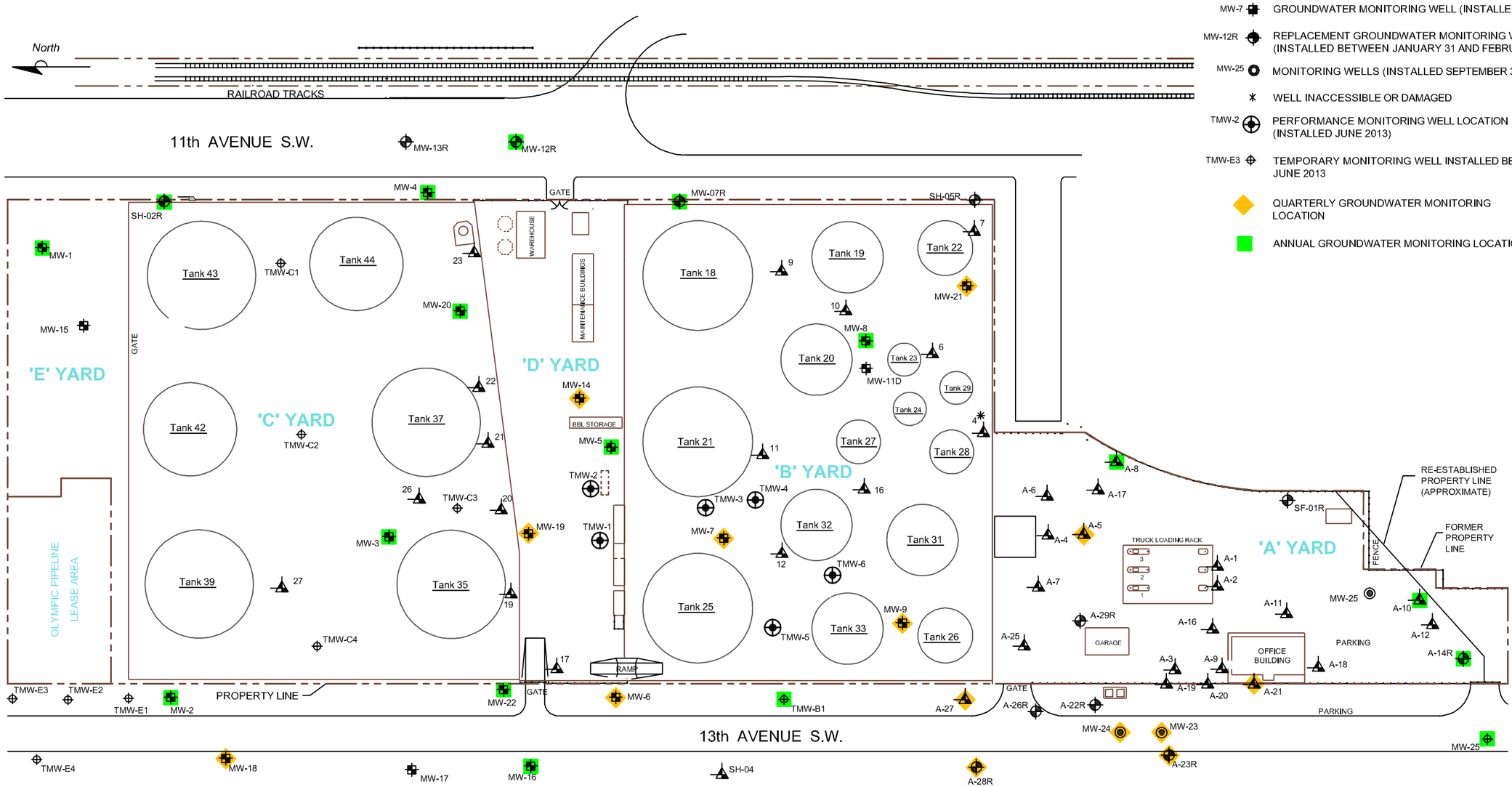
WA000804 GoogleAerial.jpg
WA000804 USGS.jpg



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
- QUARTERLY GROUNDWATER MONITORING LOCATION
- ANNUAL GROUNDWATER MONITORING LOCATION

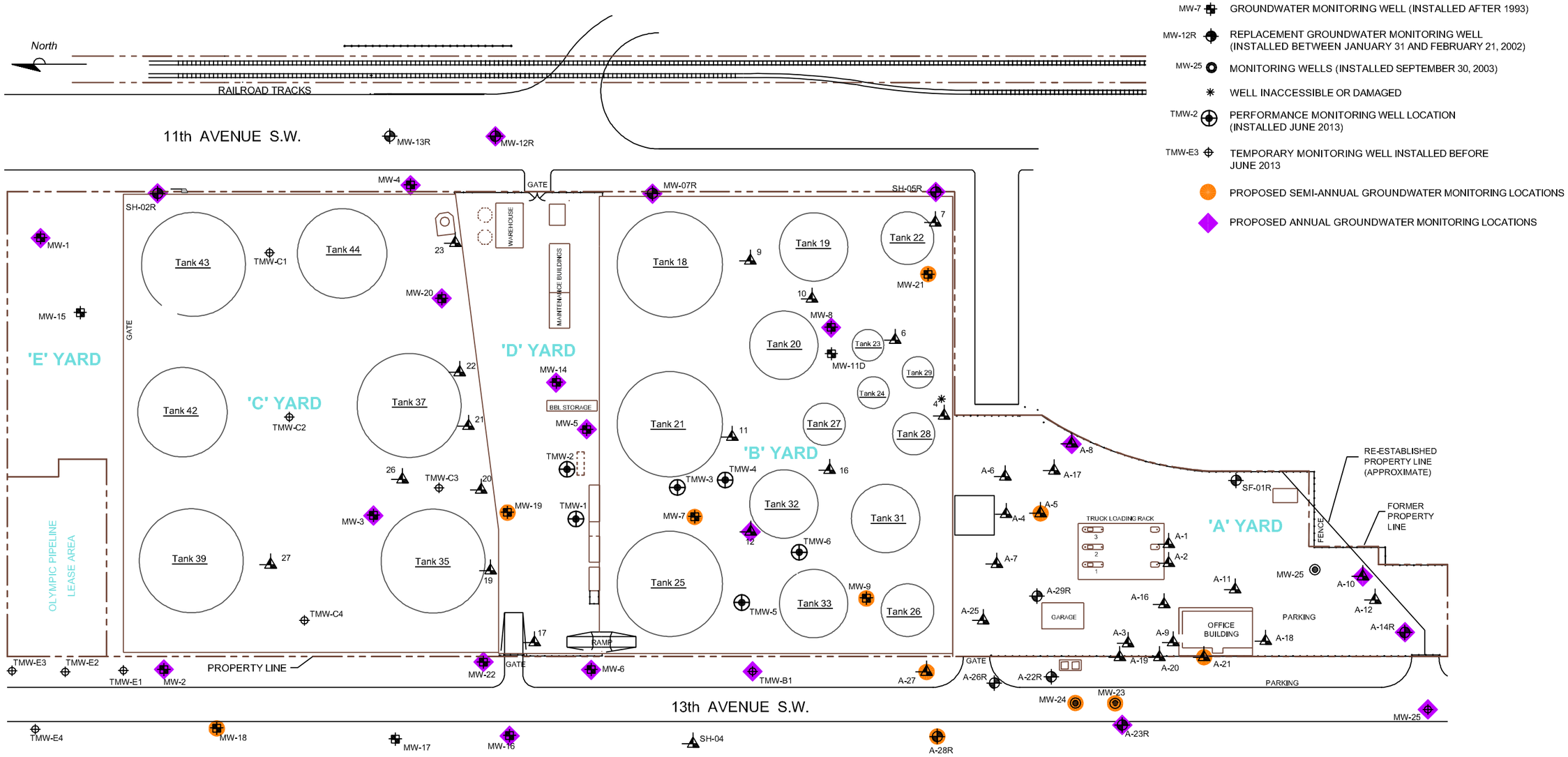
0 60' 120' 240'

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

ARCADIS

FIGURE 2

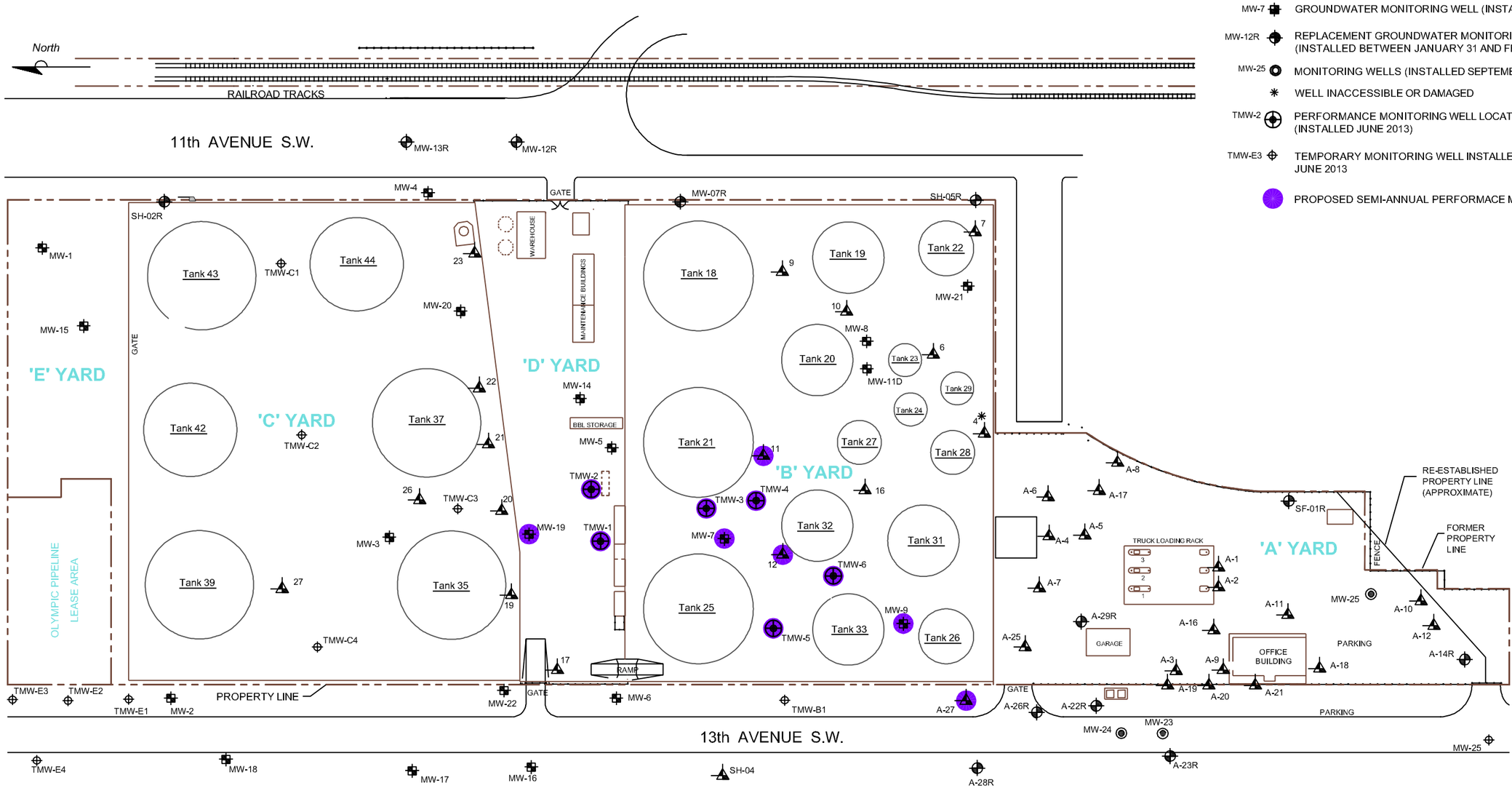


KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2014 REVISED GROUNDWATER MONITORING PLAN

PROPOSED SEMI-ANNUAL AND ANNUAL GROUNDWATER MONITORING LOCATIONS

ARCADIS

FIGURE
3



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

PROPOSED PERFORMANCE MONITORING LOCATIONS

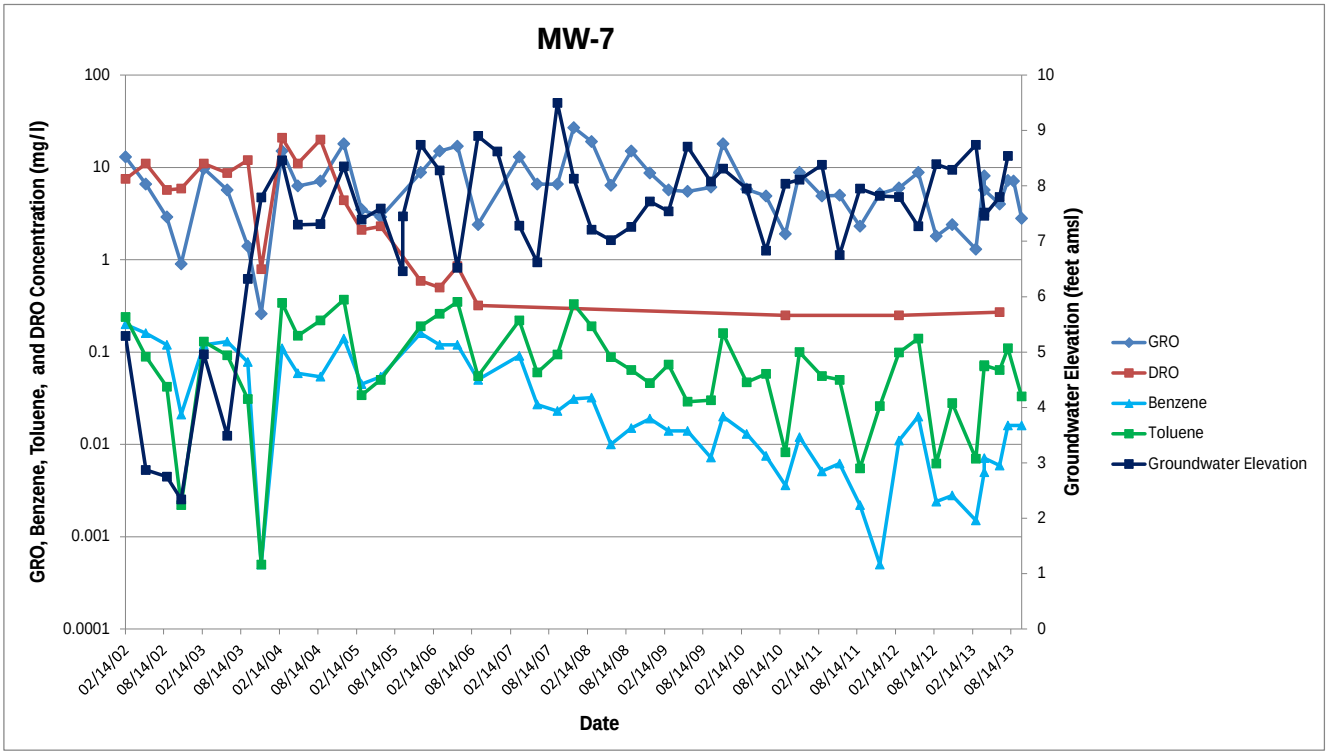
ARCADIS

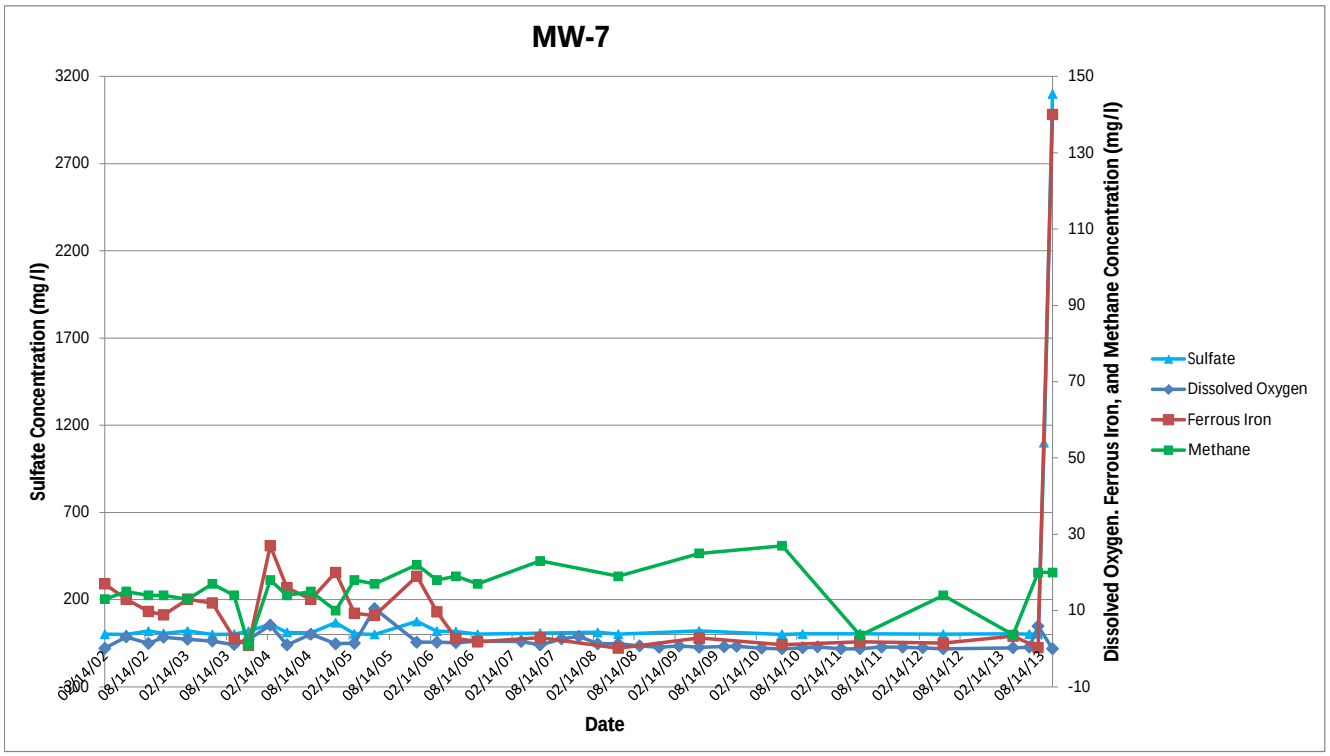
FIGURE 4

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Op)ON=*;OFF=*REF*
G:\ENV\CAD\Emeryville\ACT\WA0008042014\0000\32014 REV GWMP\DWG\WA0008042014.dwg LAYOUT: 4 SAVED: 3/18/2014 11:44 AM ACADVER: 18.1S (LMS TECH)
XREFS: IMAGES: PROJECTNAME: ---
X-SITEBASE WA0008042014
PAGESETUP: --- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 4/16/2014 4:37 PM BY: REYES, ALEC

ARCADIS

Attachment A

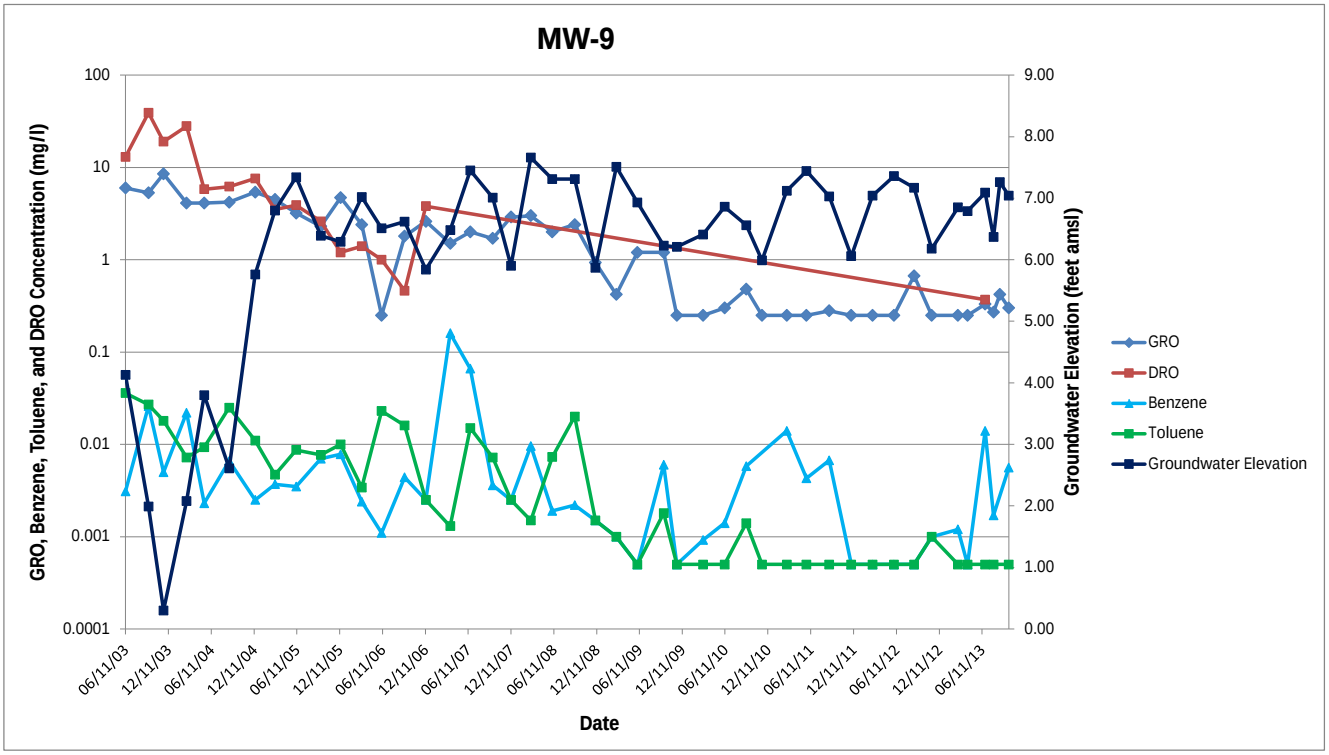


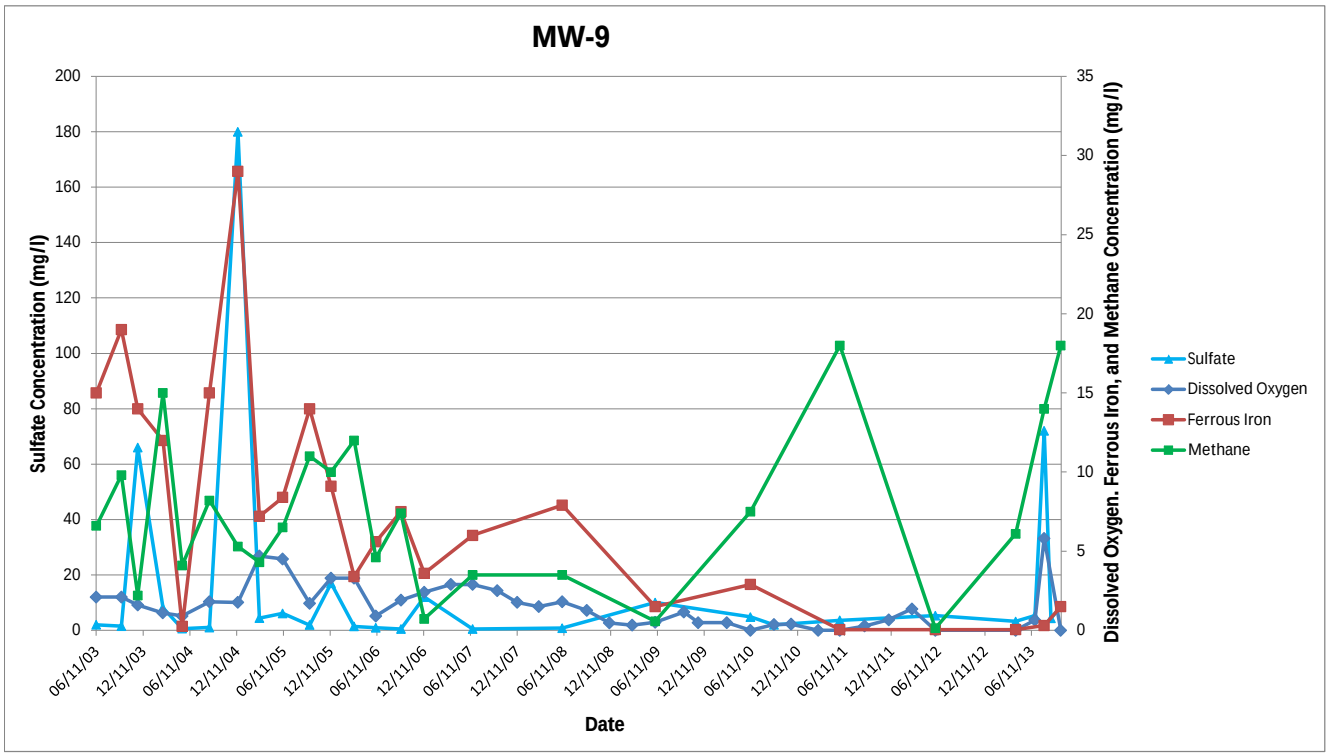


KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2014 REVISED GROUNDWATER MONITORING PLAN

ATTACHMENT A
HYDROGRAPH AND CONSTITUENT TREND GRAPHS

ARCADIS
Infrastructure · Water · Environment · Buildings

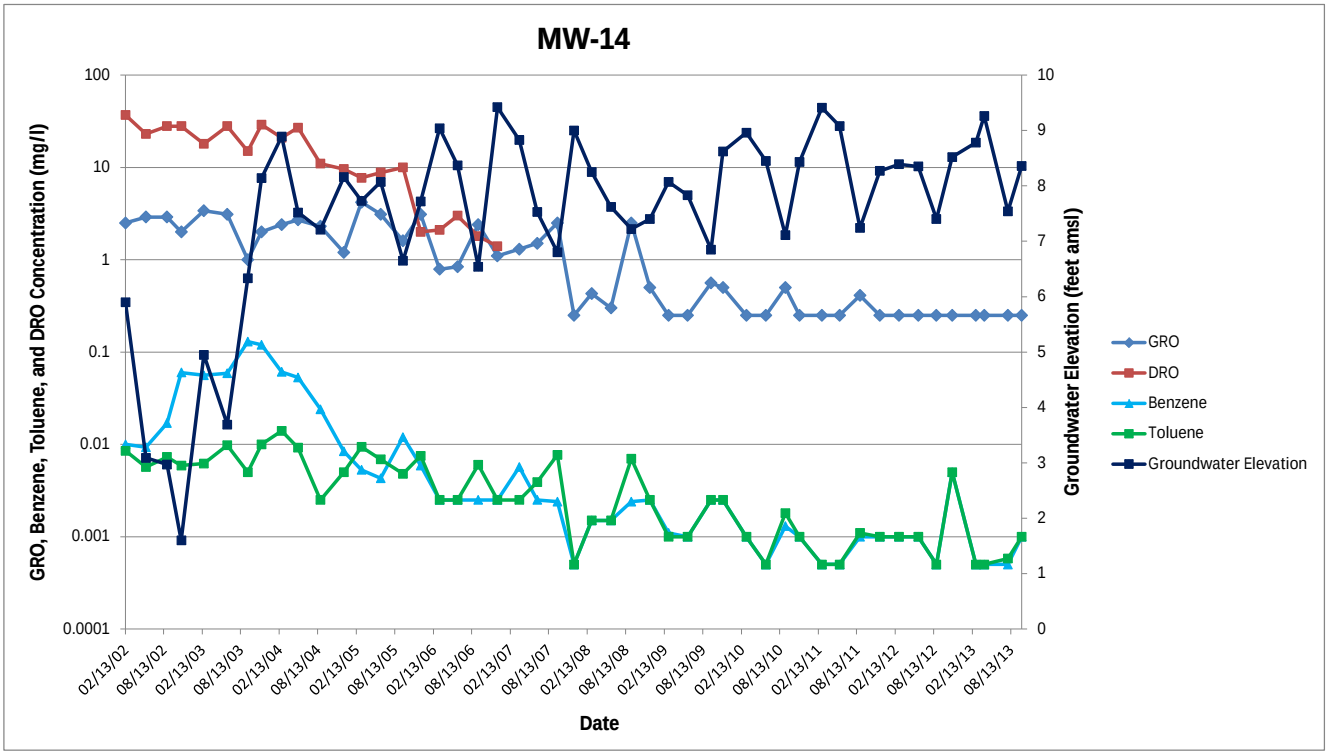


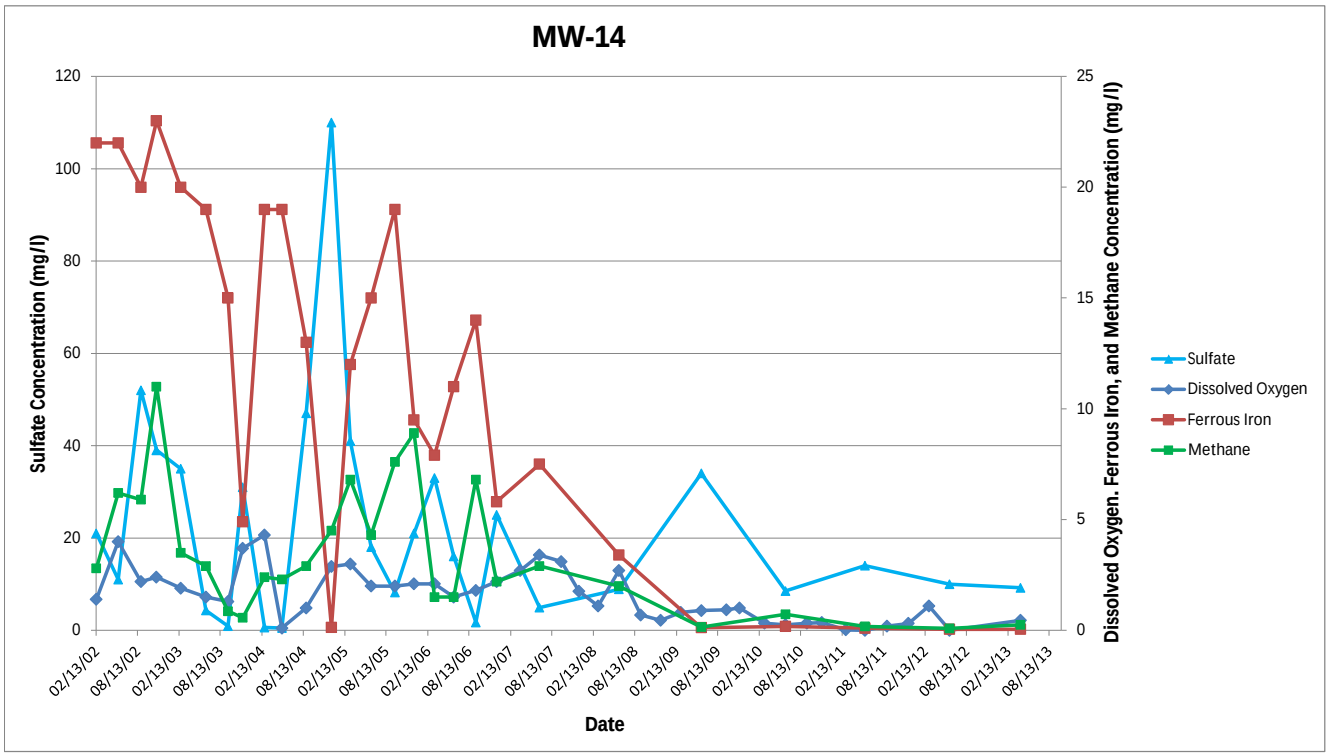


KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2014 REVISED GROUNDWATER MONITORING PLAN

ATTACHMENT A
HYDROGRAPH AND CONSTITUENT TREND GRAPHS

ARCADIS
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

ARCADIS
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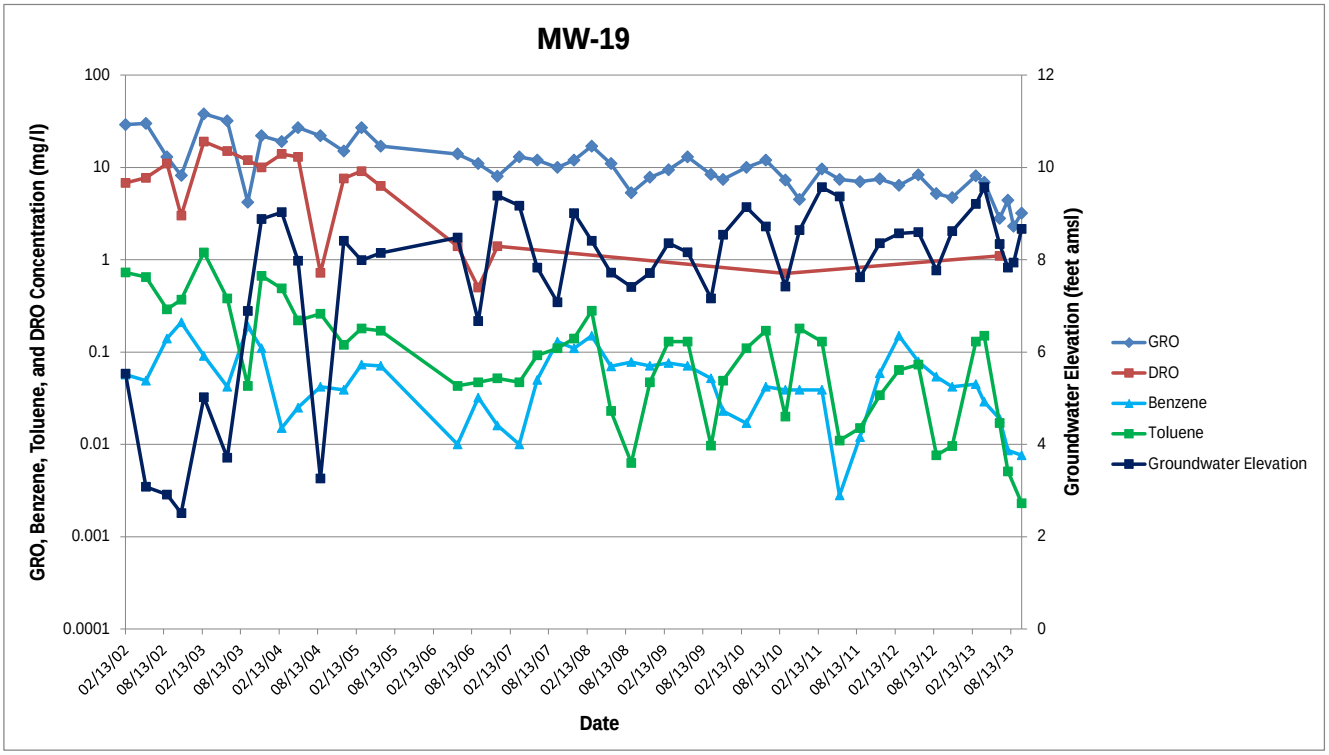

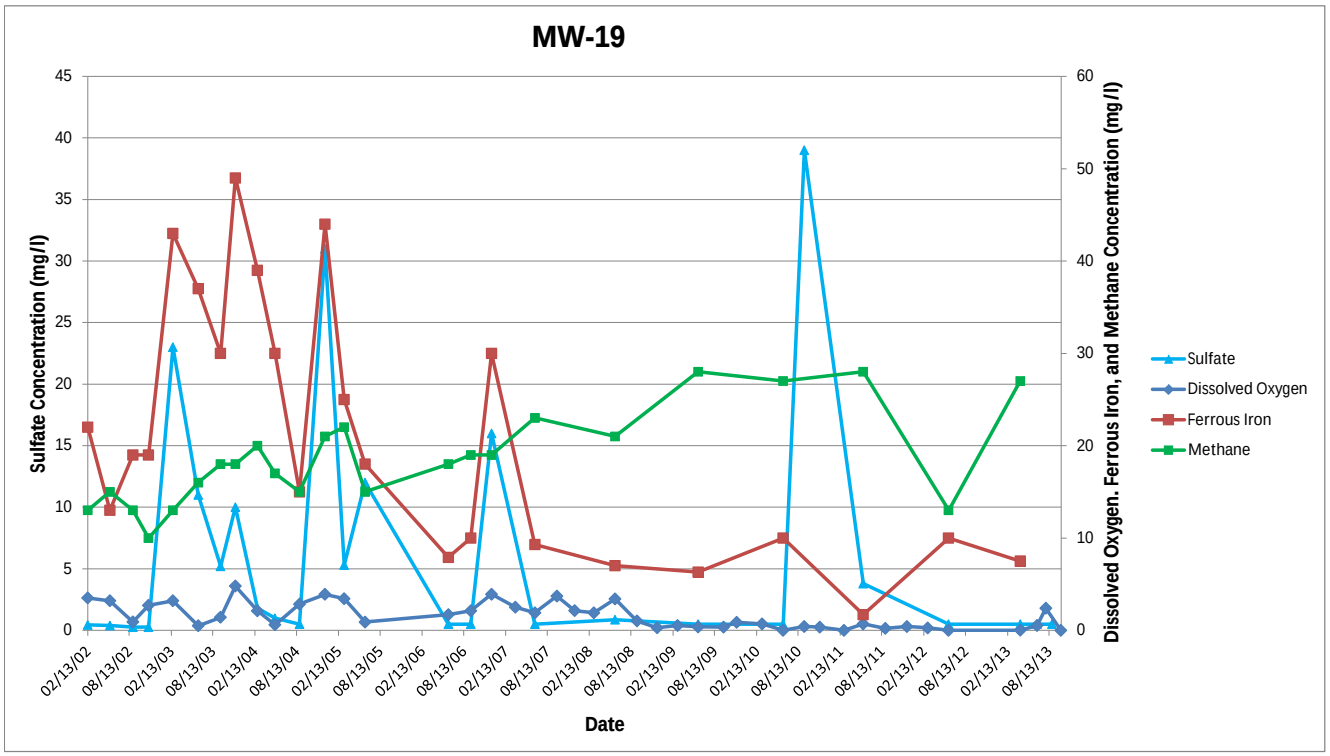

KINDER MORGAN LIQUID TERMINALS, LLC
HARBOR ISLAND TERMINAL
2720 13TH AVENUE SOUTHWEST, SEATTLE, WASHINGTON
2014 REVISED GROUNDWATER MONITORING PLAN

ATTACHMENT A
HYDROGRAPH AND CONSTITUENT TREND GRAPHS

ARCADIS
Infrastructure · Water · Environment · Buildings

From:	Flomerfelt, Jonathan
To:	Wenning, Scott
Cc:	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

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
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

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

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
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

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

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
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

MEMO

ARCADIS Design & Consultancy for natural and built assets

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 13th 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 13th Avenue right-of-way, all of which have been below site-specific cleanup levels for at least 4 years[i] 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.

[i] 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.

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

RAILROAD TRACKS

11th AVENUE S.W.

MW-12R

MW-4 SH-02R MW-07R SH-05R GATE

MW-1 MW-15 TMW-C1 MW-20 WAREHOUSE MAINTENANCE BUILDINGS

Tank 43 Tank 44 Tank 18 Tank 19 Tank 22 Tank 20 Tank 23 Tank 29 Tank 24 Tank 21 Tank 27 Tank 28 Tank 42 Tank 37 Tank 32 Tank 31 Tank 39 Tank 35 Tank 25 Tank 33 Tank 26

'E' YARD 'C' YARD 'D' YARD 'B' YARD 'A' YARD

GATE OLYMPIC PIPELINE LEASE AREA

MW-14 BBL STORAGE MW-5 TMW-2 TMW-C2 TMW-C3 MW-19 TMW-1 MW-3 TMW-3 TMW-4 MW-7 TMW-6 TMW-5 MW-9 MW-11D MW-21 MW-8 TMW-C4 RAMP

TRUCK LOADING RACK GARAGE OFFICE BUILDING PARKING

SF-01R RE-ESTABLISHED PROPERTY LINE (APPROXIMATE) FORMER PROPERTY LINE FENCE MW-25

TMW-E3 TMW-E2 TMW-E1 MW-2 PROPERTY LINE MW-22 GATE MW-6 TMW-B1 A-27 GATE A-26R A-22R MW-24 MW-23 A-23R PARKING

13th AVENUE S.W.

TMW-E4 MW-18 MW-17 MW-16 SH-04 A-28R

0 60' 120' 240'

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

SITE PLAN

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

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 [1]	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 [1]	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 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
A-28R	1Q	X			X		X	X
	3Q	X			X	X	X	X
11 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
12 [2]	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 [1]	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 [2]	1Q	X			X		X	X
	3Q	X			X	X	X	X
MW-8	1Q							X
	3Q	X	X	X	X	X		X
MW-9 [2]	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 [2]	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 [1]	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 [1]	Depth to Water/SPH by downhole meter
TMW-1 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-2 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-3 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-4 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-5 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
TMW-6 [2]	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 [1]	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 [1]	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 [2]	1Q	X			X		X	X
	3Q	X			X		X	X
A-28R	1Q	X			X		X	X
	3Q	X			X	X	X	X
11 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	X
12 [2]	1Q	X			X		X [3]	X
	3Q	X	X	X	X	X	X [3]	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 [1]	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 [2]	1Q	X			X		X [3]	X
	3Q	X			X	X	X [3]	X
MW-8	1Q							X
	3Q	X	X	X	X	X		X
MW-9 [2]	1Q	X			X		X [3]	X
	3Q	X			X	X	X [3]	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 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	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 [1]	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 [1]	Depth to Water/SPH by downhole meter
TMW-1 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	X
TMW-2 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	X
TMW-3 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	X
TMW-4 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	X
TMW-5 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	X
TMW-6 [2]	1Q	X			X		X [3]	X
	3Q	X			X		X [3]	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 Analystical 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

DEPARTMENT OF ECOLOGY
State of Washington

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
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.

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Connect with us! www.arcadis.com | LinkedIn | Twitter | Facebook

From: Cruz, Jerome (ECY) [mailto:JCRU461@ECY.WA.GOV]
Sent: Thursday, July 28, 2016 9:18 AM
To: Annis, Matt <Matt.Annis@arcadis.com>
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 Matt,
I started reviewing the analyrte 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 2o request had maps showing current quarterly and annual GW monitoring locations (Fig. 2), proposed semi- and annual locations (Fig. 3), and propsoed performance monitorng locaitons (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
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>
Cc: Haslam, Kyle <Kyle.Haslam@arcadis.com>; Truedinger, Robert (Robert_Truedinger@kindermorgan.com) <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
Arcadis | Arcadis U.S., Inc.
1100 Olive Way, Suite 800 | Seattle, WA | 98101 | USA
T. +1 206 726 4716 | M. +1 206 434 1929

From: Annis, Matt
Sent: Wednesday, February 24, 2016 3:53 PM
To: 'mobr461@ecy.wa.gov' <mobr461@ecy.wa.gov>
Cc: Truedinger, Robert (Robert_Truedinger@kindermorgan.com) <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
Arcadis | T. +1 206 726 4716 | M. +1 206 434 1929
www.arcadis.com

From: Annis, Matt
Sent: Thursday, February 11, 2016 2:23 PM
To: 'mobr461@ecy.wa.gov' <mobr461@ecy.wa.gov>
Cc: Truedinger, Robert (Robert_Truedinger@kindermorgan.com) <Robert_Truedinger@kindermorgan.com>; Haslam, Kyle <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
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1100 Olive Way, Suite 800 | Seattle, WA | 98101 | USA
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Appendix B

Groundwater Monitoring Field Data Sheets

Invoice: Date : 07 Jun 23

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER GAUGING SHEET

Site: KMLT - Harbor Island Project #: 30157380

Address: 2720 13th Ave SW, Seattle, WA Date: 3-1-23

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW (ft)	TD (ft)	PID (ppm)	Notes
A-4	1009	—	—	—	6.46		0	
A-5	1015	trace	—	—	6.29	—	21.1	LNAPL probe tip
A-6	1024	—	—	—	7.32		46.6	
A-8	1028	—	—	—	7.46		21.1	
A-10	1041	—	—	—	6.47		0.1	
A-11								STUCK?
A-12	1036	—	—	—	6.62		0.1	
A-14R	1033	—	—	—	7.22	—	0	
A-16	1054	SHEEN ODOR	—	—	7.51		515.4	
A-18	1044	—	—	—	7.67		0	
A-19	1131	—	—	—	7.64	—	0.6	
A-20	1130	—	—	—	7.33		6.0	
A-21	1135	—	—	—	7.38		0.0	
A-22R		0.0			—	—	—	
A-23R	1315	—	—	—	8.63		0.0	
A-25	1006	—	—	—	6.94		33.1	
A-26R	1157	—	—	—	7.16	—	718.4	
A-27	1208	—	—	—	10.04		673.2	
A-28R	1204	—	—	—	7.54	—	10.0	
11	0948	—	—	—	3.52	—	0.0	
12	0932	—	—	—	1.13		1.1	

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER GAUGING SHEET

Site: KMLT - Harbor Island Project #: 30157380

Address: 2720 13th Ave SW, Seattle, WA Date: 3-1-23

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW (ft)	TD (ft)	PID (ppm)	Notes
MW-07R	1308	0			5.27	—	0.0	
MW-11	1357	~~H.S~~	—	~~P.C~~	4.85	—	~~0.1~~	
MW-2	1417	~~J.J~~		~~5.3.7~~	6.18	—	0.0	~~OBJECT~~?
MW-3		1.15		~~J.J.7~~	—	—	—	
MW-4		1.0		~~F.J.J~~	—	—	—	
MW-5								
MW-6		1.0		~~G1.J~~	—	—	—	
MW-7	0939	~~0~~	—	~~6.6.F~~	1.74	—	0.0	
MW-8		~~N.S.C~~		~~1.3.F~~	—	—	USESHC STUDY	
MW-9		0		~~f.J.F~~	—	—	—	
MW-12R	1316	~~2.0~~	—	~~N.1.F~~	6.69	—	1.9	
MW-14		0.0		~~4.3.3~~	—	—	—	
MW-16		0.0		~~3.8.F~~	—	—	—	
MW-18	1424	—	—	—	6.05		0.0	
MW-19		0.0		~~E.J.8~~	—	—	—	
MW-20		1.22		~~N.P.J~~	—	—	—	
MW-21	0955	~~1.8~~	—	~~J.1.F~~	2.26	—	0.0	BEER, NO LNAPL ON PROBE
MW-22		~~5.8.F~~		~~N.0.01~~	—	—	—	
MW-23	1150	~~0.01~~	—	~~N.2.F~~	7.12	—	10.6	
MW-24	1145	~~C.0~~	—	~~5.7.F~~	7.92	—	756.0	
MW-25		1.1		~~E.1.J~~	—	—	~~[illegible]~~	
SH-02R	1326	—	—	—	4.72		0.6	

TRUCK

STUCK

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER GAUGING SHEET

Site: KMLT - Harbor Island Project #: 30157380

Address: 2720 13th Ave SW, Seattle, WA Date: 3-1-23

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW (ft)	TD (ft)	PID (ppm)	Notes
SH-05R	1210	—	—	—	6.41		0.0	
TMW-1	0907	—	—	—	2.33	13.33		
TMW-2								
TMW-3	0942	—	—	—	2.61		0.0	
TMW-4								
TMW-5	0929	—	—	—	2.34		21.2	
TMW-6								
TMW-B1								

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER GAUGING SHEET

Site: KMLT - Harbor Island Project #: 30157380

Address: 2720 13th Ave SW, Seattle, WA Date: 3-1-2023

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW (ft)	TD (ft)	PID (ppm)	Notes
A-4								
A-5								
A-6								
A-8								
A-10								
A-11								
A-12	~~1137~~				~~7.12~~		~~357.2~~	JH
A-14R								
A-16								
A-18								
A-19								
A-20	1130	—	—	—	7.33	—	0	
A-21								
A-22R	1137				7.12		357.2	
A-23R								
A-25								
A-26R								
A-27								MH
A-28R								
11								
12								

* truck parked on

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER GAUGING SHEET

Site: KMLT - Harbor Island Project #: 30157380

Address: 2720 13th Ave SW, Seattle, WA Date: 3-1-2023

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW (ft)	TD (ft)	PID (ppm)	Notes
MW-07R	1308				5.27		0	
MW-1								
MW-2								
MW-3	1402	—	—	—	2.1	—	0	
MW-4	1321	—	—	—	5.65		6.0	
MW-5	9:04	—	—	—	1.90	13.15	—	
MW-6	1416	—	—	—	6.15	—	0	
MW-7								
MW-8	9156	—	—	—	2.73	—	0	
MW-9	937	—	—	—	2.09	—	[illegible]	
MW-12R								
MW-14	~~9:04~~ 1402	—	—	—	~~1.98~~ 2.39	~~13.15~~	—	
MW-16								
MW-18		[illegible]		[illegible]				[illegible]
MW-19	9:20	—	—	—	1.83	—	14.6	
MW-20	13:49	—	—	—	2.35	—	0.6	
MW-21								
MW-22	1414	—	—	—	7.17	—	0	
MW-23								
MW-24								
MW-25								
SH-02R								

* truck on top

ARCADIS Design & Consultancy for natural and built assets

GROUNDWATER GAUGING SHEET

Site: KMLT - Harbor Island

Address: 2720 13th Ave SW, Seattle, WA

Project #: 30157380

Date: 3-1-2023

Well ID	Time	Sheen/ Odor	LNAPL Depth	LNAPL Thickness	DTW (ft)	TD (ft)	PID (ppm)	Notes
SH-05R								
TMW-1								
TMW-2	907	—	—	—	2.44	15.31	0.6	
TMW-3								
TMW-4	943	—	—	—	2.05	—	—	
TMW-5								
TMW-6	930	—	—	—	1.57	—	0.9	
TMW-B1	1420				6.96		684.1	

ARCADIS Design & Consultancy for natural and built assets

Site ID: **KMLT Harbor Island Terminal** Project #: 30157380

Site Address: **2720 13th Ave SW, Seattle, WA** Date: 9/19/2023

Well ID	Time	Sheen/ Odor	LNAPL Depth (ft btoc)	LNAPL Thickness (feet)	DTW (feet btoc)	TD (feet btoc)	Notes
A-4	13:07	Low odor	-	Trace KolorKut	7.19	12.61	PID: 17.3 ppm
A-5	13:30	Medium Odor	-	No reaction w/ KolorKut	7.93	14.89	PID: 179.1 ppm
A-6	13:17	Medium Odor	6.87	Reaction w/ KolorKut	6.87	23.85	PID: 57.3 ppm
A-8	13:37	-	-	-	8.02	24.89	PID: 37.9 ppm
A-10	-	-	-	-	7.08	24.02	PID: 0.0 ppm
A-11	Well lid stuck						
A-12	-	-	-	-	6.7	23.22	PID: 0.0 ppm
A-14R	-	-	-	-	7.8	14.9	PID: 0.0 ppm
A-16	-	-	8.05	0.07	8.12	13.91	PID: 516.1 ppm
A-18	-	-	-	-	8.22	13.75	PID: 0.0 ppm
A-19	12:38	-	-	-	8.21	11.05	PID: 0.0 ppm
A-20	12:41	-	-	-	7.83	13.62	PID: 0.0 ppm
A-21	12:45	-	-	-	7.92	14.51	PID: 0.0 ppm
A-22R	12:22	Low odor	-	-	7.71	14.68	PID: 31.2 ppm
A-23R	-	-	-	-		15.95	PID: 0.0 ppm
A-25	-	-	-	-	7.62	13.95	PID: 67.2 ppm
A-26R	-	-	-	-	7.82	14.43	PID: 293.9 ppm
A-27	-	-	-	-	10.83	17.85	PID: 15.29 ppm
A-28R	12:24	Low odor	-	-	8.49	14.34	PID: 49.1 ppm
11	10:45	-	-	-	5.23	11.87	PID: 0.0 ppm
12	-	-	-	-	2.74	7.45	PID: 91.8 ppm
MW-07R	-	-	-	-	6.96	12.69	PID: 0.0 ppm
MW-1	-	-	-	-	6.3	12.8	PID: 0.1 ppm
MW-2	12:01	-	-	-	7.91	12.71	PID: 0.0 ppm
MW-3	-	-	-	-	4.06	13.22	PID: 0.0 ppm

ARCADIS Design & Consultancy for natural and built assets

Site ID: **KMLT Harbor Island Terminal** Project #: 30157380

Site Address: **2720 13th Ave SW, Seattle, WA** Date: 9/19/2023

Well ID	Time	Sheen/ Odor	LNAPL Depth (ft btoc)	LNAPL Thickness (feet)	DTW (feet btoc)	TD (feet btoc)	Notes
MW-4	11:32	Low odor	-	-	7.29	14.27	PID: 97.3 ppm
MW-5	10:15	Low odor	-	-	3.78	13.18	PID: 0.0 ppm
MW-6	12:11	-	-	-	7.77	13.12	PID: 0.0 ppm
MW-7	10:26	-	-	-	3.24	12.89	PID: 40.1 ppm
MW-8	10:50	Low odor	-	No reaction w/ KolorKut	4.25	13.12	PID: 0.0 ppm
MW-9	-	-	-	-	3.3	12.89	PID: 0.0 ppm
MW-12R	11:44	-	-	-	8.11	14.24	PID: 3.6 ppm
MW-14	-	-	-	-	4.23	13.58	PID: 0.0 ppm
MW-16	12:16	-	-	-	7.74	14.09	PID: 0.0 ppm
MW-18	-	-	-	-	7.69	13.9	PID: 0.1 ppm
MW-19	-	-	-	-	3.38	12.98	PID: 22.0 ppm
MW-20	10:00	-	-	-	4.13	11.75	PID: 0.6 ppm
MW-21	11:07	-	-	-	3.31	11.63	PID: 0.0 ppm
MW-22	12:07	-	-	-	8.96	13.31	PID: 0.0 ppm
MW-23	-	-	-	-	7.71	14.81	PID: 273.4 ppm
MW-24	-	-	-	-	7.72	14.76	PID 71.3 ppm
MW-25	Well lid stuck						
SH-02R	11:37	-	-	-	6.22	14.67	PID: 0.0 ppm
SH-05R	-	-	-	-	7.3	13.67	PID: 0.0 ppm
TMW-B1	-	-	-	-	8.31	14.75	PID: 28.1 ppm
TMW-1	10:11	-	-	-	4.08	13.38	PID: 0.0 ppm
TMW-2	10:06	-	-	-	4.22	15.29	PID: 0.0 ppm
TMW-3	10:30	-	-	-	4.14	15.52	PID: 0.0 ppm
TMW-4	10:35	-	-	-	3.04	15.41	PID: 0.0 ppm
TMW-5	-	-	-	-	3.74	13.84	PID: 0.0 ppm
TMW-6	-	-	-	-	2.8	14.11	PID: 0.1 ppm

Low-Flow Test Report:

Test Date / Time: 3/2/2023 9:53:42 AM
Project: KMLT Harbor Island
Operator Name: Savannah Green

Location Name: TMW-2 **Casing Type: PVC** **Initial Depth to Water: 2.43 ft**	**Pump Type: Peristaltic Pump** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 1800 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.8 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

Weather Conditions:
Overcast 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		
3/2/2023 9:53 AM	00:00	7.06 pH	8.36 °C	0.08 µS/cm	11.30 mg/L	234.18 NTU	209.7 mV	2.43 ft	150.00 ml/min
3/2/2023 9:56 AM	03:00	6.85 pH	8.40 °C	0.08 µS/cm	11.30 mg/L	1.80 NTU	214.1 mV	2.43 ft	150.00 ml/min
3/2/2023 9:59 AM	06:00	6.73 pH	8.44 °C	0.08 µS/cm	11.25 mg/L	6.40 NTU	211.5 mV	2.43 ft	150.00 ml/min
3/2/2023 10:02 AM	09:00	6.76 pH	8.48 °C	0.08 µS/cm	11.22 mg/L	7.39 NTU	209.6 mV	2.43 ft	150.00 ml/min
3/2/2023 10:05 AM	12:00	6.76 pH	8.46 °C	0.08 µS/cm	11.14 mg/L	7.51 NTU	210.4 mV	2.43 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-2	Sample time 10:10

Low-Flow Test Report:

Test Date / Time: 3/2/2023 9:56:23 AM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: MW-21 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 5850 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/2/2023 9:56 AM	00:00	7.19 pH	49.04 °F	93.22 µS/cm	11.16 mg/L	42.95 NTU	171.4 mV	150.00 ml/min
3/2/2023 9:59 AM	03:00	6.03 pH	48.79 °F	120.61 µS/cm	11.14 mg/L	122.55 NTU	158.8 mV	150.00 ml/min
3/2/2023 10:02 AM	06:00	5.91 pH	47.91 °F	122.57 µS/cm	11.21 mg/L	138.01 NTU	158.3 mV	150.00 ml/min
3/2/2023 10:05 AM	09:00	5.87 pH	47.93 °F	87.20 µS/cm	11.14 mg/L	124.83 NTU	152.5 mV	150.00 ml/min
3/2/2023 10:08 AM	12:00	5.86 pH	47.89 °F	75.00 µS/cm	11.10 mg/L	131.53 NTU	145.8 mV	150.00 ml/min
3/2/2023 10:11 AM	15:00	5.88 pH	47.98 °F	95.46 µS/cm	11.04 mg/L	129.89 NTU	141.6 mV	150.00 ml/min
3/2/2023 10:14 AM	18:00	5.87 pH	47.91 °F	104.92 µS/cm	11.00 mg/L	98.17 NTU	138.6 mV	150.00 ml/min
3/2/2023 10:17 AM	21:00	5.76 pH	47.83 °F	61.54 µS/cm	5.15 mg/L	8.94 NTU	134.9 mV	150.00 ml/min
3/2/2023 10:20 AM	24:00	5.88 pH	47.62 °F	58.37 µS/cm	2.34 mg/L	10.50 NTU	134.1 mV	150.00 ml/min
3/2/2023 10:23 AM	27:00	5.89 pH	47.53 °F	56.53 µS/cm	1.59 mg/L	8.55 NTU	129.7 mV	150.00 ml/min
3/2/2023 10:26 AM	30:00	5.89 pH	47.81 °F	54.29 µS/cm	1.19 mg/L	8.57 NTU	126.2 mV	150.00 ml/min
3/2/2023 10:29 AM	33:00	5.89 pH	47.85 °F	55.98 µS/cm	1.01 mg/L	8.95 NTU	122.1 mV	150.00 ml/min
3/2/2023 10:32 AM	36:00	5.88 pH	48.05 °F	54.68 µS/cm	0.94 mg/L	9.29 NTU	121.3 mV	150.00 ml/min
3/2/2023 10:35 AM	39:00	5.89 pH	48.09 °F	54.54 µS/cm	0.98 mg/L	9.40 NTU	121.2 mV	150.00 ml/min

Samples

Sample ID:	Description:

MW-21	@10:40
DUP-1	MW-21

Low-Flow Test Report:

Test Date / Time: 3/2/2023 10:33:18 AM
Project: KMLT Harbor Island (2)
Operator Name: Savannah Green

Location Name: TMW-1 **Casing Type: PVC** **Initial Depth to Water: 2.29 ft**	**Pump Type: Peristaltic Pump** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 1350 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

Weather Conditions:
Overcast 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		
3/2/2023 10:33 AM	00:00	6.55 pH	8.24 °C	0.08 µS/cm	11.53 mg/L	7.68 NTU	206.8 mV	2.29 ft	150.00 ml/min
3/2/2023 10:36 AM	03:00	6.53 pH	7.71 °C	0.08 µS/cm	11.38 mg/L	38.95 NTU	217.8 mV	2.29 ft	150.00 ml/min
3/2/2023 10:39 AM	06:00	6.53 pH	7.71 °C	0.08 µS/cm	11.53 mg/L	37.76 NTU	216.7 mV	2.29 ft	150.00 ml/min
3/2/2023 10:42 AM	09:00	6.52 pH	7.71 °C	0.08 µS/cm	11.55 mg/L	36.80 NTU	215.7 mV	2.29 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-1	Sample time 1045

Low-Flow Test Report:

Test Date / Time: 3/2/2023 11:24:42 AM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: MW-9 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 4950 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/2/2023 11:24 AM	00:00	6.27 pH	46.89 °F	84.58 µS/cm	11.39 mg/L	30.94 NTU	145.8 mV	150.00 ml/min
3/2/2023 11:27 AM	03:00	6.57 pH	46.94 °F	85.54 µS/cm	8.54 mg/L	27.31 NTU	134.9 mV	150.00 ml/min
3/2/2023 11:30 AM	06:00	6.65 pH	47.32 °F	80.89 µS/cm	7.73 mg/L	24.16 NTU	127.5 mV	150.00 ml/min
3/2/2023 11:33 AM	09:00	6.74 pH	47.66 °F	89.97 µS/cm	7.44 mg/L	25.03 NTU	122.4 mV	150.00 ml/min
3/2/2023 11:36 AM	12:00	6.78 pH	47.45 °F	90.24 µS/cm	7.31 mg/L	24.23 NTU	121.4 mV	150.00 ml/min
3/2/2023 11:39 AM	15:00	6.80 pH	47.37 °F	93.46 µS/cm	7.22 mg/L	20.16 NTU	119.7 mV	150.00 ml/min
3/2/2023 11:42 AM	18:00	6.80 pH	47.15 °F	82.15 µS/cm	7.18 mg/L	18.39 NTU	118.6 mV	150.00 ml/min
3/2/2023 11:45 AM	21:00	6.79 pH	47.16 °F	83.78 µS/cm	7.11 mg/L	18.45 NTU	116.9 mV	150.00 ml/min
3/2/2023 11:48 AM	24:00	6.80 pH	47.06 °F	79.88 µS/cm	7.10 mg/L	19.55 NTU	113.6 mV	150.00 ml/min
3/2/2023 11:51 AM	27:00	6.83 pH	47.13 °F	83.24 µS/cm	7.08 mg/L	18.78 NTU	110.8 mV	150.00 ml/min
3/2/2023 11:54 AM	30:00	6.80 pH	47.17 °F	83.45 µS/cm	7.05 mg/L	17.78 NTU	109.1 mV	150.00 ml/min
3/2/2023 11:57 AM	33:00	6.81 pH	47.16 °F	83.51 µS/cm	7.03 mg/L	19.03 NTU	109.8 mV	150.00 ml/min

Samples

Sample ID:	Description:
MW-9	@1200

Low-Flow Test Report:

Test Date / Time: 3/2/2023 11:36:26 AM
Project: KMLT Harbor Island
Operator Name: Savannah Green

Location Name: MW-19 **Initial Depth to Water: 2.84 ft**	**Pump Type: Peristaltic Pump** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 4500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

Weather Conditions:
Overcast 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		
3/2/2023 11:36 AM	00:00	6.69 pH	8.79 °C	0.08 µS/cm	10.33 mg/L	41.53 NTU	205.5 mV	2.84 ft	150.00 ml/min
3/2/2023 11:39 AM	03:00	6.67 pH	8.71 °C	0.08 µS/cm	10.81 mg/L	55.66 NTU	195.9 mV	2.84 ft	150.00 ml/min
3/2/2023 11:42 AM	06:00	6.65 pH	8.81 °C	0.08 µS/cm	10.59 mg/L	54.59 NTU	177.0 mV	2.84 ft	150.00 ml/min
3/2/2023 11:45 AM	09:00	6.66 pH	8.95 °C	0.08 µS/cm	10.32 mg/L	54.25 NTU	153.1 mV	2.84 ft	150.00 ml/min
3/2/2023 11:48 AM	12:00	6.66 pH	9.02 °C	0.08 µS/cm	10.17 mg/L	53.67 NTU	114.1 mV	2.84 ft	150.00 ml/min
3/2/2023 11:51 AM	15:00	6.67 pH	9.09 °C	0.08 µS/cm	10.03 mg/L	53.31 NTU	24.8 mV	2.84 ft	150.00 ml/min
3/2/2023 11:54 AM	18:00	6.68 pH	9.18 °C	0.08 µS/cm	9.92 mg/L	52.21 NTU	-62.9 mV	2.84 ft	150.00 ml/min
3/2/2023 11:57 AM	21:00	6.69 pH	9.27 °C	0.08 µS/cm	9.83 mg/L	51.26 NTU	-105.4 mV	2.84 ft	150.00 ml/min
3/2/2023 12:00 PM	24:00	6.70 pH	9.34 °C	0.08 µS/cm	9.78 mg/L	50.99 NTU	-115.8 mV	2.84 ft	150.00 ml/min
3/2/2023 12:03 PM	27:00	6.70 pH	9.35 °C	0.08 µS/cm	9.75 mg/L	52.25 NTU	-121.9 mV	2.84 ft	150.00 ml/min
3/2/2023 12:06 PM	30:00	6.70 pH	9.36 °C	0.08 µS/cm	9.72 mg/L	53.85 NTU	-124.8 mV	2.84 ft	150.00 ml/min

Samples

Sample ID:	Description:

MW-19	Sample time 12:10

Low-Flow Test Report:

Test Date / Time: 3/2/2023 12:44:37 PM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: TMW-6 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/2/2023 12:44 PM	00:00	6.69 pH	48.82 °F	4,314.3 µS/cm	8.37 mg/L	7.86 NTU	152.7 mV	150.00 ml/min
3/2/2023 12:47 PM	03:00	6.76 pH	49.06 °F	4,124.3 µS/cm	3.19 mg/L	8.47 NTU	49.8 mV	150.00 ml/min
3/2/2023 12:50 PM	06:00	6.81 pH	48.83 °F	4,216.7 µS/cm	2.02 mg/L	15.07 NTU	20.1 mV	150.00 ml/min
3/2/2023 12:53 PM	09:00	6.82 pH	48.80 °F	4,156.0 µS/cm	1.58 mg/L	8.96 NTU	10.5 mV	150.00 ml/min
3/2/2023 12:56 PM	12:00	6.85 pH	48.96 °F	4,231.9 µS/cm	1.25 mg/L	9.54 NTU	5.4 mV	150.00 ml/min
3/2/2023 12:59 PM	15:00	6.86 pH	49.74 °F	4,282.6 µS/cm	0.97 mg/L	10.86 NTU	1.1 mV	150.00 ml/min
3/2/2023 1:02 PM	18:00	6.87 pH	50.00 °F	4,282.0 µS/cm	0.76 mg/L	8.75 NTU	-5.5 mV	150.00 ml/min
3/2/2023 1:05 PM	21:00	6.88 pH	49.99 °F	4,303.1 µS/cm	0.63 mg/L	8.20 NTU	-5.8 mV	150.00 ml/min
3/2/2023 1:08 PM	24:00	6.88 pH	50.33 °F	4,307.1 µS/cm	0.56 mg/L	11.26 NTU	-8.5 mV	150.00 ml/min
3/2/2023 1:11 PM	27:00	6.89 pH	50.46 °F	4,336.3 µS/cm	0.56 mg/L	7.01 NTU	-12.7 mV	150.00 ml/min
3/2/2023 1:14 PM	30:00	6.90 pH	50.83 °F	4,330.5 µS/cm	0.50 mg/L	8.46 NTU	-12.9 mV	150.00 ml/min
3/2/2023 1:17 PM	33:00	6.90 pH	50.84 °F	4,290.5 µS/cm	0.43 mg/L	8.96 NTU	-18.1 mV	150.00 ml/min
3/2/2023 1:20 PM	36:00	6.91 pH	50.94 °F	4,270.0 µS/cm	0.34 mg/L	8.92 NTU	-23.1 mV	150.00 ml/min
3/2/2023 1:23 PM	39:00	6.92 pH	51.10 °F	4,242.4 µS/cm	0.29 mg/L	9.60 NTU	-25.6 mV	150.00 ml/min
3/2/2023 1:26 PM	42:00	6.91 pH	51.08 °F	4,229.8 µS/cm	0.25 mg/L	8.48 NTU	-29.9 mV	150.00 ml/min
3/2/2023 1:29 PM	45:00	6.91 pH	51.00 °F	4,214.9 µS/cm	0.20 mg/L	8.48 NTU	-31.5 mV	150.00 ml/min

Samples

Sample ID:	Description:
TMW-6	@1330 RDO did not stabilize

Low-Flow Test Report:

Test Date / Time: 3/2/2023 12:50:29 PM
Project: KMLT Harbor Island
Operator Name: Savannah Green

Location Name: A-21 **Initial Depth to Water: 7.36 ft**	**Pump Type: Peristaltic Pump** **Pump Intake From TOC: 12 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.6 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

Weather Conditions:
Overcast 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		
3/2/2023 12:50 PM	00:00	6.65 pH	11.56 °C	0.07 µS/cm	9.86 mg/L	481.84 NTU	79.5 mV	7.36 ft	150.00 ml/min
3/2/2023 12:53 PM	03:00	6.53 pH	11.96 °C	0.07 µS/cm	9.56 mg/L	472.26 NTU	118.9 mV	7.36 ft	150.00 ml/min
3/2/2023 12:56 PM	06:00	6.42 pH	12.20 °C	0.07 µS/cm	9.35 mg/L	465.15 NTU	133.8 mV	7.36 ft	150.00 ml/min
3/2/2023 12:59 PM	09:00	6.37 pH	12.51 °C	0.07 µS/cm	9.14 mg/L	354.44 NTU	140.0 mV	7.36 ft	150.00 ml/min
3/2/2023 1:02 PM	12:00	6.34 pH	12.60 °C	0.07 µS/cm	9.07 mg/L	358.03 NTU	143.2 mV	7.36 ft	150.00 ml/min
3/2/2023 1:05 PM	15:00	6.33 pH	12.72 °C	0.07 µS/cm	8.96 mg/L	362.32 NTU	144.9 mV	7.36 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-21	Sample time 13:10

Low-Flow Test Report:

Test Date / Time: 3/2/2023 1:54:30 PM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: TMW-5 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 4050 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/2/2023 1:54 PM	00:00	7.39 pH	53.47 °F	3,579.8 µS/cm	6.77 mg/L	1.25 NTU	2.8 mV	150.00 ml/min
3/2/2023 1:57 PM	03:00	7.45 pH	52.43 °F	3,521.8 µS/cm	2.58 mg/L	2.01 NTU	-24.0 mV	150.00 ml/min
3/2/2023 2:00 PM	06:00	7.47 pH	52.23 °F	3,485.1 µS/cm	1.52 mg/L	0.70 NTU	-35.3 mV	150.00 ml/min
3/2/2023 2:03 PM	09:00	7.47 pH	51.94 °F	3,458.7 µS/cm	1.37 mg/L	0.47 NTU	-41.1 mV	150.00 ml/min
3/2/2023 2:06 PM	12:00	7.46 pH	52.08 °F	3,427.7 µS/cm	1.37 mg/L	0.95 NTU	-46.1 mV	150.00 ml/min
3/2/2023 2:09 PM	15:00	7.46 pH	51.95 °F	3,403.2 µS/cm	1.21 mg/L	1.37 NTU	-51.9 mV	150.00 ml/min
3/2/2023 2:12 PM	18:00	7.46 pH	52.19 °F	3,377.8 µS/cm	1.11 mg/L	0.73 NTU	-56.5 mV	150.00 ml/min
3/2/2023 2:15 PM	21:00	7.46 pH	52.12 °F	3,366.9 µS/cm	1.00 mg/L	0.66 NTU	-60.9 mV	150.00 ml/min
3/2/2023 2:18 PM	24:00	7.46 pH	52.17 °F	3,343.4 µS/cm	0.99 mg/L	0.47 NTU	-63.4 mV	150.00 ml/min
3/2/2023 2:21 PM	27:00	7.46 pH	52.39 °F	3,329.1 µS/cm	1.08 mg/L	0.80 NTU	-67.9 mV	150.00 ml/min

Samples

Sample ID:	Description:
TMW-5	@1425

Low-Flow Test Report:

Test Date / Time: 3/2/2023 2:09:53 PM
Project: KMLT Harbor Island
Operator Name: Savannah Green

Location Name: A-5 **Initial Depth to Water: 7.28 ft**	**Pump Type: Peristaltic Pump** **Pump Intake From TOC: 11 ft** **Estimated Total Volume Pumped: 1800 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.5 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

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		
3/2/2023 2:09 PM	00:00	5.94 pH	16.62 °C	0.07 µS/cm	8.76 mg/L	0.74 NTU	-39.1 mV	7.28 ft	150.00 ml/min
3/2/2023 2:12 PM	03:00	5.71 pH	15.82 °C	0.07 µS/cm	8.86 mg/L	5.04 NTU	-127.6 mV	7.28 ft	150.00 ml/min
3/2/2023 2:15 PM	06:00	5.74 pH	15.55 °C	0.07 µS/cm	8.64 mg/L	10.40 NTU	-122.1 mV	7.28 ft	150.00 ml/min
3/2/2023 2:18 PM	09:00	5.74 pH	15.36 °C	0.07 µS/cm	8.49 mg/L	12.71 NTU	-119.7 mV	7.28 ft	150.00 ml/min
3/2/2023 2:21 PM	12:00	5.79 pH	15.48 °C	0.07 µS/cm	8.32 mg/L	15.85 NTU	-120.2 mV	7.28 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-5	Sample time 14:25

Low-Flow Test Report:

Test Date / Time: 3/2/2023 2:47:14 PM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: TMW-4 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 4950 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/2/2023 2:47 PM	00:00	7.36 pH	52.19 °F	2,156.4 µS/cm	9.10 mg/L	5.20 NTU	49.9 mV	150.00 ml/min
3/2/2023 2:50 PM	03:00	7.32 pH	52.02 °F	2,450.8 µS/cm	3.53 mg/L	2.95 NTU	37.1 mV	150.00 ml/min
3/2/2023 2:53 PM	06:00	7.29 pH	51.44 °F	2,593.2 µS/cm	1.98 mg/L	2.59 NTU	32.9 mV	150.00 ml/min
3/2/2023 2:56 PM	09:00	7.27 pH	51.28 °F	2,707.1 µS/cm	1.31 mg/L	2.11 NTU	30.7 mV	150.00 ml/min
3/2/2023 2:59 PM	12:00	7.25 pH	51.07 °F	2,800.0 µS/cm	0.89 mg/L	2.12 NTU	29.5 mV	150.00 ml/min
3/2/2023 3:02 PM	15:00	7.25 pH	51.19 °F	2,842.6 µS/cm	0.65 mg/L	1.86 NTU	27.6 mV	150.00 ml/min
3/2/2023 3:05 PM	18:00	7.25 pH	51.01 °F	2,848.8 µS/cm	0.50 mg/L	1.90 NTU	25.5 mV	150.00 ml/min
3/2/2023 3:08 PM	21:00	7.25 pH	51.06 °F	2,872.9 µS/cm	0.46 mg/L	1.97 NTU	24.2 mV	150.00 ml/min
3/2/2023 3:11 PM	24:00	7.25 pH	50.85 °F	2,906.4 µS/cm	0.41 mg/L	1.59 NTU	23.3 mV	150.00 ml/min
3/2/2023 3:14 PM	27:00	7.25 pH	50.94 °F	2,892.7 µS/cm	0.34 mg/L	1.58 NTU	21.3 mV	150.00 ml/min
3/2/2023 3:17 PM	30:00	7.26 pH	50.89 °F	2,916.0 µS/cm	0.34 mg/L	1.51 NTU	21.0 mV	150.00 ml/min
3/2/2023 3:20 PM	33:00	7.25 pH	51.22 °F	2,903.5 µS/cm	0.35 mg/L	1.35 NTU	20.6 mV	150.00 ml/min

Samples

Sample ID:	Description:
TMW-4	@1525

Low-Flow Test Report:

Test Date / Time: 3/3/2023 9:12:41 AM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: MW-23 **Well Diameter: 4 in** **Casing Type: PVC**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/3/2023 9:12 AM	00:00	6.80 pH	49.04 °F	114.58 µS/cm	11.56 mg/L	0.59 NTU	252.0 mV	150.00 ml/min
3/3/2023 9:15 AM	03:00	6.68 pH	50.92 °F	111.56 µS/cm	3.47 mg/L	0.50 NTU	207.1 mV	150.00 ml/min
3/3/2023 9:18 AM	06:00	6.68 pH	49.67 °F	2.55 µS/cm	1.78 mg/L	0.64 NTU	174.4 mV	150.00 ml/min
3/3/2023 9:21 AM	09:00	6.68 pH	50.58 °F	0.47 µS/cm	1.17 mg/L	0.99 NTU	147.7 mV	150.00 ml/min
3/3/2023 9:24 AM	12:00	6.82 pH	49.34 °F	0.38 µS/cm	1.38 mg/L	0.09 NTU	127.1 mV	150.00 ml/min
3/3/2023 9:27 AM	15:00	6.81 pH	49.82 °F	0.20 µS/cm	1.28 mg/L	0.17 NTU	116.3 mV	150.00 ml/min
3/3/2023 9:30 AM	18:00	6.83 pH	49.81 °F	0.08 µS/cm	1.81 mg/L	0.68 NTU	107.1 mV	150.00 ml/min
3/3/2023 9:33 AM	21:00	6.73 pH	49.94 °F	0.08 µS/cm	2.43 mg/L	3.77 NTU	98.7 mV	150.00 ml/min
3/3/2023 9:36 AM	24:00	6.78 pH	50.03 °F	0.08 µS/cm	1.68 mg/L	0.85 NTU	92.1 mV	150.00 ml/min
3/3/2023 9:39 AM	27:00	6.67 pH	50.42 °F	0.60 µS/cm	0.96 mg/L	287.51 NTU	84.0 mV	150.00 ml/min
3/3/2023 9:42 AM	30:00	6.67 pH	50.66 °F	0.48 µS/cm	0.49 mg/L	288.36 NTU	78.5 mV	150.00 ml/min
3/3/2023 9:45 AM	33:00	6.67 pH	51.05 °F	0.54 µS/cm	0.36 mg/L	289.23 NTU	73.8 mV	150.00 ml/min
3/3/2023 9:48 AM	36:00	6.67 pH	51.29 °F	0.37 µS/cm	0.27 mg/L	290.79 NTU	69.9 mV	150.00 ml/min
3/3/2023 9:51 AM	39:00	6.67 pH	51.72 °F	0.08 µS/cm	0.22 mg/L	298.53 NTU	65.9 mV	150.00 ml/min
3/3/2023 9:54 AM	42:00	6.66 pH	52.03 °F	0.07 µS/cm	0.19 mg/L	314.22 NTU	62.6 mV	150.00 ml/min
3/3/2023 9:57 AM	45:00	6.66 pH	52.25 °F	0.07 µS/cm	0.18 mg/L	351.55 NTU	59.9 mV	150.00 ml/min

Samples

Sample ID:	Description:
Mw-23	@1000 RDO did not stabilize

Low-Flow Test Report:

Test Date / Time: 3/3/2023 9:12:58 AM
Project: KMLT Harbor Island (3)
Operator Name: Savannah Green

Location Name: MW-24 **Initial Depth to Water: 7.12 ft**	**Pump Type: Peristaltic Pump** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 5850 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

Weather Conditions:
Overcast chilly

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		
3/3/2023 9:12 AM	00:00	7.08 pH	8.01 °C	1.29 µS/cm	9.61 mg/L	72.65 NTU	-72.5 mV	7.12 ft	150.00 ml/min
3/3/2023 9:15 AM	03:00	6.88 pH	9.61 °C	0.08 µS/cm	7.98 mg/L	96.72 NTU	-90.4 mV	7.12 ft	150.00 ml/min
3/3/2023 9:18 AM	06:00	6.61 pH	10.26 °C	0.08 µS/cm	7.54 mg/L	115.19 NTU	-97.7 mV	7.12 ft	150.00 ml/min
3/3/2023 9:21 AM	09:00	6.56 pH	10.70 °C	0.08 µS/cm	7.22 mg/L	130.81 NTU	-87.8 mV	7.12 ft	150.00 ml/min
3/3/2023 9:24 AM	12:00	6.58 pH	10.97 °C	0.08 µS/cm	6.96 mg/L	142.17 NTU	-80.2 mV	7.12 ft	150.00 ml/min
3/3/2023 9:27 AM	15:00	6.62 pH	10.59 °C	0.08 µS/cm	6.32 mg/L	146.90 NTU	-64.5 mV	7.12 ft	150.00 ml/min
3/3/2023 9:30 AM	18:00	6.65 pH	10.33 °C	0.08 µS/cm	6.73 mg/L	153.18 NTU	-74.0 mV	7.12 ft	150.00 ml/min
3/3/2023 9:33 AM	21:00	6.71 pH	10.28 °C	0.08 µS/cm	6.95 mg/L	161.31 NTU	-73.3 mV	7.12 ft	150.00 ml/min
3/3/2023 9:36 AM	24:00	6.68 pH	10.31 °C	0.08 µS/cm	7.01 mg/L	170.81 NTU	-74.3 mV	7.12 ft	150.00 ml/min
3/3/2023 9:39 AM	27:00	6.62 pH	10.35 °C	0.08 µS/cm	7.13 mg/L	62.06 NTU	-70.3 mV	7.12 ft	150.00 ml/min
3/3/2023 9:42 AM	30:00	6.63 pH	10.37 °C	0.08 µS/cm	7.07 mg/L	68.98 NTU	-67.9 mV	7.12 ft	150.00 ml/min
3/3/2023 9:45 AM	33:00	6.62 pH	10.33 °C	0.08 µS/cm	7.14 mg/L	72.70 NTU	-60.2 mV	7.12 ft	150.00 ml/min
3/3/2023 9:48 AM	36:00	6.62 pH	10.27 °C	0.08 µS/cm	7.22 mg/L	75.80 NTU	-56.2 mV	7.12 ft	150.00 ml/min
3/3/2023 9:51 AM	39:00	6.61 pH	10.26 °C	0.08 µS/cm	7.27 mg/L	79.21 NTU	-54.0 mV	7.12 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-24	Sample time 9:55

Low-Flow Test Report:

Test Date / Time: 3/3/2023 10:39:41 AM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: 12 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 7.5 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/3/2023 10:39 AM	00:00	7.35 pH	48.77 °F	1,941.9 µS/cm	9.60 mg/L	159.61 NTU	68.6 mV	150.00 ml/min
3/3/2023 10:42 AM	03:00	7.28 pH	48.43 °F	2,197.8 µS/cm	3.57 mg/L	52.94 NTU	15.4 mV	150.00 ml/min
3/3/2023 10:45 AM	06:00	7.28 pH	48.35 °F	2,198.8 µS/cm	2.01 mg/L	53.51 NTU	2.8 mV	150.00 ml/min
3/3/2023 10:48 AM	09:00	7.28 pH	48.16 °F	2,199.0 µS/cm	1.33 mg/L	53.26 NTU	-3.4 mV	150.00 ml/min
3/3/2023 10:51 AM	12:00	7.29 pH	48.19 °F	2,197.7 µS/cm	1.02 mg/L	49.30 NTU	-6.0 mV	150.00 ml/min
3/3/2023 10:54 AM	15:00	7.29 pH	48.12 °F	2,198.6 µS/cm	0.87 mg/L	37.92 NTU	-7.1 mV	150.00 ml/min
3/3/2023 10:57 AM	18:00	7.27 pH	48.03 °F	2,229.0 µS/cm	0.53 mg/L	6.55 NTU	-13.3 mV	150.00 ml/min
3/3/2023 11:00 AM	21:00	7.29 pH	48.15 °F	2,228.9 µS/cm	0.30 mg/L	0.66 NTU	-14.4 mV	150.00 ml/min
3/3/2023 11:03 AM	24:00	7.28 pH	48.03 °F	2,230.2 µS/cm	0.22 mg/L	0.63 NTU	-15.6 mV	150.00 ml/min
3/3/2023 11:06 AM	27:00	7.28 pH	48.20 °F	2,231.0 µS/cm	0.18 mg/L	0.70 NTU	-17.3 mV	150.00 ml/min
3/3/2023 11:09 AM	30:00	7.28 pH	48.08 °F	2,230.1 µS/cm	0.16 mg/L	0.96 NTU	-19.0 mV	150.00 ml/min
3/3/2023 11:12 AM	33:00	7.28 pH	48.11 °F	2,231.0 µS/cm	0.14 mg/L	0.57 NTU	-20.8 mV	150.00 ml/min
3/3/2023 11:15 AM	36:00	7.28 pH	48.08 °F	2,230.9 µS/cm	0.13 mg/L	0.61 NTU	-22.0 mV	150.00 ml/min
3/3/2023 11:18 AM	39:00	7.28 pH	48.01 °F	2,231.6 µS/cm	0.12 mg/L	0.57 NTU	-23.6 mV	150.00 ml/min
3/3/2023 11:21 AM	42:00	7.28 pH	48.00 °F	2,232.6 µS/cm	0.12 mg/L	0.63 NTU	-24.9 mV	150.00 ml/min
3/3/2023 11:24 AM	45:00	7.30 pH	48.12 °F	2,234.3 µS/cm	0.11 mg/L	0.78 NTU	-25.8 mV	150.00 ml/min

Samples

Sample ID:	Description:
12	@1125 RDO did not stabilize

Low-Flow Test Report:

Test Date / Time: 3/3/2023 10:46:04 AM
Project: KMLT Harbor Island
Operator Name: Savannah Green

Location Name: A-27 **Initial Depth to Water: 10.02 ft**	**Pump Type: Peristaltic Pump** **Estimated Total Volume Pumped: 4500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

Weather Conditions:
Overcast chilly

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		
3/3/2023 10:46 AM	00:00	6.72 pH	9.97 °C	0.08 µS/cm	9.17 mg/L	253.88 NTU	-59.8 mV	10.02 ft	150.00 ml/min
3/3/2023 10:49 AM	03:00	6.72 pH	9.97 °C	0.08 µS/cm	9.33 mg/L	253.72 NTU	-70.5 mV	10.02 ft	150.00 ml/min
3/3/2023 10:52 AM	06:00	6.73 pH	10.06 °C	0.08 µS/cm	9.28 mg/L	253.08 NTU	-76.9 mV	10.02 ft	150.00 ml/min
3/3/2023 10:55 AM	09:00	6.70 pH	10.19 °C	0.08 µS/cm	9.17 mg/L	251.75 NTU	-88.5 mV	10.02 ft	150.00 ml/min
3/3/2023 10:58 AM	12:00	6.63 pH	10.33 °C	0.08 µS/cm	9.01 mg/L	250.46 NTU	-90.5 mV	10.02 ft	150.00 ml/min
3/3/2023 11:01 AM	15:00	6.48 pH	10.52 °C	0.08 µS/cm	8.83 mg/L	249.50 NTU	-103.4 mV	10.02 ft	150.00 ml/min
3/3/2023 11:04 AM	18:00	6.37 pH	10.71 °C	0.08 µS/cm	8.54 mg/L	248.75 NTU	-111.8 mV	10.02 ft	150.00 ml/min
3/3/2023 11:07 AM	21:00	6.41 pH	10.92 °C	0.08 µS/cm	8.37 mg/L	248.02 NTU	-112.6 mV	10.02 ft	150.00 ml/min
3/3/2023 11:10 AM	24:00	6.39 pH	10.90 °C	0.08 µS/cm	8.21 mg/L	247.67 NTU	-96.7 mV	10.02 ft	150.00 ml/min
3/3/2023 11:13 AM	27:00	6.37 pH	10.93 °C	0.08 µS/cm	8.04 mg/L	247.38 NTU	-101.5 mV	10.02 ft	150.00 ml/min
3/3/2023 11:16 AM	30:00	6.35 pH	10.91 °C	0.08 µS/cm	7.87 mg/L	247.08 NTU	-99.1 mV	10.02 ft	150.00 ml/min

Samples

Sample ID:	Description:

A-27	Sample time 1120

Low-Flow Test Report:

Test Date / Time: 3/3/2023 11:54:38 AM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: TMW-3 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Estimated Total Volume Pumped: 5850 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/3/2023 11:54 AM	00:00	7.53 pH	50.59 °F	544.00 µS/cm	11.11 mg/L	23.71 NTU	66.8 mV	150.00 ml/min
3/3/2023 11:57 AM	03:00	7.53 pH	50.48 °F	480.84 µS/cm	11.20 mg/L	13.65 NTU	70.5 mV	150.00 ml/min
3/3/2023 12:00 PM	06:00	7.50 pH	50.19 °F	489.12 µS/cm	11.29 mg/L	70.00 NTU	74.9 mV	150.00 ml/min
3/3/2023 12:03 PM	09:00	7.27 pH	50.37 °F	2,842.3 µS/cm	10.19 mg/L	7.06 NTU	62.4 mV	150.00 ml/min
3/3/2023 12:06 PM	12:00	7.29 pH	50.19 °F	2,844.4 µS/cm	3.31 mg/L	5.75 NTU	55.8 mV	150.00 ml/min
3/3/2023 12:09 PM	15:00	7.31 pH	50.14 °F	2,841.4 µS/cm	1.59 mg/L	6.87 NTU	50.4 mV	150.00 ml/min
3/3/2023 12:12 PM	18:00	7.33 pH	50.28 °F	2,843.5 µS/cm	0.88 mg/L	9.62 NTU	46.7 mV	150.00 ml/min
3/3/2023 12:15 PM	21:00	7.33 pH	50.21 °F	2,844.4 µS/cm	0.56 mg/L	2.75 NTU	43.5 mV	150.00 ml/min
3/3/2023 12:18 PM	24:00	7.33 pH	50.20 °F	2,845.8 µS/cm	0.41 mg/L	7.63 NTU	40.9 mV	150.00 ml/min
3/3/2023 12:21 PM	27:00	7.33 pH	50.02 °F	2,843.3 µS/cm	0.33 mg/L	1.74 NTU	38.0 mV	150.00 ml/min
3/3/2023 12:24 PM	30:00	7.35 pH	50.13 °F	2,855.4 µS/cm	0.34 mg/L	33.57 NTU	35.9 mV	150.00 ml/min
3/3/2023 12:27 PM	33:00	7.34 pH	50.04 °F	2,852.1 µS/cm	0.44 mg/L	8.73 NTU	35.0 mV	150.00 ml/min
3/3/2023 12:30 PM	36:00	7.35 pH	49.75 °F	2,848.6 µS/cm	0.44 mg/L	3.53 NTU	33.1 mV	150.00 ml/min
3/3/2023 12:33 PM	39:00	7.35 pH	49.99 °F	2,856.1 µS/cm	0.40 mg/L	1.47 NTU	31.3 mV	150.00 ml/min

Samples

Sample ID:	Description:

TMW-3	@1240

Low-Flow Test Report:

Test Date / Time: 3/3/2023 12:01:41 PM
Project: KMLT Harbor Island
Operator Name: Savannah Green

Location Name: A-28R **Initial Depth to Water: 7.57 ft**	**Pump Type: Peristaltic Pump** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.3 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

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		
3/3/2023 12:01 PM	00:00	6.28 pH	11.82 °C	0.07 µS/cm	8.83 mg/L	441.61 NTU	-88.0 mV	7.57 ft	150.00 ml/min
3/3/2023 12:04 PM	03:00	6.24 pH	12.02 °C	0.07 µS/cm	9.58 mg/L	334.47 NTU	-81.2 mV	7.57 ft	150.00 ml/min
3/3/2023 12:07 PM	06:00	6.18 pH	12.19 °C	0.07 µS/cm	9.17 mg/L	335.40 NTU	-75.0 mV	7.57 ft	150.00 ml/min
3/3/2023 12:10 PM	09:00	6.14 pH	12.41 °C	0.07 µS/cm	8.82 mg/L	335.76 NTU	-88.8 mV	7.57 ft	150.00 ml/min
3/3/2023 12:13 PM	12:00	6.12 pH	12.22 °C	0.07 µS/cm	8.59 mg/L	332.25 NTU	-91.3 mV	7.57 ft	150.00 ml/min
3/3/2023 12:16 PM	15:00	6.11 pH	12.11 °C	0.07 µS/cm	8.39 mg/L	329.36 NTU	-90.1 mV	7.57 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-28R	Sample time 12:20

Low-Flow Test Report:

Test Date / Time: 3/3/2023 1:11:02 PM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: MW-7 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft** **Initial Depth to Water: 1.77 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

Test Notes:

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		
3/3/2023 1:11 PM	00:00	7.49 pH	49.05 °F	1,305.1 µS/cm	9.78 mg/L	1.14 NTU	85.1 mV	1.77 ft	150.00 ml/min
3/3/2023 1:14 PM	03:00	7.23 pH	49.13 °F	1,291.5 µS/cm	4.58 mg/L	0.33 NTU	84.3 mV	1.77 ft	150.00 ml/min
3/3/2023 1:17 PM	06:00	7.17 pH	48.98 °F	1,295.0 µS/cm	3.17 mg/L	0.20 NTU	83.6 mV	1.77 ft	150.00 ml/min
3/3/2023 1:20 PM	09:00	7.15 pH	48.92 °F	1,293.4 µS/cm	2.92 mg/L	0.26 NTU	82.0 mV	1.77 ft	150.00 ml/min
3/3/2023 1:23 PM	12:00	7.14 pH	48.77 °F	1,293.9 µS/cm	2.69 mg/L	0.23 NTU	81.5 mV	1.77 ft	150.00 ml/min
3/3/2023 1:26 PM	15:00	7.13 pH	48.85 °F	1,295.0 µS/cm	2.50 mg/L	0.28 NTU	81.1 mV	1.77 ft	150.00 ml/min
3/3/2023 1:29 PM	18:00	7.13 pH	48.82 °F	1,292.1 µS/cm	2.42 mg/L	0.30 NTU	81.1 mV	1.77 ft	150.00 ml/min
3/3/2023 1:32 PM	21:00	7.12 pH	48.73 °F	1,296.7 µS/cm	2.37 mg/L	0.24 NTU	81.0 mV	1.77 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-7	@1335
DUP-2	MW-7

Low-Flow Test Report:

Test Date / Time: 3/3/2023 1:36:05 PM
Project: KMLT Harbor Island
Operator Name: Savannah Green

Location Name: 11 **Initial Depth to Water: 3.57 ft**	**Pump Type: Peristaltic Pump** **Estimated Total Volume Pumped: 1800 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 870001**

Test Notes:

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		
3/3/2023 1:36 PM	00:00	6.48 pH	10.36 °C	0.08 µS/cm	10.42 mg/L	23.26 NTU	-3.2 mV	3.57 ft	150.00 ml/min
3/3/2023 1:39 PM	03:00	6.52 pH	10.27 °C	0.08 µS/cm	11.14 mg/L	34.37 NTU	44.5 mV	3.57 ft	150.00 ml/min
3/3/2023 1:42 PM	06:00	6.55 pH	10.13 °C	0.08 µS/cm	11.10 mg/L	33.69 NTU	56.4 mV	3.57 ft	150.00 ml/min
3/3/2023 1:45 PM	09:00	6.61 pH	10.11 °C	0.08 µS/cm	11.01 mg/L	33.48 NTU	55.4 mV	3.57 ft	150.00 ml/min
3/3/2023 1:48 PM	12:00	6.64 pH	10.04 °C	0.08 µS/cm	10.92 mg/L	33.17 NTU	52.9 mV	3.57 ft	150.00 ml/min

Samples

Sample ID:	Description:
11	Sample time 1350

Low-Flow Test Report:

Test Date / Time: 3/3/2023 2:41:28 PM
Project: KMLT Harbor Island
Operator Name: ES

Location Name: MW-18 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13 ft**	**Pump Type: Geopump** **Tubing Type: 1/4 polyethylene** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min**	**Instrument Used: Aqua TROLL 600** **Serial Number: 867242**

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	
3/3/2023 2:41 PM	00:00	6.90 pH	49.58 °F	409.53 µS/cm	10.07 mg/L	174.03 NTU	133.3 mV	150.00 ml/min
3/3/2023 2:44 PM	03:00	6.84 pH	50.80 °F	401.17 µS/cm	3.29 mg/L	141.46 NTU	123.3 mV	150.00 ml/min
3/3/2023 2:47 PM	06:00	6.83 pH	50.95 °F	394.46 µS/cm	1.67 mg/L	121.00 NTU	115.1 mV	150.00 ml/min
3/3/2023 2:50 PM	09:00	6.85 pH	50.88 °F	389.96 µS/cm	1.15 mg/L	94.66 NTU	105.9 mV	150.00 ml/min
3/3/2023 2:53 PM	12:00	6.84 pH	51.45 °F	393.06 µS/cm	0.77 mg/L	88.94 NTU	95.9 mV	150.00 ml/min
3/3/2023 2:56 PM	15:00	6.85 pH	50.91 °F	383.26 µS/cm	0.95 mg/L	70.59 NTU	90.2 mV	150.00 ml/min
3/3/2023 2:59 PM	18:00	6.81 pH	51.06 °F	383.72 µS/cm	1.03 mg/L	72.45 NTU	86.8 mV	150.00 ml/min
3/3/2023 3:02 PM	21:00	6.85 pH	51.50 °F	381.47 µS/cm	0.93 mg/L	58.04 NTU	79.7 mV	150.00 ml/min
3/3/2023 3:05 PM	24:00	6.84 pH	51.19 °F	378.51 µS/cm	0.71 mg/L	60.63 NTU	74.0 mV	150.00 ml/min
3/3/2023 3:08 PM	27:00	6.84 pH	51.14 °F	380.48 µS/cm	1.10 mg/L	66.15 NTU	70.7 mV	150.00 ml/min
3/3/2023 3:11 PM	30:00	6.84 pH	51.05 °F	379.49 µS/cm	0.89 mg/L	56.75 NTU	65.2 mV	150.00 ml/min
3/3/2023 3:14 PM	33:00	6.85 pH	51.24 °F	374.81 µS/cm	0.47 mg/L	36.26 NTU	62.8 mV	150.00 ml/min
3/3/2023 3:17 PM	36:00	6.83 pH	51.24 °F	376.85 µS/cm	0.40 mg/L	47.83 NTU	61.5 mV	150.00 ml/min
3/3/2023 3:20 PM	39:00	6.84 pH	51.10 °F	373.57 µS/cm	0.49 mg/L	33.44 NTU	58.8 mV	150.00 ml/min
3/3/2023 3:23 PM	42:00	6.85 pH	51.25 °F	373.85 µS/cm	0.49 mg/L	35.76 NTU	56.0 mV	150.00 ml/min
3/3/2023 3:26 PM	45:00	6.84 pH	51.31 °F	373.40 µS/cm	0.48 mg/L	28.10 NTU	54.0 mV	150.00 ml/min

Samples

Sample ID:	Description:
MW-18	@1530

Low-Flow Test Report:

Test Date / Time: 9/20/2023 8:46:35 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: TMW-2 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 15.29 ft** **Initial Depth to Water: 4.22 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 2700 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Cloudy 55 degrees Fahrenheit

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	+/- 0.1	
9/20/2023 8:46 AM	00:00	7.10 pH	16.11 °C	1,878.7 µS/cm	5.57 mg/L	7.55 NTU	116.1 mV	4.20 ft	150.00 ml/min
9/20/2023 8:49 AM	03:00	7.50 pH	16.78 °C	1,883.1 µS/cm	0.26 mg/L	0.00 NTU	-22.4 mV	4.25 ft	150.00 ml/min
9/20/2023 8:52 AM	06:00	7.54 pH	17.19 °C	1,887.4 µS/cm	0.17 mg/L	0.00 NTU	-58.5 mV	4.25 ft	150.00 ml/min
9/20/2023 8:55 AM	09:00	7.58 pH	17.40 °C	1,889.9 µS/cm	0.14 mg/L	0.00 NTU	-85.3 mV	4.25 ft	150.00 ml/min
9/20/2023 8:58 AM	12:00	7.60 pH	17.56 °C	1,892.1 µS/cm	0.13 mg/L	0.00 NTU	-99.8 mV	4.25 ft	150.00 ml/min
9/20/2023 9:01 AM	15:00	7.60 pH	17.67 °C	1,893.0 µS/cm	0.12 mg/L	0.00 NTU	-110.6 mV	4.25 ft	150.00 ml/min
9/20/2023 9:04 AM	18:00	7.61 pH	17.73 °C	1,899.2 µS/cm	0.11 mg/L	1.28 NTU	-114.5 mV	4.25 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-2	Sample time 0910

Low-Flow Test Report:

Test Date / Time: 9/21/2023 11:25:10 AM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: TMW-3 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 5 ft** **Total Depth: 15.52 ft** **Initial Depth to Water: 4.01 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 2700 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.14 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Scattered clouds. Windy. 60F

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	+/- 0.1	
9/21/2023 11:25 AM	00:00	7.40 pH	19.34 °C	887.56 µS/cm	1.40 mg/L	2.21 NTU	-152.6 mV	4.01 ft	150.00 ml/min
9/21/2023 11:28 AM	03:00	7.35 pH	18.07 °C	1,110.0 µS/cm	0.21 mg/L	0.40 NTU	-183.6 mV	4.14 ft	150.00 ml/min
9/21/2023 11:31 AM	06:00	7.31 pH	17.97 °C	1,163.7 µS/cm	0.12 mg/L	0.30 NTU	-189.1 mV	4.14 ft	150.00 ml/min
9/21/2023 11:34 AM	09:00	7.31 pH	17.93 °C	1,201.8 µS/cm	0.08 mg/L	0.00 NTU	-194.1 mV	4.15 ft	150.00 ml/min
9/21/2023 11:37 AM	12:00	7.32 pH	17.91 °C	1,225.5 µS/cm	0.06 mg/L	0.00 NTU	-197.9 mV	4.15 ft	150.00 ml/min
9/21/2023 11:40 AM	15:00	7.33 pH	17.92 °C	1,241.2 µS/cm	0.04 mg/L	0.00 NTU	-198.5 mV	4.15 ft	150.00 ml/min
9/21/2023 11:43 AM	18:00	7.35 pH	17.90 °C	1,243.5 µS/cm	0.05 mg/L	0.00 NTU	-202.8 mV	4.15 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-3	Sample Time: 11:47

Low-Flow Test Report:

Test Date / Time: 9/21/2023 12:02:24 PM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: TMW-4 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 5 ft** **Total Depth: 15.41 ft** **Initial Depth to Water: 3.82 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 2700 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.09 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Clear. Windy. 60F

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	+/- 0.1	
9/21/2023 12:02 PM	00:00	7.61 pH	19.19 °C	1,117.1 µS/cm	1.97 mg/L	2.38 NTU	-257.8 mV	3.82 ft	150.00 ml/min
9/21/2023 12:05 PM	03:00	7.63 pH	18.38 °C	1,184.0 µS/cm	0.30 mg/L	1.96 NTU	-278.2 mV	3.89 ft	150.00 ml/min
9/21/2023 12:08 PM	06:00	7.63 pH	18.35 °C	1,192.5 µS/cm	0.18 mg/L	1.73 NTU	-287.2 mV	3.89 ft	150.00 ml/min
9/21/2023 12:11 PM	09:00	7.62 pH	18.33 °C	1,194.7 µS/cm	0.12 mg/L	1.34 NTU	-292.7 mV	3.91 ft	150.00 ml/min
9/21/2023 12:14 PM	12:00	7.62 pH	18.31 °C	1,199.1 µS/cm	0.07 mg/L	1.22 NTU	-298.4 mV	3.91 ft	150.00 ml/min
9/21/2023 12:17 PM	15:00	7.62 pH	18.35 °C	1,202.9 µS/cm	0.04 mg/L	0.94 NTU	-302.3 mV	3.91 ft	150.00 ml/min
9/21/2023 12:20 PM	18:00	7.61 pH	18.39 °C	1,205.9 µS/cm	0.02 mg/L	1.04 NTU	-305.6 mV	3.91 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-4	Sample Time: 12:26

Low-Flow Test Report:

Test Date / Time: 9/21/2023 12:45:35 PM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: 11 **Well Diameter: 4 in** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 11.87 ft** **Initial Depth to Water: 5.11 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.16 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Clear, windy. 60F

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	+/- 0.1	
9/21/2023 12:45 PM	00:00	7.20 pH	23.00 °C	595.58 µS/cm	0.93 mg/L	7.66 NTU	-150.3 mV	5.11 ft	150.00 ml/min
9/21/2023 12:48 PM	03:00	7.06 pH	22.53 °C	571.46 µS/cm	0.38 mg/L	4.00 NTU	-146.5 mV	5.27 ft	150.00 ml/min
9/21/2023 12:51 PM	06:00	7.03 pH	22.45 °C	563.70 µS/cm	0.44 mg/L	5.05 NTU	-138.3 mV	5.27 ft	150.00 ml/min
9/21/2023 12:54 PM	09:00	7.01 pH	22.33 °C	561.77 µS/cm	0.42 mg/L	3.98 NTU	-133.4 mV	5.27 ft	150.00 ml/min
9/21/2023 12:57 PM	12:00	7.00 pH	22.10 °C	559.83 µS/cm	0.47 mg/L	3.47 NTU	-126.9 mV	5.27 ft	150.00 ml/min
9/21/2023 1:00 PM	15:00	7.00 pH	22.14 °C	550.13 µS/cm	0.50 mg/L	3.25 NTU	-124.0 mV	5.27 ft	150.00 ml/min

Samples

Sample ID:	Description:
11	Sample Time: 13:05

Low-Flow Test Report:

Test Date / Time: 9/21/2023 2:09:39 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: TMW-B1 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 14.75 ft** **Initial Depth to Water: 8.31 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.04 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Windy 62 degrees Fahrenheit

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	+/- 0.1	
9/21/2023 2:09 PM	00:00	6.43 pH	18.81 °C	730.26 µS/cm	0.75 mg/L	0.00 NTU	-48.8 mV	8.33 ft	150.00 ml/min
9/21/2023 2:12 PM	03:00	6.44 pH	18.39 °C	649.37 µS/cm	0.29 mg/L	0.52 NTU	-54.5 mV	8.34 ft	150.00 ml/min
9/21/2023 2:15 PM	06:00	6.45 pH	18.57 °C	636.29 µS/cm	0.22 mg/L	0.05 NTU	-60.4 mV	8.34 ft	150.00 ml/min
9/21/2023 2:18 PM	09:00	6.47 pH	18.56 °C	616.93 µS/cm	0.19 mg/L	1.99 NTU	-64.7 mV	8.34 ft	150.00 ml/min
9/21/2023 2:21 PM	12:00	6.46 pH	18.60 °C	608.37 µS/cm	0.35 mg/L	0.47 NTU	-67.0 mV	8.35 ft	150.00 ml/min
9/21/2023 2:24 PM	15:00	6.46 pH	18.65 °C	617.37 µS/cm	0.17 mg/L	1.03 NTU	-69.0 mV	8.35 ft	150.00 ml/min
9/21/2023 2:27 PM	18:00	6.47 pH	18.65 °C	619.36 µS/cm	0.15 mg/L	0.82 NTU	-70.2 mV	8.35 ft	150.00 ml/min
9/21/2023 2:30 PM	21:00	6.46 pH	18.68 °C	625.75 µS/cm	0.14 mg/L	1.21 NTU	-71.5 mV	8.35 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-B1	Sample taken 1430

Low-Flow Test Report:

Test Date / Time: 9/20/2023 1:16:51 PM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: TMW-5 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 13.84 ft** **Initial Depth to Water: 3.69 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Scattered clouds, windy. 60F

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	+/- 0.1	
9/20/2023 1:16 PM	00:00	7.25 pH	20.86 °C	1,820.2 µS/cm	1.78 mg/L	0.33 NTU	-164.0 mV	3.69 ft	150.00 ml/min
9/20/2023 1:19 PM	03:00	7.35 pH	20.32 °C	1,809.6 µS/cm	0.17 mg/L	0.19 NTU	-214.3 mV	3.69 ft	150.00 ml/min
9/20/2023 1:22 PM	06:00	7.35 pH	19.88 °C	1,703.5 µS/cm	0.10 mg/L	0.00 NTU	-228.6 mV	3.69 ft	150.00 ml/min
9/20/2023 1:25 PM	09:00	7.35 pH	19.96 °C	1,672.2 µS/cm	0.07 mg/L	0.23 NTU	-239.1 mV	3.69 ft	150.00 ml/min
9/20/2023 1:28 PM	12:00	7.35 pH	19.87 °C	1,642.5 µS/cm	0.06 mg/L	0.00 NTU	-249.3 mV	3.69 ft	150.00 ml/min
9/20/2023 1:31 PM	15:00	7.36 pH	19.85 °C	1,612.5 µS/cm	0.02 mg/L	0.00 NTU	-257.3 mV	3.69 ft	150.00 ml/min
9/20/2023 1:34 PM	18:00	7.37 pH	19.91 °C	1,592.0 µS/cm	0.00 mg/L	0.00 NTU	-262.9 mV	3.69 ft	150.00 ml/min
9/20/2023 1:37 PM	21:00	7.37 pH	19.85 °C	1,574.1 µS/cm	0.00 mg/L	0.00 NTU	-266.8 mV	3.69 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-5	Sample Time: 13:41

Low-Flow Test Report:

Test Date / Time: 9/20/2023 3:23:04 PM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: TMW-6 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 14.11 ft** **Initial Depth to Water: 3.04 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.55 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Scattered clouds. Windy. 60F

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	+/- 0.1	
9/20/2023 3:23 PM	00:00	7.59 pH	18.30 °C	217.74 µS/cm	8.90 mg/L	40.50 NTU	-19.1 mV	3.04 ft	150.00 ml/min
9/20/2023 3:26 PM	03:00	7.88 pH	18.10 °C	223.48 µS/cm	6.38 mg/L	33.14 NTU	-35.2 mV	3.57 ft	150.00 ml/min
9/20/2023 3:29 PM	06:00	8.03 pH	18.05 °C	238.44 µS/cm	5.81 mg/L	33.01 NTU	-95.1 mV	3.59 ft	150.00 ml/min
9/20/2023 3:32 PM	09:00	8.02 pH	17.78 °C	262.07 µS/cm	3.16 mg/L	28.81 NTU	-127.4 mV	3.59 ft	150.00 ml/min
9/20/2023 3:35 PM	12:00	8.08 pH	17.64 °C	300.10 µS/cm	2.14 mg/L	33.69 NTU	-147.3 mV	3.59 ft	150.00 ml/min
9/20/2023 3:38 PM	15:00	7.72 pH	17.58 °C	451.78 µS/cm	1.28 mg/L	24.02 NTU	-154.0 mV	3.59 ft	150.00 ml/min
9/20/2023 3:41 PM	18:00	7.43 pH	17.60 °C	583.20 µS/cm	0.63 mg/L	17.72 NTU	-161.6 mV	3.59 ft	150.00 ml/min
9/20/2023 3:44 PM	21:00	7.37 pH	17.68 °C	786.52 µS/cm	0.22 mg/L	14.90 NTU	-175.8 mV	3.59 ft	150.00 ml/min
9/20/2023 3:47 PM	24:00	7.27 pH	17.65 °C	899.98 µS/cm	0.13 mg/L	10.70 NTU	-180.9 mV	3.59 ft	150.00 ml/min
9/20/2023 3:50 PM	27:00	7.24 pH	17.61 °C	986.34 µS/cm	0.13 mg/L	8.83 NTU	-185.8 mV	3.59 ft	150.00 ml/min
9/20/2023 3:53 PM	30:00	7.24 pH	17.62 °C	1,033.0 µS/cm	0.11 mg/L	9.56 NTU	-190.1 mV	3.59 ft	150.00 ml/min
9/20/2023 3:56 PM	33:00	7.27 pH	17.58 °C	908.47 µS/cm	0.06 mg/L	10.09 NTU	-194.7 mV	3.59 ft	150.00 ml/min
9/20/2023 3:59 PM	36:00	7.24 pH	17.53 °C	1,052.8 µS/cm	0.07 mg/L	9.87 NTU	-197.8 mV	3.59 ft	150.00 ml/min

9/20/2023 4:02 PM	39:00	7.24 pH	17.51 °C	1,111.0 µS/cm	0.04 mg/L	9.65 NTU	-205.6 mV	3.59 ft	150.00 ml/min
9/20/2023 4:05 PM	42:00	7.23 pH	17.45 °C	1,171.2 µS/cm	0.03 mg/L	9.94 NTU	-211.0 mV	3.59 ft	150.00 ml/min
9/20/2023 4:08 PM	45:00	7.22 pH	17.44 °C	1,241.5 µS/cm	0.03 mg/L	10.43 NTU	-216.5 mV	3.59 ft	150.00 ml/min

Samples

Sample ID:	Description:
TMW-6	Sample Time: 16:16 Parameters did not stabilize: conductivity and ORP

Low-Flow Test Report:

Test Date / Time: 9/22/2023 8:44:28 AM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: A-5 **Well Diameter: 4 in** **Casing Type: PVC** **Total Depth: 14.89 ft** **Initial Depth to Water: 7.91 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 2700 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.1 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Clear. 50F

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	+/- 0.1	
9/22/2023 8:44 AM	00:00	6.45 pH	19.09 °C	630.66 µS/cm	2.36 mg/L	3.33 NTU	1.7 mV	7.91 ft	150.00 ml/min
9/22/2023 8:47 AM	03:00	6.55 pH	19.88 °C	615.00 µS/cm	0.23 mg/L	0.32 NTU	-72.3 mV	8.01 ft	150.00 ml/min
9/22/2023 8:50 AM	06:00	6.57 pH	19.83 °C	618.18 µS/cm	0.24 mg/L	0.41 NTU	-96.9 mV	8.01 ft	150.00 ml/min
9/22/2023 8:53 AM	09:00	6.55 pH	19.84 °C	622.74 µS/cm	0.21 mg/L	0.37 NTU	-106.2 mV	8.01 ft	150.00 ml/min
9/22/2023 8:56 AM	12:00	6.56 pH	19.85 °C	627.57 µS/cm	0.17 mg/L	0.15 NTU	-112.8 mV	8.01 ft	150.00 ml/min
9/22/2023 8:59 AM	15:00	6.55 pH	19.93 °C	629.78 µS/cm	0.15 mg/L	0.30 NTU	-117.5 mV	8.01 ft	150.00 ml/min
9/22/2023 9:02 AM	18:00	6.56 pH	19.94 °C	636.81 µS/cm	0.12 mg/L	0.15 NTU	-121.3 mV	8.01 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-5	Sample Time: 9:04

Low-Flow Test Report:

Test Date / Time: 9/21/2023 8:59:45 AM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: 12 **Well Diameter: 4 in** **Casing Type: PVC** **Total Depth: 7.45 ft** **Initial Depth to Water: 2.26 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 2.01 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Scattered clouds. 55F

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	+/- 0.1	
9/21/2023 8:59 AM	00:00	7.33 pH	16.18 °C	2,179.7 µS/cm	1.95 mg/L	7.68 NTU	-214.7 mV	2.26 ft	150.00 ml/min
9/21/2023 9:02 AM	03:00	7.43 pH	15.90 °C	2,168.4 µS/cm	0.67 mg/L	5.77 NTU	-262.6 mV	2.57 ft	150.00 ml/min
9/21/2023 9:05 AM	06:00	7.46 pH	15.40 °C	2,119.0 µS/cm	0.47 mg/L	2.20 NTU	-278.3 mV	2.57 ft	150.00 ml/min
9/21/2023 9:08 AM	09:00	7.46 pH	16.39 °C	2,128.5 µS/cm	0.18 mg/L	1.36 NTU	-296.0 mV	2.57 ft	150.00 ml/min
9/21/2023 9:11 AM	12:00	7.48 pH	16.54 °C	2,042.2 µS/cm	0.10 mg/L	1.01 NTU	-307.9 mV	3.46 ft	150.00 ml/min
9/21/2023 9:14 AM	15:00	7.48 pH	16.59 °C	1,968.1 µS/cm	0.09 mg/L	1.17 NTU	-315.9 mV	3.46 ft	150.00 ml/min
9/21/2023 9:17 AM	18:00	7.49 pH	16.65 °C	1,885.2 µS/cm	0.06 mg/L	1.22 NTU	-321.4 mV	3.46 ft	150.00 ml/min
9/21/2023 9:20 AM	21:00	7.48 pH	16.69 °C	1,815.1 µS/cm	0.07 mg/L	1.46 NTU	-325.5 mV	3.46 ft	150.00 ml/min
9/21/2023 9:23 AM	24:00	7.49 pH	16.67 °C	1,755.1 µS/cm	0.07 mg/L	1.27 NTU	-327.5 mV	4.27 ft	150.00 ml/min
9/21/2023 9:26 AM	27:00	7.47 pH	16.74 °C	1,699.7 µS/cm	0.06 mg/L	1.44 NTU	-330.5 mV	4.27 ft	150.00 ml/min
9/21/2023 9:29 AM	30:00	7.49 pH	16.80 °C	1,641.7 µS/cm	0.04 mg/L	1.29 NTU	-332.7 mV	4.27 ft	150.00 ml/min
9/21/2023 9:32 AM	33:00	7.49 pH	16.79 °C	1,595.0 µS/cm	0.05 mg/L	1.41 NTU	-335.4 mV	4.27 ft	150.00 ml/min
9/21/2023 9:35 AM	36:00	7.52 pH	16.84 °C	1,543.4 µS/cm	0.03 mg/L	1.26 NTU	-337.8 mV	4.27 ft	150.00 ml/min

9/21/2023 9:38 AM	39:00	7.53 pH	16.97 °C	1,480.0 µS/cm	0.03 mg/L	1.36 NTU	-340.5 mV	4.27 ft	150.00 ml/min
9/21/2023 9:41 AM	42:00	7.55 pH	17.03 °C	1,405.8 µS/cm	0.02 mg/L	1.31 NTU	-342.4 mV	4.27 ft	150.00 ml/min
9/21/2023 9:44 AM	45:00	7.54 pH	17.05 °C	1,289.2 µS/cm	0.03 mg/L	1.57 NTU	-342.3 mV	4.27 ft	150.00 ml/min

Samples

Sample ID:	Description:
12	Sample Time: 9:47 Parameters did not stabilize: specific conductivity

Low-Flow Test Report:

Test Date / Time: 9/22/2023 1:47:25 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-1 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 4 ft** **Total Depth: 12.8 ft** **Initial Depth to Water: 6.3 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 69 degrees Fahrenheit

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	+/- 0.1	
9/22/2023 1:47 PM	00:00	6.45 pH	20.29 °C	502.13 µS/cm	1.52 mg/L	67.05 NTU	-42.4 mV	6.34 ft	150.00 ml/min
9/22/2023 1:50 PM	03:00	6.29 pH	17.63 °C	505.34 µS/cm	0.16 mg/L	24.05 NTU	-43.0 mV	6.35 ft	150.00 ml/min
9/22/2023 1:53 PM	06:00	6.25 pH	17.71 °C	504.93 µS/cm	0.13 mg/L	21.78 NTU	-45.3 mV	6.35 ft	150.00 ml/min
9/22/2023 1:56 PM	09:00	6.23 pH	17.65 °C	504.31 µS/cm	0.11 mg/L	6.07 NTU	-47.8 mV	6.35 ft	150.00 ml/min
9/22/2023 1:59 PM	12:00	6.21 pH	17.61 °C	504.94 µS/cm	0.08 mg/L	8.77 NTU	-50.0 mV	6.35 ft	150.00 ml/min
9/22/2023 2:02 PM	15:00	6.20 pH	17.66 °C	503.93 µS/cm	0.08 mg/L	8.48 NTU	-51.4 mV	6.35 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-1	Sample taken 1415

Low-Flow Test Report:

Test Date / Time: 9/21/2023 10:28:17 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: A-28R **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 15 ft** **Top of Screen: 5 ft** **Total Depth: 14.34 ft** **Initial Depth to Water: 8.49 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: -0.03 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Windy, party cloudy 57 degrees Fahrenheit

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	+/- 0.1	
9/21/2023 10:28 AM	00:00	6.55 pH	18.65 °C	745.17 µS/cm	5.03 mg/L	0.00 NTU	-61.7 mV	8.46 ft	150.00 ml/min
9/21/2023 10:31 AM	03:00	6.59 pH	18.45 °C	760.10 µS/cm	0.19 mg/L	0.00 NTU	-85.9 mV	8.46 ft	150.00 ml/min
9/21/2023 10:34 AM	06:00	6.63 pH	18.53 °C	761.49 µS/cm	0.12 mg/L	0.00 NTU	-93.3 mV	8.46 ft	150.00 ml/min
9/21/2023 10:37 AM	09:00	6.62 pH	18.65 °C	762.15 µS/cm	0.11 mg/L	0.00 NTU	-95.3 mV	8.46 ft	150.00 ml/min
9/21/2023 10:40 AM	12:00	6.61 pH	18.67 °C	762.90 µS/cm	0.09 mg/L	0.00 NTU	-95.8 mV	8.46 ft	150.00 ml/min
9/21/2023 10:43 AM	15:00	6.61 pH	18.70 °C	764.60 µS/cm	0.10 mg/L	0.00 NTU	-97.7 mV	8.46 ft	150.00 ml/min
9/21/2023 10:46 AM	18:00	6.61 pH	18.68 °C	764.93 µS/cm	0.07 mg/L	0.00 NTU	-98.9 mV	8.46 ft	150.00 ml/min
9/21/2023 10:49 AM	21:00	6.62 pH	18.73 °C	763.02 µS/cm	0.06 mg/L	0.00 NTU	-99.4 mV	8.46 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-28R	Sample taken 1050

Low-Flow Test Report:

Test Date / Time: 9/21/2023 9:00:58 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: A-27 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 7 ft** **Total Depth: 17.85 ft** **Initial Depth to Water: 10.83 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 12 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.14 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 53 degrees Fahrenheit

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	+/- 0.1	
9/21/2023 9:00 AM	00:00	6.06 pH	16.21 °C	228.74 µS/cm	3.74 mg/L	0.57 NTU	-13.6 mV	10.89 ft	150.00 ml/min
9/21/2023 9:03 AM	03:00	6.14 pH	17.27 °C	217.85 µS/cm	0.23 mg/L	0.00 NTU	-34.9 mV	10.98 ft	150.00 ml/min
9/21/2023 9:06 AM	06:00	6.15 pH	17.27 °C	218.22 µS/cm	0.19 mg/L	0.00 NTU	-40.4 mV	10.98 ft	150.00 ml/min
9/21/2023 9:09 AM	09:00	6.16 pH	17.22 °C	218.75 µS/cm	0.17 mg/L	0.00 NTU	-47.7 mV	10.98 ft	150.00 ml/min
9/21/2023 9:12 AM	12:00	6.16 pH	17.26 °C	217.76 µS/cm	0.15 mg/L	0.00 NTU	-53.9 mV	10.98 ft	150.00 ml/min
9/21/2023 9:15 AM	15:00	6.16 pH	17.22 °C	215.85 µS/cm	0.13 mg/L	0.00 NTU	-57.6 mV	10.97 ft	150.00 ml/min
9/21/2023 9:18 AM	18:00	6.18 pH	17.24 °C	214.17 µS/cm	0.11 mg/L	20.85 NTU	-60.1 mV	10.97 ft	150.00 ml/min
9/21/2023 9:21 AM	21:00	6.20 pH	17.22 °C	212.97 µS/cm	0.11 mg/L	22.14 NTU	-60.6 mV	10.97 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-27	Sample time 0920

Low-Flow Test Report:

Test Date / Time: 9/20/2023 10:14:11 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: A-23R **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 15.95 ft** **Initial Depth to Water: 9.16 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Cloudy 55 degrees Fahrenheit

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	+/- 0.1	
9/20/2023 10:14 AM	00:00	6.80 pH	16.09 °C	1,016.8 µS/cm	5.48 mg/L	33.34 NTU	-66.1 mV	9.19 ft	150.00 ml/min
9/20/2023 10:17 AM	03:00	6.72 pH	16.12 °C	1,003.9 µS/cm	0.22 mg/L	3.96 NTU	-76.4 mV	9.19 ft	150.00 ml/min
9/20/2023 10:20 AM	06:00	6.71 pH	16.20 °C	1,000.9 µS/cm	0.15 mg/L	3.19 NTU	-83.0 mV	9.19 ft	150.00 ml/min
9/20/2023 10:23 AM	09:00	6.71 pH	16.25 °C	999.69 µS/cm	0.12 mg/L	109.75 NTU	-88.2 mV	9.19 ft	150.00 ml/min
9/20/2023 10:26 AM	12:00	6.71 pH	16.25 °C	997.66 µS/cm	0.11 mg/L	441.31 NTU	-91.4 mV	9.19 ft	150.00 ml/min
9/20/2023 10:29 AM	15:00	6.70 pH	16.24 °C	995.75 µS/cm	0.10 mg/L	441.43 NTU	-93.2 mV	9.19 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-26R	Sample time 1030

Low-Flow Test Report:

Test Date / Time: 9/21/2023 3:41:15 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: A-21 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 14.51 ft** **Initial Depth to Water: 7.92 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 2700 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 65 degrees Fahrenheit

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	+/- 0.1	
9/21/2023 3:41 PM	00:00	6.81 pH	19.92 °C	780.37 µS/cm	4.61 mg/L	23.38 NTU	-31.2 mV	7.95 ft	150.00 ml/min
9/21/2023 3:44 PM	03:00	6.78 pH	19.09 °C	752.50 µS/cm	0.30 mg/L	0.00 NTU	-68.7 mV	7.95 ft	150.00 ml/min
9/21/2023 3:47 PM	06:00	6.76 pH	19.01 °C	711.74 µS/cm	0.19 mg/L	0.00 NTU	-72.6 mV	7.95 ft	150.00 ml/min
9/21/2023 3:50 PM	09:00	6.75 pH	18.94 °C	692.29 µS/cm	0.16 mg/L	0.00 NTU	-73.4 mV	7.95 ft	150.00 ml/min
9/21/2023 3:53 PM	12:00	6.72 pH	18.95 °C	670.81 µS/cm	0.14 mg/L	0.00 NTU	-72.0 mV	7.95 ft	150.00 ml/min
9/21/2023 3:56 PM	15:00	6.72 pH	18.99 °C	660.01 µS/cm	0.11 mg/L	0.02 NTU	-70.7 mV	7.95 ft	150.00 ml/min
9/21/2023 3:59 PM	18:00	6.72 pH	18.96 °C	654.26 µS/cm	0.11 mg/L	0.16 NTU	-69.4 mV	7.95 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-21	Sample taken 1610

Low-Flow Test Report:

Test Date / Time: 9/22/2023 8:44:50 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: A-14R **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 14.9 ft** **Initial Depth to Water: 7.8 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 3600 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.02 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 58 degrees Fahrenheit

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	+/- 0.1	
9/22/2023 8:44 AM	00:00	6.95 pH	18.62 °C	3,165.2 µS/cm	2.14 mg/L	0.00 NTU	-19.3 mV	7.82 ft	150.00 ml/min
9/22/2023 8:47 AM	03:00	7.04 pH	19.36 °C	3,230.3 µS/cm	0.21 mg/L	0.93 NTU	-69.7 mV	7.82 ft	150.00 ml/min
9/22/2023 8:50 AM	06:00	7.02 pH	19.60 °C	3,236.3 µS/cm	0.16 mg/L	0.00 NTU	-83.0 mV	7.82 ft	150.00 ml/min
9/22/2023 8:53 AM	09:00	7.00 pH	19.61 °C	3,325.5 µS/cm	0.13 mg/L	0.00 NTU	-88.4 mV	7.82 ft	150.00 ml/min
9/22/2023 8:56 AM	12:00	6.97 pH	19.69 °C	3,309.3 µS/cm	0.11 mg/L	0.14 NTU	-89.8 mV	7.82 ft	150.00 ml/min
9/22/2023 8:59 AM	15:00	6.98 pH	19.63 °C	3,578.9 µS/cm	0.10 mg/L	0.06 NTU	-91.0 mV	7.82 ft	150.00 ml/min
9/22/2023 9:02 AM	18:00	6.92 pH	19.72 °C	3,405.8 µS/cm	0.10 mg/L	0.76 NTU	-87.5 mV	7.82 ft	150.00 ml/min
9/22/2023 9:05 AM	21:00	6.91 pH	19.77 °C	3,385.1 µS/cm	0.09 mg/L	2.09 NTU	-86.9 mV	7.82 ft	150.00 ml/min
9/22/2023 9:08 AM	24:00	6.90 pH	19.85 °C	3,445.9 µS/cm	0.09 mg/L	0.66 NTU	-86.7 mV	7.82 ft	150.00 ml/min

Samples

Sample ID:	Description:

A-14R	Sample taken 0915

Low-Flow Test Report:

Test Date / Time: 9/22/2023 9:20:47 AM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: A-8 **Well Diameter: 4 in** **Casing Type: PCV** **Screen Length: 20 ft** **Top of Screen: 5 ft** **Total Depth: 24.89 m** **Initial Depth to Water: 8.03 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 12 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

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	+/- 0.1	
9/22/2023 9:20 AM	00:00	6.80 pH	19.19 °C	840.87 µS/cm	2.10 mg/L	0.00 NTU	-131.0 mV	8.03 ft	150.00 ml/min
9/22/2023 9:23 AM	03:00	6.84 pH	19.16 °C	839.81 µS/cm	0.20 mg/L	0.00 NTU	-138.6 mV	8.06 ft	150.00 ml/min
9/22/2023 9:26 AM	06:00	6.84 pH	19.17 °C	839.81 µS/cm	0.10 mg/L	0.00 NTU	-140.2 mV	8.06 ft	150.00 ml/min
9/22/2023 9:29 AM	09:00	6.84 pH	19.22 °C	839.61 µS/cm	0.06 mg/L	0.00 NTU	-141.5 mV	8.06 ft	150.00 ml/min
9/22/2023 9:32 AM	12:00	6.84 pH	19.23 °C	838.25 µS/cm	0.03 mg/L	0.00 NTU	-142.6 mV	8.06 ft	150.00 ml/min
9/22/2023 9:35 AM	15:00	6.84 pH	19.25 °C	838.27 µS/cm	0.01 mg/L	0.00 NTU	-143.3 mV	8.06 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-8	Sample Time: 9:37

Low-Flow Test Report:

Test Date / Time: 9/22/2023 9:48:31 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: A-10 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 20 ft** **Top of Screen: 5 ft** **Total Depth: 24.02 ft** **Initial Depth to Water: 7.08 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 15 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 57 degrees Fahrenheit

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	+/- 0.1	
9/22/2023 9:48 AM	00:00	6.98 pH	18.38 °C	20,229 µS/cm	4.58 mg/L	48.79 NTU	-81.0 mV	7.08 ft	150.00 ml/min
9/22/2023 9:51 AM	03:00	7.12 pH	18.42 °C	23,115 µS/cm	0.17 mg/L	11.69 NTU	-128.2 mV	7.10 ft	150.00 ml/min
9/22/2023 9:54 AM	06:00	7.13 pH	18.55 °C	23,083 µS/cm	0.14 mg/L	10.41 NTU	-133.2 mV	7.10 ft	150.00 ml/min
9/22/2023 9:57 AM	09:00	7.12 pH	18.60 °C	22,982 µS/cm	0.11 mg/L	5.22 NTU	-133.3 mV	7.10 ft	150.00 ml/min
9/22/2023 10:00 AM	12:00	7.10 pH	18.61 °C	22,604 µS/cm	0.09 mg/L	4.88 NTU	-131.4 mV	7.10 ft	150.00 ml/min
9/22/2023 10:03 AM	15:00	7.08 pH	18.62 °C	21,993 µS/cm	0.08 mg/L	3.84 NTU	-129.3 mV	7.11 ft	150.00 ml/min
9/22/2023 10:06 AM	18:00	7.07 pH	18.63 °C	21,203 µS/cm	0.08 mg/L	2.81 NTU	-127.3 mV	7.11 ft	150.00 ml/min
9/22/2023 10:09 AM	21:00	7.06 pH	18.64 °C	20,606 µS/cm	0.07 mg/L	2.43 NTU	-126.0 mV	7.11 ft	150.00 ml/min
9/22/2023 10:12 AM	24:00	7.05 pH	18.70 °C	19,659 µS/cm	0.07 mg/L	2.31 NTU	-123.8 mV	7.11 ft	150.00 ml/min
9/22/2023 10:15 AM	27:00	7.03 pH	18.72 °C	18,837 µS/cm	0.07 mg/L	1.68 NTU	-122.1 mV	7.11 ft	150.00 ml/min
9/22/2023 10:18 AM	30:00	7.03 pH	18.75 °C	17,989 µS/cm	0.06 mg/L	0.14 NTU	-120.7 mV	7.11 ft	150.00 ml/min
9/22/2023 10:21 AM	33:00	7.02 pH	18.75 °C	17,194 µS/cm	0.06 mg/L	0.34 NTU	-119.0 mV	7.11 ft	150.00 ml/min
9/22/2023 10:24 AM	36:00	7.01 pH	18.74 °C	16,483 µS/cm	0.06 mg/L	1.56 NTU	-117.5 mV	7.11 ft	150.00 ml/min

9/22/2023 10:27 AM	39:00	6.99 pH	18.87 °C	14,761 µS/cm	0.06 mg/L	0.16 NTU	-114.6 mV	7.11 ft	150.00 ml/min
9/22/2023 10:30 AM	42:00	6.97 pH	18.84 °C	14,107 µS/cm	0.06 mg/L	0.50 NTU	-111.7 mV	7.11 ft	150.00 ml/min
9/22/2023 10:33 AM	45:00	6.95 pH	18.89 °C	13,825 µS/cm	0.05 mg/L	2.65 NTU	-109.3 mV	7.11 ft	150.00 ml/min

Samples

Sample ID:	Description:
A-10	Sample taken 1015 Specific conductivity did not stabilize

Low-Flow Test Report:

Test Date / Time: 9/20/2023 3:08:43 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-2 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 12.71 ft** **Initial Depth to Water: 7.91 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: -0.05 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Partly cloudy 60 degrees Fahrenheit

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	+/- 0.1	
9/20/2023 3:08 PM	00:00	6.40 pH	18.58 °C	178.69 µS/cm	5.37 mg/L	12.64 NTU	56.1 mV	7.86 ft	150.00 ml/min
9/20/2023 3:11 PM	03:00	6.33 pH	17.97 °C	177.33 µS/cm	0.23 mg/L	0.77 NTU	71.3 mV	7.86 ft	150.00 ml/min
9/20/2023 3:14 PM	06:00	6.29 pH	17.94 °C	176.25 µS/cm	0.15 mg/L	0.54 NTU	87.7 mV	7.86 ft	150.00 ml/min
9/20/2023 3:17 PM	09:00	6.29 pH	18.01 °C	175.59 µS/cm	0.13 mg/L	0.00 NTU	99.3 mV	7.86 ft	150.00 ml/min
9/20/2023 3:20 PM	12:00	6.28 pH	18.10 °C	174.88 µS/cm	0.12 mg/L	0.00 NTU	109.0 mV	7.86 ft	150.00 ml/min
9/20/2023 3:23 PM	15:00	6.28 pH	18.08 °C	173.86 µS/cm	0.11 mg/L	0.00 NTU	116.1 mV	7.86 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-2	Sample taken 1530

Low-Flow Test Report:

Test Date / Time: 9/22/2023 1:28:58 PM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: MW-4 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 14.27 ft** **Initial Depth to Water: 7.24 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.25 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Sunny. 70F

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	+/- 0.1	
9/22/2023 1:28 PM	00:00	6.07 pH	24.15 °C	135.85 µS/cm	0.75 mg/L	2.07 NTU	-34.0 mV	7.24 ft	150.00 ml/min
9/22/2023 1:31 PM	03:00	5.95 pH	23.75 °C	135.38 µS/cm	0.31 mg/L	1.09 NTU	-34.5 mV	7.49 ft	150.00 ml/min
9/22/2023 1:34 PM	06:00	5.93 pH	23.66 °C	134.93 µS/cm	0.20 mg/L	0.89 NTU	-35.6 mV	7.49 ft	150.00 ml/min
9/22/2023 1:37 PM	09:00	5.92 pH	23.59 °C	134.80 µS/cm	0.14 mg/L	0.91 NTU	-37.1 mV	7.49 ft	150.00 ml/min
9/22/2023 1:40 PM	12:00	5.93 pH	23.47 °C	134.93 µS/cm	0.11 mg/L	0.96 NTU	-40.3 mV	7.49 ft	150.00 ml/min
9/22/2023 1:43 PM	15:00	5.95 pH	23.60 °C	135.38 µS/cm	0.07 mg/L	1.08 NTU	-42.4 mV	7.49 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-4	Sample Time: 13:45

Low-Flow Test Report:

Test Date / Time: 9/20/2023 8:34:33 AM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: MW-5 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13.18 ft** **Initial Depth to Water: 3.67 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 6300 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.09 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Overcast, drizzle. 55F

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	+/- 0.1	
9/20/2023 8:34 AM	00:00	6.21 pH	17.48 °C	170.13 µS/cm	2.29 mg/L	19.72 NTU	-45.5 mV	3.67 ft	150.00 ml/min
9/20/2023 8:37 AM	03:00	6.32 pH	18.20 °C	159.23 µS/cm	0.32 mg/L	2.81 NTU	-52.5 mV	3.75 ft	150.00 ml/min
9/20/2023 8:40 AM	06:00	6.42 pH	18.12 °C	156.07 µS/cm	0.20 mg/L	4.18 NTU	-49.7 mV	3.76 ft	150.00 ml/min
9/20/2023 8:43 AM	09:00	6.40 pH	18.20 °C	156.58 µS/cm	0.14 mg/L	2.77 NTU	-44.4 mV	3.76 ft	150.00 ml/min
9/20/2023 8:46 AM	12:00	6.44 pH	18.30 °C	155.01 µS/cm	0.10 mg/L	2.88 NTU	-41.1 mV	3.76 ft	150.00 ml/min
9/20/2023 8:49 AM	15:00	6.43 pH	18.35 °C	154.85 µS/cm		2.66 NTU	-42.5 mV	3.76 ft	150.00 ml/min
9/20/2023 8:52 AM	18:00	6.44 pH	18.43 °C	152.89 µS/cm	0.07 mg/L	2.88 NTU	-39.6 mV	3.76 ft	150.00 ml/min
9/20/2023 8:55 AM	21:00	6.42 pH	18.36 °C	154.15 µS/cm	0.12 mg/L	2.02 NTU	-43.9 mV	3.76 ft	150.00 ml/min
9/20/2023 8:58 AM	24:00	6.44 pH	18.38 °C	155.77 µS/cm	0.15 mg/L	2.02 NTU	-52.0 mV	3.76 ft	150.00 ml/min
9/20/2023 9:01 AM	27:00	6.42 pH	18.36 °C	159.03 µS/cm	0.21 mg/L	1.13 NTU	-59.2 mV	3.76 ft	150.00 ml/min
9/20/2023 9:04 AM	30:00	6.51 pH	17.92 °C	164.30 µS/cm	0.19 mg/L	0.11 NTU	-75.0 mV	3.76 ft	150.00 ml/min
9/20/2023 9:07 AM	33:00	6.48 pH	18.04 °C	164.87 µS/cm	0.29 mg/L	0.51 NTU	-74.5 mV	3.76 ft	150.00 ml/min
9/20/2023 9:10 AM	36:00	6.49 pH	18.10 °C	166.33 µS/cm	0.33 mg/L	0.06 NTU	-75.0 mV	3.76 ft	150.00 ml/min

9/20/2023 9:13 AM	39:00	6.46 pH	18.11 °C	167.94 µS/cm	0.34 mg/L	0.22 NTU	-74.3 mV	3.76 ft	150.00 ml/min
9/20/2023 9:16 AM	42:00	6.50 pH	18.05 °C	168.85 µS/cm	0.33 mg/L	0.29 NTU	-77.9 mV	3.76 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-5	Sample Time: 09:19

Low-Flow Test Report:

Test Date / Time: 9/22/2023 12:04:57 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-6 **Well Diameter: 4 in** **Screen Length: 10 m** **Top of Screen: 3 m** **Total Depth: 13.12 m** **Initial Depth to Water: 7.77 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 2700 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: -0.03 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 64 degrees Fahrenheit

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	+/- 0.1	
9/22/2023 12:04 PM	00:00	6.71 pH	18.93 °C	592.55 µS/cm	4.13 mg/L	6.49 NTU	87.1 mV	7.74 ft	150.00 ml/min
9/22/2023 12:07 PM	03:00	6.74 pH	18.13 °C	590.10 µS/cm	0.29 mg/L	4.25 NTU	61.8 mV	7.74 ft	150.00 ml/min
9/22/2023 12:10 PM	06:00	6.76 pH	18.07 °C	589.47 µS/cm	0.33 mg/L	2.51 NTU	47.3 mV	7.74 ft	150.00 ml/min
9/22/2023 12:13 PM	09:00	6.79 pH	18.03 °C	587.35 µS/cm	0.20 mg/L	3.02 NTU	31.2 mV	7.74 ft	150.00 ml/min
9/22/2023 12:16 PM	12:00	6.81 pH	18.10 °C	586.33 µS/cm	0.15 mg/L	6.47 NTU	18.0 mV	7.74 ft	150.00 ml/min
9/22/2023 12:19 PM	15:00	6.83 pH	18.00 °C	584.20 µS/cm	0.12 mg/L	0.29 NTU	6.8 mV	7.74 ft	150.00 ml/min
9/22/2023 12:22 PM	18:00	6.85 pH	17.99 °C	583.77 µS/cm	0.10 mg/L	0.35 NTU	-2.0 mV	7.74 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-6	Sample taken 1240

Low-Flow Test Report:

Test Date / Time: 9/20/2023 12:20:17 PM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: MW-3 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13.22 ft** **Initial Depth to Water: 4.04 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Cloudy. 55F

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	+/- 0.1	
9/20/2023 12:20 PM	00:00	6.54 pH	17.03 °C	167.75 µS/cm	1.62 mg/L	1.41 NTU	58.1 mV	4.04 ft	150.00 ml/min
9/20/2023 12:23 PM	03:00	6.66 pH	16.75 °C	168.70 µS/cm	0.53 mg/L	0.38 NTU	67.0 mV	4.09 ft	150.00 ml/min
9/20/2023 12:26 PM	06:00	6.70 pH	16.69 °C	168.89 µS/cm	0.38 mg/L	0.52 NTU	69.5 mV	4.09 ft	150.00 ml/min
9/20/2023 12:29 PM	09:00	6.73 pH	16.61 °C	168.97 µS/cm	0.33 mg/L	0.71 NTU	72.4 mV	4.09 ft	150.00 ml/min
9/20/2023 12:32 PM	12:00	6.73 pH	16.58 °C	169.14 µS/cm	0.31 mg/L	0.41 NTU	76.7 mV	4.09 ft	150.00 ml/min
9/20/2023 12:35 PM	15:00	6.74 pH	16.61 °C	169.30 µS/cm	0.33 mg/L	0.59 NTU	79.7 mV	4.09 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-3	Sample Time: 12:37

Low-Flow Test Report:

Test Date / Time: 9/22/2023 12:46:24 PM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: MW-12R **Well Diameter: 2 in** **Casing Type: PVC** **Total Depth: 14.24 ft** **Initial Depth to Water: 8.06 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Sunny. 65F

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	+/- 0.1	
9/22/2023 12:46 PM	00:00	6.76 pH	21.96 °C	528.28 µS/cm	1.46 mg/L	1.52 NTU	-96.2 mV	8.06 ft	150.00 ml/min
9/22/2023 12:49 PM	03:00	6.70 pH	21.05 °C	559.11 µS/cm	0.27 mg/L	0.40 NTU	-105.7 mV	8.09 ft	150.00 ml/min
9/22/2023 12:52 PM	06:00	6.66 pH	20.64 °C	547.14 µS/cm	0.17 mg/L	0.27 NTU	-106.3 mV	8.09 ft	150.00 ml/min
9/22/2023 12:55 PM	09:00	6.67 pH	20.51 °C	541.61 µS/cm	0.12 mg/L	0.14 NTU	-109.8 mV	8.09 ft	150.00 ml/min
9/22/2023 12:58 PM	12:00	6.69 pH	20.32 °C	536.61 µS/cm	0.08 mg/L	0.11 NTU	-112.4 mV	8.09 ft	150.00 ml/min
9/22/2023 1:01 PM	15:00	6.69 pH	20.29 °C	537.62 µS/cm	0.05 mg/L	0.04 NTU	-114.8 mV	8.09 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-12R	Sample Time: 13:04

Low-Flow Test Report:

Test Date / Time: 9/20/2023 2:03:21 PM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: MW-9 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 12.89 ft** **Initial Depth to Water: 3.23 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.02 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Scattered clouds. Windy. 60F

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	+/- 0.1	
9/20/2023 2:03 PM	00:00	7.42 pH	19.14 °C	129.73 µS/cm	2.63 mg/L	2.05 NTU	-82.8 mV	3.23 ft	150.00 ml/min
9/20/2023 2:06 PM	03:00	6.75 pH	18.43 °C	115.92 µS/cm	0.37 mg/L	1.85 NTU	-76.2 mV	3.23 ft	150.00 ml/min
9/20/2023 2:09 PM	06:00	6.59 pH	18.41 °C	115.41 µS/cm	0.27 mg/L	1.09 NTU	-75.2 mV	3.25 ft	150.00 ml/min
9/20/2023 2:12 PM	09:00	6.52 pH	18.49 °C	114.78 µS/cm	0.35 mg/L	1.14 NTU	-75.4 mV	3.25 ft	150.00 ml/min
9/20/2023 2:15 PM	12:00	6.49 pH	18.44 °C	114.66 µS/cm	0.38 mg/L	0.76 NTU	-78.2 mV	3.25 ft	150.00 ml/min
9/20/2023 2:18 PM	15:00	6.49 pH	18.48 °C	115.09 µS/cm	0.48 mg/L	0.95 NTU	-83.2 mV	3.25 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-9	Sample Time: 14:21

Low-Flow Test Report:

Test Date / Time: 9/21/2023 1:37:51 PM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: MW-8 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13.12 ft** **Initial Depth to Water: 4.16 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 6750 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 1.08 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Clear, windy. 60F

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	+/- 0.1	
9/21/2023 1:37 PM	00:00	6.31 pH	20.36 °C	63.70 µS/cm	0.84 mg/L	29.01 NTU	35.5 mV	4.16 ft	150.00 ml/min
9/21/2023 1:40 PM	03:00	6.02 pH	19.88 °C	63.92 µS/cm	0.13 mg/L	29.00 NTU	30.5 mV	4.44 ft	150.00 ml/min
9/21/2023 1:43 PM	06:00	6.03 pH	19.59 °C	72.82 µS/cm	0.12 mg/L	23.41 NTU	21.8 mV	4.44 ft	150.00 ml/min
9/21/2023 1:46 PM	09:00	5.98 pH	19.62 °C	69.87 µS/cm	0.07 mg/L	24.79 NTU	21.6 mV	4.56 ft	150.00 ml/min
9/21/2023 1:49 PM	12:00	5.96 pH	19.70 °C	66.97 µS/cm	0.05 mg/L	26.27 NTU	22.8 mV	4.56 ft	150.00 ml/min
9/21/2023 1:52 PM	15:00	5.97 pH	19.77 °C	64.60 µS/cm	0.03 mg/L	28.75 NTU	22.7 mV	4.56 ft	150.00 ml/min
9/21/2023 1:55 PM	18:00	5.98 pH	19.91 °C	59.23 µS/cm	0.06 mg/L	31.15 NTU	23.6 mV	4.98 ft	150.00 ml/min
9/21/2023 1:58 PM	21:00	6.02 pH	19.93 °C	59.49 µS/cm	0.10 mg/L	29.84 NTU	24.3 mV	4.98 ft	150.00 ml/min
9/21/2023 2:01 PM	24:00	6.06 pH	19.98 °C	56.39 µS/cm	0.21 mg/L	27.85 NTU	24.1 mV	4.98 ft	150.00 ml/min
9/21/2023 2:04 PM	27:00	6.09 pH	20.04 °C	54.45 µS/cm	0.54 mg/L	27.85 NTU	26.9 mV	4.98 ft	150.00 ml/min
9/21/2023 2:07 PM	30:00	6.11 pH	20.08 °C	54.52 µS/cm	0.66 mg/L	27.18 NTU	29.2 mV	4.98 ft	150.00 ml/min
9/21/2023 2:10 PM	33:00	6.12 pH	20.11 °C	54.19 µS/cm	0.86 mg/L	27.18 NTU	32.3 mV	4.98 ft	150.00 ml/min
9/21/2023 2:13 PM	36:00	6.14 pH	20.14 °C	54.68 µS/cm	1.03 mg/L	26.82 NTU	34.2 mV	5.24 ft	150.00 ml/min

9/21/2023 2:16 PM	39:00	6.15 pH	20.15 °C	54.99 µS/cm	1.16 mg/L	26.17 NTU	36.0 mV	4.44 ft	150.00 ml/min
9/21/2023 2:19 PM	42:00	6.16 pH	20.14 °C	55.81 µS/cm	1.20 mg/L	26.39 NTU	37.0 mV	4.44 ft	150.00 ml/min
9/21/2023 2:22 PM	45:00	6.16 pH	20.16 °C	56.27 µS/cm	1.25 mg/L	25.74 NTU	39.0 mV	4.44 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-8	Sample Time: 14:24

Low-Flow Test Report:

Test Date / Time: 9/22/2023 11:53:00 AM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: MW-07R **Well Diameter: 2 in** **Casing Type: PVC** **Total Depth: 12.69 ft** **Initial Depth to Water: 6.89 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Clear. 60F

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	+/- 0.1	
9/22/2023 11:53 AM	00:00	5.83 pH	20.89 °C	64.16 µS/cm	1.05 mg/L	13.47 NTU	131.5 mV	6.89 ft	150.00 ml/min
9/22/2023 11:56 AM	03:00	5.62 pH	20.01 °C	64.36 µS/cm	0.57 mg/L	16.79 NTU	128.1 mV	6.89 ft	150.00 ml/min
9/22/2023 11:59 AM	06:00	5.59 pH	19.54 °C	63.78 µS/cm	0.33 mg/L	8.10 NTU	120.2 mV	6.92 ft	150.00 ml/min
9/22/2023 12:02 PM	09:00	5.69 pH	19.47 °C	63.73 µS/cm	0.23 mg/L	7.15 NTU	105.4 mV	6.92 ft	150.00 ml/min
9/22/2023 12:05 PM	12:00	5.68 pH	19.55 °C	63.78 µS/cm	0.20 mg/L	8.56 NTU	102.4 mV	6.92 ft	150.00 ml/min
9/22/2023 12:08 PM	15:00	5.74 pH	19.46 °C	63.81 µS/cm	0.15 mg/L	5.80 NTU	89.3 mV	6.92 ft	150.00 ml/min
9/22/2023 12:11 PM	18:00	5.76 pH	19.41 °C	63.76 µS/cm	0.12 mg/L	4.15 NTU	85.8 mV	6.92 ft	150.00 ml/min
9/22/2023 12:14 PM	21:00	5.79 pH	19.29 °C	63.92 µS/cm	0.10 mg/L	5.10 NTU	84.0 mV	6.92 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-07R	Sample Time: 12:17

Low-Flow Test Report:

Test Date / Time: 9/21/2023 10:09:12 AM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: MW-7 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 12.89 ft** **Initial Depth to Water: 3.02 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 6 ft** **Estimated Total Volume Pumped: 4050 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.37 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Cloudy. Windy. 55F

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	+/- 0.1	
9/21/2023 10:09 AM	00:00	7.86 pH	18.08 °C	1,127.1 µS/cm	2.80 mg/L	23.82 NTU	-238.2 mV	3.02 ft	150.00 ml/min
9/21/2023 10:12 AM	03:00	7.58 pH	18.20 °C	1,125.0 µS/cm	0.27 mg/L	24.48 NTU	-244.4 mV	3.27 ft	150.00 ml/min
9/21/2023 10:15 AM	06:00	7.47 pH	18.28 °C	1,127.0 µS/cm	0.16 mg/L	25.38 NTU	-248.9 mV	3.27 ft	150.00 ml/min
9/21/2023 10:18 AM	09:00	7.42 pH	18.10 °C	1,125.4 µS/cm	0.09 mg/L	19.69 NTU	-261.2 mV	3.34 ft	150.00 ml/min
9/21/2023 10:21 AM	12:00	7.36 pH	18.09 °C	1,127.6 µS/cm	0.08 mg/L	17.64 NTU	-266.7 mV	3.34 ft	150.00 ml/min
9/21/2023 10:24 AM	15:00	7.31 pH	18.18 °C	1,136.2 µS/cm	0.04 mg/L	17.18 NTU	-273.6 mV	3.34 ft	150.00 ml/min
9/21/2023 10:27 AM	18:00	7.27 pH	18.19 °C	1,151.5 µS/cm	0.04 mg/L	13.03 NTU	-284.3 mV	3.39 ft	150.00 ml/min
9/21/2023 10:30 AM	21:00	7.26 pH	18.35 °C	1,170.1 µS/cm	0.02 mg/L	11.53 NTU	-293.4 mV	3.39 ft	150.00 ml/min
9/21/2023 10:33 AM	24:00	7.24 pH	18.37 °C	1,175.3 µS/cm	0.02 mg/L	9.86 NTU	-298.1 mV	3.39 ft	150.00 ml/min
9/21/2023 10:36 AM	27:00	7.23 pH	18.41 °C	1,174.4 µS/cm	0.02 mg/L	10.07 NTU	-299.4 mV	3.39 ft	150.00 ml/min

Samples

Sample ID:	Description:

MW-7	Sample Time: 10:37
DUP-1	

Low-Flow Test Report:

Test Date / Time: 9/20/2023 11:29:28 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-14 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13.58 ft** **Initial Depth to Water: 4.23 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 3600 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.16 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Cloudy 56 degrees Fahrenheit

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	+/- 0.1	
9/20/2023 11:29 AM	00:00	6.73 pH	16.66 °C	183.98 µS/cm	4.30 mg/L	3.22 NTU	-55.5 mV	4.24 ft	150.00 ml/min
9/20/2023 11:32 AM	03:00	6.79 pH	16.78 °C	181.19 µS/cm	0.23 mg/L	3.24 NTU	-78.9 mV	4.31 ft	150.00 ml/min
9/20/2023 11:35 AM	06:00	6.78 pH	17.07 °C	180.84 µS/cm	0.23 mg/L	3.80 NTU	-85.5 mV	4.35 ft	150.00 ml/min
9/20/2023 11:38 AM	09:00	6.78 pH	17.10 °C	180.83 µS/cm	0.17 mg/L	4.98 NTU	-90.7 mV	4.35 ft	150.00 ml/min
9/20/2023 11:41 AM	12:00	6.78 pH	17.24 °C	180.77 µS/cm	0.22 mg/L	3.44 NTU	-94.1 mV	4.35 ft	150.00 ml/min
9/20/2023 11:44 AM	15:00	6.77 pH	17.13 °C	180.66 µS/cm	0.19 mg/L	3.69 NTU	-95.8 mV	4.36 ft	150.00 ml/min
9/20/2023 11:47 AM	18:00	6.77 pH	17.21 °C	180.69 µS/cm	0.16 mg/L	5.21 NTU	-97.3 mV	4.39 ft	150.00 ml/min
9/20/2023 11:50 AM	21:00	6.77 pH	17.35 °C	180.78 µS/cm	0.11 mg/L	5.91 NTU	-99.0 mV	4.39 ft	150.00 ml/min
9/20/2023 11:53 AM	24:00	6.77 pH	17.40 °C	180.64 µS/cm	0.11 mg/L	3.59 NTU	-99.6 mV	4.39 ft	150.00 ml/min

Samples

Sample ID:	Description:

MW-14	Sample taken 1200

Low-Flow Test Report:

Test Date / Time: 9/22/2023 11:06:12 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-16 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 4 ft** **Total Depth: 14.09 ft** **Initial Depth to Water: 7.74 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.02 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 63 degrees Fahrenheit

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	+/- 0.1	
9/22/2023 11:06 AM	00:00	6.83 pH	17.87 °C	494.22 µS/cm	2.66 mg/L	18.07 NTU	40.6 mV	7.75 ft	150.00 ml/min
9/22/2023 11:09 AM	03:00	6.32 pH	17.23 °C	419.03 µS/cm	0.91 mg/L	16.47 NTU	86.1 mV	7.75 ft	150.00 ml/min
9/22/2023 11:12 AM	06:00	6.28 pH	17.45 °C	418.13 µS/cm	1.43 mg/L	2.71 NTU	98.6 mV	7.75 ft	150.00 ml/min
9/22/2023 11:15 AM	09:00	6.28 pH	17.65 °C	415.66 µS/cm	2.03 mg/L	7.10 NTU	105.9 mV	7.76 ft	150.00 ml/min
9/22/2023 11:18 AM	12:00	6.30 pH	17.80 °C	417.64 µS/cm	1.88 mg/L	1.57 NTU	111.5 mV	7.76 ft	150.00 ml/min
9/22/2023 11:21 AM	15:00	6.33 pH	17.87 °C	419.20 µS/cm	1.60 mg/L	0.22 NTU	114.5 mV	7.76 ft	150.00 ml/min
9/22/2023 11:24 AM	18:00	6.34 pH	17.87 °C	421.96 µS/cm	1.40 mg/L	0.04 NTU	117.9 mV	7.76 ft	150.00 ml/min
9/22/2023 11:27 AM	21:00	6.33 pH	17.91 °C	423.93 µS/cm	1.28 mg/L	0.00 NTU	120.6 mV	7.76 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-16	Sample taken 1130

Low-Flow Test Report:

Test Date / Time: 9/20/2023 12:43:15 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-18 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 13 ft** **Top of Screen: 3 ft** **Total Depth: 13.59 ft** **Initial Depth to Water: 7.69 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.03 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Cloudy 57 degrees Fahrenheit

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	+/- 0.1	
9/20/2023 12:43 PM	00:00	6.45 pH	18.33 °C	172.38 µS/cm	5.29 mg/L	60.20 NTU	33.0 mV	7.69 ft	150.00 ml/min
9/20/2023 12:46 PM	03:00	6.40 pH	18.06 °C	179.04 µS/cm	0.24 mg/L	27.73 NTU	13.8 mV	7.72 ft	150.00 ml/min
9/20/2023 12:49 PM	06:00	6.48 pH	17.91 °C	190.24 µS/cm	0.17 mg/L	18.51 NTU	-1.3 mV	7.72 ft	150.00 ml/min
9/20/2023 12:52 PM	09:00	6.55 pH	17.87 °C	203.90 µS/cm	0.15 mg/L	11.12 NTU	-17.5 mV	7.72 ft	150.00 ml/min
9/20/2023 12:55 PM	12:00	6.59 pH	17.91 °C	203.95 µS/cm	0.13 mg/L	11.57 NTU	-28.9 mV	7.72 ft	150.00 ml/min
9/20/2023 12:58 PM	15:00	6.60 pH	17.93 °C	202.37 µS/cm	0.13 mg/L	10.16 NTU	-35.4 mV	7.72 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-18	Sample taken 1300

Low-Flow Test Report:

Test Date / Time: 9/20/2023 11:26:13 AM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: MW-20 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 12 ft** **Top of Screen: 3 ft** **Total Depth: 11.75 ft** **Initial Depth to Water: 4.11 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.11 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Overcast. 60F

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	+/- 0.1	
9/20/2023 11:26 AM	00:00	6.61 pH	18.29 °C	260.45 µS/cm	1.64 mg/L	2.60 NTU	-110.4 mV	4.11 ft	150.00 ml/min
9/20/2023 11:29 AM	03:00	6.72 pH	18.92 °C	258.29 µS/cm	0.29 mg/L	1.35 NTU	-126.2 mV	4.22 ft	150.00 ml/min
9/20/2023 11:32 AM	06:00	6.75 pH	19.05 °C	257.48 µS/cm	0.22 mg/L	1.13 NTU	-130.8 mV	4.22 ft	150.00 ml/min
9/20/2023 11:35 AM	09:00	6.73 pH	19.13 °C	257.39 µS/cm	0.17 mg/L	1.34 NTU	-129.3 mV	4.22 ft	150.00 ml/min
9/20/2023 11:38 AM	12:00	6.76 pH	19.11 °C	257.36 µS/cm	0.17 mg/L	1.09 NTU	-130.4 mV	4.22 ft	150.00 ml/min
9/20/2023 11:41 AM	15:00	6.73 pH	19.22 °C	257.57 µS/cm	0.16 mg/L	1.43 NTU	-128.9 mV	4.22 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-20	Sample Time: 11:44

Low-Flow Test Report:

Test Date / Time: 9/19/2023 2:45:28 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-19 **Well Diameter: 2 ft** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 12.98 ft** **Initial Depth to Water: 3.78 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 4500 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.02 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny light breeze 65 degrees Fahrenheit

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	+/- 0.1	
9/19/2023 2:45 PM	00:00	7.14 pH	19.09 °C	2,261.8 µS/cm	1.92 mg/L	0.08 NTU	-218.7 mV	3.75 ft	150.00 ml/min
9/19/2023 2:48 PM	03:00	7.15 pH	18.98 °C	2,187.4 µS/cm	0.18 mg/L	0.31 NTU	-248.4 mV	3.80 ft	150.00 ml/min
9/19/2023 2:51 PM	06:00	7.15 pH	19.12 °C	1,828.1 µS/cm	0.14 mg/L	0.16 NTU	-271.0 mV	3.80 ft	150.00 ml/min
9/19/2023 2:54 PM	09:00	7.14 pH	19.23 °C	1,356.9 µS/cm	0.11 mg/L	0.00 NTU	-289.6 mV	3.80 ft	150.00 ml/min
9/19/2023 2:57 PM	12:00	7.12 pH	19.39 °C	1,225.1 µS/cm	0.10 mg/L	0.00 NTU	-299.3 mV	3.80 ft	150.00 ml/min
9/19/2023 3:00 PM	15:00	7.11 pH	19.37 °C	1,207.3 µS/cm	0.08 mg/L	0.00 NTU	-303.1 mV	3.80 ft	150.00 ml/min
9/19/2023 3:03 PM	18:00	7.10 pH	19.42 °C	1,088.6 µS/cm	0.08 mg/L	0.00 NTU	-306.7 mV	3.80 ft	150.00 ml/min
9/19/2023 3:06 PM	21:00	7.08 pH	19.43 °C	1,165.7 µS/cm	0.06 mg/L	0.00 NTU	-306.1 mV	3.80 ft	150.00 ml/min
9/19/2023 3:09 PM	24:00	7.06 pH	19.52 °C	1,037.0 µS/cm	0.06 mg/L	0.00 NTU	-310.6 mV	3.80 ft	150.00 ml/min
9/19/2023 3:12 PM	27:00	7.06 pH	19.50 °C	937.56 µS/cm	0.06 mg/L	0.00 NTU	-309.2 mV	3.80 ft	150.00 ml/min
9/19/2023 3:15 PM	30:00	7.05 pH	19.43 °C	1,253.6 µS/cm	0.06 mg/L	0.00 NTU	-304.9 mV	3.80 ft	150.00 ml/min

Low-Flow Test Report:

Test Date / Time: 9/21/2023 2:47:22 PM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: MW-21 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 11.63 ft** **Initial Depth to Water: 3.27 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 4050 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 1.67 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Clear, windy. 65F

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	+/- 0.1	
9/21/2023 2:47 PM	00:00	6.20 pH	18.73 °C	77.27 µS/cm	1.37 mg/L	10.38 NTU	7.1 mV	3.27 ft	150.00 ml/min
9/21/2023 2:50 PM	03:00	6.17 pH	18.66 °C	78.00 µS/cm	0.16 mg/L	13.89 NTU	8.7 mV	3.56 ft	150.00 ml/min
9/21/2023 2:53 PM	06:00	6.19 pH	18.97 °C	77.95 µS/cm	0.09 mg/L	20.87 NTU	7.4 mV	3.99 ft	150.00 ml/min
9/21/2023 2:56 PM	09:00	6.21 pH	19.13 °C	78.01 µS/cm	0.06 mg/L	20.03 NTU	0.3 mV	4.19 ft	150.00 ml/min
9/21/2023 2:59 PM	12:00	6.22 pH	19.36 °C	78.70 µS/cm	0.09 mg/L	27.45 NTU	-50.6 mV	4.45 ft	150.00 ml/min
9/21/2023 3:02 PM	15:00	6.23 pH	19.44 °C	79.68 µS/cm	0.08 mg/L	15.98 NTU	-79.5 mV	4.45 ft	150.00 ml/min
9/21/2023 3:05 PM	18:00	6.24 pH	19.53 °C	80.48 µS/cm	0.05 mg/L	16.65 NTU	-93.2 mV	4.76 ft	150.00 ml/min
9/21/2023 3:08 PM	21:00	6.24 pH	19.52 °C	81.37 µS/cm	0.04 mg/L	14.00 NTU	-99.8 mV	4.76 ft	150.00 ml/min
9/21/2023 3:11 PM	24:00	6.23 pH	19.47 °C	81.65 µS/cm	0.03 mg/L	14.50 NTU	-100.3 mV	4.76 ft	150.00 ml/min
9/21/2023 3:14 PM	27:00	6.22 pH	19.38 °C	81.72 µS/cm	0.02 mg/L	16.06 NTU	-99.8 mV	4.94 ft	150.00 ml/min

Samples

Sample ID:	Description:

MW-21	Sample Time: 15:16
DUP-2	

Low-Flow Test Report:

Test Date / Time: 9/20/2023 1:43:42 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-22 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 3 ft** **Total Depth: 13.31 ft** **Initial Depth to Water: 8.96 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 4050 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: -0.02 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Windy, 58 degrees Fahrenheit

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	+/- 0.1	
9/20/2023 1:43 PM	00:00	6.30 pH	19.24 °C	268.18 µS/cm	2.62 mg/L	13.48 NTU	0.6 mV	8.94 ft	150.00 ml/min
9/20/2023 1:46 PM	03:00	6.44 pH	19.16 °C	236.21 µS/cm	0.20 mg/L	5.09 NTU	-52.0 mV	8.94 ft	150.00 ml/min
9/20/2023 1:49 PM	06:00	6.45 pH	19.21 °C	214.92 µS/cm	0.15 mg/L	13.56 NTU	-56.8 mV	8.94 ft	150.00 ml/min
9/20/2023 1:52 PM	09:00	6.44 pH	19.26 °C	204.67 µS/cm	0.13 mg/L	4.07 NTU	-58.5 mV	8.94 ft	150.00 ml/min
9/20/2023 1:55 PM	12:00	6.43 pH	19.32 °C	163.33 µS/cm	0.11 mg/L	8.01 NTU	-60.0 mV	8.94 ft	150.00 ml/min
9/20/2023 1:58 PM	15:00	6.44 pH	19.35 °C	109.64 µS/cm	0.11 mg/L	7.62 NTU	-62.9 mV	8.94 ft	150.00 ml/min
9/20/2023 2:01 PM	18:00	6.45 pH	19.38 °C	36.09 µS/cm	0.10 mg/L	6.09 NTU	-64.9 mV	8.94 ft	150.00 ml/min
9/20/2023 2:04 PM	21:00	6.47 pH	19.29 °C	180.57 µS/cm	0.09 mg/L	13.94 NTU	-65.3 mV	8.94 ft	150.00 ml/min
9/20/2023 2:07 PM	24:00	6.48 pH	19.37 °C	184.34 µS/cm	0.07 mg/L	8.54 NTU	-66.8 mV	8.94 ft	150.00 ml/min
9/20/2023 2:10 PM	27:00	6.48 pH	19.35 °C	184.99 µS/cm	0.06 mg/L	78.34 NTU	-67.5 mV	8.94 ft	150.00 ml/min

Samples

Sample ID:	Description:

MW-22	Sample time 1420

Low-Flow Test Report:

Test Date / Time: 9/21/2023 1:00:25 PM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-23 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 14.81 ft** **Initial Depth to Water: 7.71 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 3150 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 60 degrees Fahrenheit

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	+/- 0.1	
9/21/2023 1:00 PM	00:00	6.59 pH	18.41 °C	954.67 µS/cm	4.47 mg/L	0.80 NTU	-31.6 mV	7.71 ft	150.00 ml/min
9/21/2023 1:03 PM	03:00	6.58 pH	17.64 °C	958.86 µS/cm	0.32 mg/L	0.00 NTU	-55.7 mV	7.75 ft	150.00 ml/min
9/21/2023 1:06 PM	06:00	6.59 pH	17.59 °C	959.61 µS/cm	0.24 mg/L	0.14 NTU	-64.0 mV	7.76 ft	150.00 ml/min
9/21/2023 1:09 PM	09:00	6.59 pH	17.55 °C	959.71 µS/cm	0.16 mg/L	0.00 NTU	-69.3 mV	7.76 ft	150.00 ml/min
9/21/2023 1:12 PM	12:00	6.60 pH	17.61 °C	961.01 µS/cm	0.19 mg/L	0.00 NTU	-72.6 mV	7.76 ft	150.00 ml/min
9/21/2023 1:15 PM	15:00	6.60 pH	17.57 °C	960.00 µS/cm	0.17 mg/L	0.25 NTU	-74.7 mV	7.76 ft	150.00 ml/min
9/21/2023 1:18 PM	18:00	6.60 pH	17.53 °C	960.07 µS/cm	0.14 mg/L	0.00 NTU	-76.0 mV	7.76 ft	150.00 ml/min
9/21/2023 1:21 PM	21:00	6.60 pH	17.55 °C	960.15 µS/cm	0.14 mg/L	0.21 NTU	-77.2 mV	7.76 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-23	Sample taken 1330

Low-Flow Test Report:

Test Date / Time: 9/21/2023 11:51:37 AM
Project: Kinder Morgan Harbor Island
Operator Name: CW

Location Name: MW-24 **Well Diameter: 4 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 14.76 ft** **Initial Depth to Water: 7.72 ft**	**Pump Type: Peristaltic** **Tubing Type: 1/4 OD Polyethylene HDPE** **Pump Intake From TOC: 10 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.06 ft**	**Instrument Used: Aqua TROLL 600** **Serial Number: 1024553**

Test Notes:

Weather Conditions:
Sunny 62 degrees Fahrenheit

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	+/- 0.1	
9/21/2023 11:51 AM	00:00	6.52 pH	18.32 °C	1,106.4 µS/cm	2.07 mg/L	3.40 NTU	-84.3 mV	7.79 ft	150.00 ml/min
9/21/2023 11:54 AM	03:00	6.48 pH	17.23 °C	1,111.1 µS/cm	0.16 mg/L	1.72 NTU	-93.5 mV	7.79 ft	150.00 ml/min
9/21/2023 11:57 AM	06:00	6.46 pH	17.45 °C	1,110.8 µS/cm	0.13 mg/L	4.26 NTU	-99.5 mV	7.79 ft	150.00 ml/min
9/21/2023 12:00 PM	09:00	6.49 pH	17.50 °C	1,116.1 µS/cm	0.12 mg/L	8.91 NTU	-103.0 mV	7.77 ft	150.00 ml/min
9/21/2023 12:03 PM	12:00	6.49 pH	17.47 °C	1,110.3 µS/cm	0.11 mg/L	15.93 NTU	-104.9 mV	7.78 ft	150.00 ml/min
9/21/2023 12:06 PM	15:00	6.49 pH	17.51 °C	1,109.8 µS/cm	0.10 mg/L	25.35 NTU	-105.6 mV	7.78 ft	150.00 ml/min

Samples

Sample ID:	Description:
MW-24	Sample taken 1215

Low-Flow Test Report:

Test Date / Time: 9/22/2023 2:01:46 PM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: SH-02R **Well Diameter: 2 in** **Casing Type: PCV** **Total Depth: 14.67 ft** **Initial Depth to Water: 6.19 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 2250 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Sunny. 70F

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	+/- 0.1	
9/22/2023 2:01 PM	00:00	6.57 pH	23.05 °C	205.38 µS/cm	0.78 mg/L	0.42 NTU	-84.2 mV	6.19 ft	150.00 ml/min
9/22/2023 2:04 PM	03:00	6.54 pH	22.50 °C	207.02 µS/cm	0.31 mg/L	0.34 NTU	-94.1 mV	6.22 ft	150.00 ml/min
9/22/2023 2:07 PM	06:00	6.53 pH	22.33 °C	207.03 µS/cm	0.20 mg/L	0.11 NTU	-98.0 mV	6.22 ft	150.00 ml/min
9/22/2023 2:10 PM	09:00	6.54 pH	22.27 °C	207.18 µS/cm	0.14 mg/L	0.05 NTU	-102.4 mV	6.22 ft	150.00 ml/min
9/22/2023 2:13 PM	12:00	6.55 pH	22.23 °C	207.22 µS/cm	0.12 mg/L	0.00 NTU	-105.2 mV	6.22 ft	150.00 ml/min
9/22/2023 2:16 PM	15:00	6.55 pH	22.23 °C	207.17 µS/cm	0.11 mg/L	0.02 NTU	-107.7 mV	6.24 ft	150.00 ml/min

Samples

Sample ID:	Description:
SH-02R	Sample Time: 14:20

Low-Flow Test Report:

Test Date / Time: 9/22/2023 10:32:27 AM
Project: Kinder Morgan Harbor Island.
Operator Name: RP

Location Name: SH-05R **Well Diameter: 2 in** **Casing Type: PVC** **Total Depth: 13.67 ft** **Initial Depth to Water: 7.29 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 9 ft** **Estimated Total Volume Pumped: 4950 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.15 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Sunny. 60F

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	+/- 0.1	
9/22/2023 10:32 AM	00:00	6.15 pH	19.97 °C	147.95 µS/cm	1.44 mg/L	1.39 NTU	100.0 mV	7.29 ft	150.00 ml/min
9/22/2023 10:35 AM	03:00	5.89 pH	19.64 °C	142.91 µS/cm	0.54 mg/L	0.69 NTU	135.4 mV	7.39 ft	150.00 ml/min
9/22/2023 10:38 AM	06:00	5.88 pH	19.63 °C	142.30 µS/cm	0.37 mg/L	0.85 NTU	143.4 mV	7.39 ft	150.00 ml/min
9/22/2023 10:41 AM	09:00	5.89 pH	19.63 °C	141.83 µS/cm	0.29 mg/L	1.18 NTU	142.6 mV	7.44 ft	150.00 ml/min
9/22/2023 10:44 AM	12:00	5.90 pH	19.66 °C	141.77 µS/cm	0.26 mg/L	1.70 NTU	138.0 mV	7.44 ft	150.00 ml/min
9/22/2023 10:47 AM	15:00	5.94 pH	19.78 °C	140.13 µS/cm	0.28 mg/L	1.96 NTU	118.6 mV	7.44 ft	150.00 ml/min
9/22/2023 10:50 AM	18:00	5.97 pH	19.80 °C	139.73 µS/cm	0.30 mg/L	1.90 NTU	102.6 mV	7.44 ft	150.00 ml/min
9/22/2023 10:53 AM	21:00	5.98 pH	19.73 °C	137.80 µS/cm	0.26 mg/L	1.75 NTU	93.1 mV	7.44 ft	150.00 ml/min
9/22/2023 10:56 AM	24:00	5.99 pH	19.73 °C	136.41 µS/cm	0.24 mg/L	1.56 NTU	88.1 mV	7.44 ft	150.00 ml/min
9/22/2023 10:59 AM	27:00	6.00 pH	19.65 °C	134.77 µS/cm	0.21 mg/L	1.48 NTU	81.8 mV	7.44 ft	150.00 ml/min
9/22/2023 11:02 AM	30:00	6.04 pH	19.76 °C	133.30 µS/cm	0.21 mg/L	1.79 NTU	76.8 mV	7.44 ft	150.00 ml/min
9/22/2023 11:05 AM	33:00	6.03 pH	19.77 °C	134.35 µS/cm	0.23 mg/L	1.54 NTU	77.3 mV	7.44 ft	150.00 ml/min

Samples

Sample ID:	Description:
SH-05R	Sample Time: 11:05

Low-Flow Test Report:

Test Date / Time: 9/19/2023 2:43:46 PM
Project: Kinder Morgan Harbor Island
Operator Name: RP

Location Name: TMW-1 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 5 ft** **Total Depth: 13.38 ft** **Initial Depth to Water: 4.09 ft**	**Pump Type: Peristaltic** **Tubing Type: Polyethylene HDPE** **Pump Intake From TOC: 8 ft** **Estimated Total Volume Pumped: 4050 ml** **Flow Cell Volume: 130 ml** **Final Flow Rate: 150 ml/min** **Final Draw Down: 0.05 ft**	**Instrument Used: Aqua TROLL 600 Vented** **Serial Number: 697669**

Test Notes:

Weather Conditions:
Scattered clouds, 68F

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	+/- 0.1	
9/19/2023 2:43 PM	00:00	6.93 pH	22.47 °C	502.02 µS/cm	2.07 mg/L	25.52 NTU	166.8 mV	4.09 ft	150.00 ml/min
9/19/2023 2:46 PM	03:00	7.00 pH	19.95 °C	561.89 µS/cm	1.05 mg/L	8.89 NTU	150.2 mV	4.13 ft	150.00 ml/min
9/19/2023 2:49 PM	06:00	6.92 pH	19.98 °C	547.65 µS/cm	0.96 mg/L	7.58 NTU	141.5 mV	4.13 ft	150.00 ml/min
9/19/2023 2:52 PM	09:00	6.89 pH	20.14 °C	531.81 µS/cm	1.26 mg/L	6.37 NTU	126.9 mV	4.14 ft	150.00 ml/min
9/19/2023 2:55 PM	12:00	6.88 pH	20.07 °C	551.98 µS/cm	1.25 mg/L	4.70 NTU	112.4 mV	4.14 ft	150.00 ml/min
9/19/2023 2:58 PM	15:00	6.88 pH	20.11 °C	559.95 µS/cm	1.18 mg/L	5.02 NTU	104.7 mV	4.14 ft	150.00 ml/min
9/19/2023 3:01 PM	18:00	6.89 pH	20.04 °C	575.28 µS/cm	1.13 mg/L	2.30 NTU	98.6 mV	4.14 ft	150.00 ml/min
9/19/2023 3:04 PM	21:00	6.90 pH	20.13 °C	586.91 µS/cm	1.04 mg/L	1.99 NTU	97.6 mV	4.14 ft	150.00 ml/min
9/19/2023 3:07 PM	24:00	6.92 pH	20.14 °C	585.03 µS/cm	1.02 mg/L	0.89 NTU	95.1 mV	4.14 ft	150.00 ml/min
9/19/2023 3:10 PM	27:00	6.95 pH	20.22 °C	590.90 µS/cm	1.01 mg/L	0.90 NTU	88.7 mV	4.14 ft	150.00 ml/min

Samples

Sample ID:	Description:

TMW-1	Sample Time: 15:15

PN: 30111526

Turbidity Readings

KMLT Harbor Island

Well ID: MW-21 Dup-1
Date: 3-2-23

Elapsed Time	NTU	Elapsed Time	NTU
0	17.7	24	7.9
3	13.7	27	7.47
6	11.6	30	7.74
9	10.9	33	7.67
12	10.9	36	8.70
15	10.00	39	6.30
18	9.3	42	
21	9.85	45	

Well ID: MW-9
Date: 3-2-23

Elapsed Time	NTU	Elapsed Time	NTU
0	26.3	24	15.3
3	19.3	27	17.4
6	18.7	30	15.4
9	16.4	33	15.2
12	15.2	36	
15	15.1	39	
18	16.5	42	
21	14.0	45	

Well ID: TMW-6
Date: 3-2-23

Elapsed Time	NTU	Elapsed Time	NTU
0	3.85	24	7.04
3	4.6	27	7.30
6	4.02	30	10.8
9	5.49	33	8.50
12	7.89	36	8.48
15	7.39	39	8.40
18	7.59	42	6.42
21	6.95	45	8.06

Well ID: TMW-5
Date: 3-2-23

Elapsed Time	NTU	Elapsed Time	NTU
0	0.15	24	0.02
3	0.02	27	0.04
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: TMW-4
Date: 3-2-23

Elapsed Time	NTU	Elapsed Time	NTU
0	7.48	24	3.58
3	3.52	27	2.91
6	2.31	30	4.23
9	1.07	33	
12	2.38	36	
15	2.31	39	
18	2.14	42	
21	3.68	45	

Well ID: MW-23
Date: 3-3-23

Elapsed Time	NTU	Elapsed Time	NTU
0	3.64	24	0.02
3	2.84	27	0.02
6	1.46	30	0.02
9	1.36	33	0.02
12	0.02	36	0.09
15	0.60	39	0.02
18	1.34	42	0.06
21	0.02	45	

PN: 30111526

Turbidity Readings

KMLT Harbor Island

Well ID: 12

Date: 3-3-23

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: MW-3

Date: 3-3-23

Elapsed Time	NTU	Elapsed Time	NTU
0	26.3	24	0.22
3	22.8	27	4.45
6	9.30	30	2.13
9	16.4	33	2.25
12	4.91	36	1.73
15	8.16	39	1.13
18	5.22	42	
21	5.69	45	

Well ID: MW-7

Date: 3-3-23

Elapsed Time	NTU	Elapsed Time	NTU
0	0.13	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: MW-18

Date:

Elapsed Time	NTU	Elapsed Time	NTU
0	113.	24	41.6
3	98.0	27	42.5
6	70.0	30	41.6
9	64.6	33	30.4
12	56.9	36	32.1
15	51.7	39	23.8
18	48.1	42	24.2
21	46.6	45	22.7

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	

30111526

Turbidity Readings

KMLT Harbor Island

Well ID: 11 *
Date: 3/13/23

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

* Turbidity meter malfunctioning.

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:
Date:

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

PN: 30111526

Turbidity Readings

KMLT Harbor Island

Well ID: MW-21
Date: 09-22-22

Elapsed Time	NTU	Elapsed Time	NTU
0	15.1	24	14.6
3	16.3	27	
6	16.9	30	
9	15.2	33	
12	17.3	36	
15	15.3	39	
18	16.5	42	
21	15.6	45	

Well ID: MW-8
Date: 09-22-22

Elapsed Time	NTU	Elapsed Time	NTU
0	33.1	24	29.8
3	26.6	27	27.8
6	25.7	30	
9	26.4	33	
12	25.6	36	
15	29.4	39	
18	26.1	42	
21	26.2	45	

Well ID: 11
Date: 09-22-22

Elapsed Time	NTU	Elapsed Time	NTU
0	17.6	24	
3	15.9	27	
6	31.0	30	
9	35.0	33	
12	38.0	36	
15	29.4	39	
18	27.5	42	
21		45	

Well ID: A-B
Date: 09-22-22

Elapsed Time	NTU	Elapsed Time	NTU
0	5.42	24	2.57
3	0.62	27	3.71
6	0.02	30	0.02
9	0.02	33	1.27
12	0.62	36	3.17
15	0.02	39	0.55
18	6.41	42	1.17
21	0.83	45	0.26

Well ID: TMW-2
Date: 3/2/23

Elapsed Time	NTU	Elapsed Time	NTU
0	13.7	24	
3	10.8	27	
6	15.2	30	
9	12.2	33	
12	8.83	36	
15		39	
18		42	
21		45	

Well ID: ~~TMW-2~~ TMW-1
Date: 3/2/23

Elapsed Time	NTU	Elapsed Time	NTU
0	0.02	24	
3	0.02	27	
6	0.02	30	
9	2.03	33	
12		36	
15		39	
18		42	
21		45	

PN: 30111526

Turbidity Readings

KMLT Harbor Island

Well ID: MW-19
Date: 3/2/23

Elapsed Time	NTU	Elapsed Time	NTU
0	75.7	24	6.54
3	53.6	27	2.85
6	25.8	30	2.76
9	21.9	33	
12	14.3	36	
15	6.99	39	
18	3.00	42	
21	5.94	45	

Well ID: A-5
Date: 3/2/23

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

Well ID: A-27
Date: 3/3/23

Elapsed Time	NTU	Elapsed Time	NTU
0	4.20	24	1.24
3	2.22	27	2.55
6	1.03	30	0.89
9	0.92	33	
12	2.54	36	
15	0.02	39	
18	3.45	42	
21	2.49	45	

Well ID: A-21
Date: 3/2/23

Elapsed Time	NTU	Elapsed Time	NTU
0	3.05	24	
3	0.02	27	
6	0.02	30	
9	0.50	33	
12	0.02	36	
15	0.02	39	
18		42	
21		45	

Well ID: MW-24
Date: 3/3/23

Elapsed Time	NTU	Elapsed Time	NTU
0	8.31	24	4.56
3	6.49	27	1.92
6	3.84	30	4.02
9	1.02	33	0.02
12	5.35	36	4.51
15	9.26	39	4.66
18	4.97	42	
21	4.68	45	

Well ID: A-28R
Date: 3/3/23

Elapsed Time	NTU	Elapsed Time	NTU
0	2.73	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.79	39	
18		42	
21		45	

PN: 30018857

Turbidity Readings

KMLT Harbor Island

Well ID: SH-02R

Date: 9/22/2023

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

Well ID: MW-07R

Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	29	24	
3	8.39	27	
6	5.83	30	
9	3.99	33	
12	3.41	36	
15	2.59	39	
18	0.25	42	
21	0.02	45	

Well ID: MW-4

Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	0.22	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18		42	
21		45	

Well ID: SH-05R

Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	0.19	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	
15	0.02	39	
18	0.02	42	
21	0.02	45	

Well ID: MW-12R

Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	5.08	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18		42	
21		45	

Well ID: A-8

Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	0.16	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18		42	
21		45	

PN: 30018857

Turbidity Readings

KMLT Harbor Island

Well ID: MW-7

Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	12	24	2.93
3	17.4	27	3.05
6	15.2	30	
9	11.6	33	
12	11.3	36	
15	9.92	39	
18	5.4	42	
21	3.93	45	

Well ID: MW-9

Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	0.32	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18		42	
21		45	

Well ID: 12

Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	9.47	24	0.02
3	5.12	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-5

Date: 9/20/2023

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	

Well ID: TMW-6

Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	23.3	24	4.78
3	16.6	27	2.53
6	12.7	30	2.1
9	15.5	33	3.78
12	17.2	36	5.12
15	16.1	39	5.1
18	7.82	42	8.05
21	6.85	45	4.52

Well ID: MW-3

Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	1.64	24	
3	0.02	27	
6	0.02	30	
9	0.02	33	
12	0.02	36	
15	0.02	39	
18		42	
21		45	

PN: 30018857

Turbidity Readings

KMLT Harbor Island

Well ID: A-5

Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	3.76	24	
3	2.45	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: 11

Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time
0	5.51	24
3	0.74	27
6	1.68	30
9	2.73	33
12	3.05	36
15	3.98	39
18		42
21		45

Well ID: MW-21

Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	14.1	24	0.02
3	15.7	27	0.02
6	17.7	30	
9	16	33	
12	13.3	36	
15	8.25	39	
18	7.52	42	
21	3.52	45	

Well ID: TMW-4

Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time
0	0.02	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: MW-8

Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	19.6	24	21.3
3	20	27	20.7
6	21.7	30	21.9
9	16.4	33	21.7
12	15.9	36	18.8
15	23.7	39	16.2
18	18.5	42	15.8
21	19.3	45	16.1

Well ID: TMW-3

Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time
0	0.02	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

PN: 30018857

Turbidity Readings

KMLT Harbor Island

Well ID: MW-20

Date: 9/20/2023

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

Well ID: _____

Date:

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

Well ID: MW-5

Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	2.59	24	1.98
3	0.29	27	0.02
6	1.02	30	0.02
9	2.07	33	0.02
12	1.25	36	0.02
15	0.71	39	0.02
18	3.28	42	0.02
21	1.73	45	

Well ID: _____

Date:

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

Well ID: TMW-1

Date: 9/19/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	0.02	24	0.02
3	0.02	27	0.02
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: _____

Date:

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

PN: 30111526

Turbidity Readings

KMLT Harbor Island

Well ID: MW-19
Date: 9/19/2023

Elapsed Time	NTU	Elapsed Time	NTU
0		24	
3		27	
6		30	
9		33	
12		36	
15	0.16	39	
18	0.02	42	
21		45	

Well ID: ~~MW-2~~ TMW-2
Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	1.63	24	
3	1.14	27	
6	6.83	30	
9	0.31	33	
12	0.52	36	
15	0.02	39	
18	0.05	42	
21		45	

Well ID: A-20R
Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	4.65	24	
3	0.77	27	
6	0.23	30	
9	0.02	33	
12	0.06	36	
15	0.02	39	
18		42	
21		45	

Well ID: MW-14
Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	1.13	24	0.08
3	1.13	27	
6	1.44	30	
9	1.14	33	
12	1.13	36	
15	0.97	39	
18	1.34	42	
21	1.13	45	

Well ID: MW-18
Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	13.5	24	
3	8.62	27	
6	5.36	30	
9	3.50	33	
12	3.23	36	
15	3.45	39	
18	1.26	42	
21		45	

Well ID: MW-22
Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	4.23	24	0.39
3	3.30	27	0.62
6	2.41	30	
9	1.53	33	
12	1.58	36	
15	1.09	39	
18	1.26	42	
21	0.48	45	

PN: 30111526

Turbidity Readings

KMLT Harbor Island

Well ID: MW-2
Date: 9/20/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	1.37	24	
3	0.97	27	
6	0.69	30	
9	0.31	33	
12	0.02	36	
15	0.14	39	
18		42	
21		45	

Well ID: A-27
Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	1.88	24	
3	0.98	27	
6	1.02	30	
9	0.92	33	
12	0.73	36	
15	0.81	39	
18	0.98	42	
21	0.75	45	

Well ID: A-28R
Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	0.78	24	
3	0.76	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-28
Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	2.22	24	
3	2.68	27	
6	1.84	30	
9	1.99	33	
12	1.87	36	
15	1.96	39	
18		42	
21		45	

Well ID: MW-23
Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	2.02	24	
3	1.63	27	
6	1.60	30	
9	1.36	33	
12	1.57	36	
15	1.06	39	
18	0.97	42	
21	1.00	45	

Well ID: TMW-B1
Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	1.53	24	
3	1.58	27	
6	1.67	30	
9	1.50	33	
12	1.64	36	
15	1.57	39	
18	1.09	42	
21	1.22	45	

PN: 30111526

Turbidity Readings

KMLT Harbor Island

Well ID: A-21
Date: 9/21/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	3.37	24	
3	1.36	27	
6	1.85	30	
9	1.46	33	
12	1.67	36	
15	1.74	39	
18	2.00	42	
21		45	

Well ID: A-14R
Date: 9/22/2023

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

Well ID: A-10
Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	18.9	24	0.02
3	1.97	27	0.02
6	0.98	30	0.02
9	0.47	33	0.02
12	0.07	36	0.02
15	0.12	39	0.02
18	0.09	42	0.02
21	0.02	45	0.02

Well ID: MW-16
Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	3.57	24	
3	3.40	27	
6	0.93	30	
9	1.00	33	
12	0.02	36	
15	0.02	39	
18	0.02	42	
21	0.02	45	

Well ID: MW-6
Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	0.91	24	
3	0.40	27	
6	1.55	30	
9	0.45	33	
12	1.17	36	
15	0.26	39	
18	0.54	42	
21		45	

Well ID: MW-1
Date: 9/22/2023

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

PN: 30157380

Turbidity Readings

KMLT Harbor Island

Well ID: MW-1
Date: 9/22/2023

Elapsed Time	NTU	Elapsed Time	NTU
0	18.1	24	
3	3.45	27	
6	3.12	30	
9	2.39	33	
12	3.19	36	
15	2.45	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	

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	

Appendix C

Laboratory Reports and Chain-of-Custody Documentation

ANALYTICAL REPORT

March 16, 2023

Kinder Morgan- Houston, TX(Scott Martin)

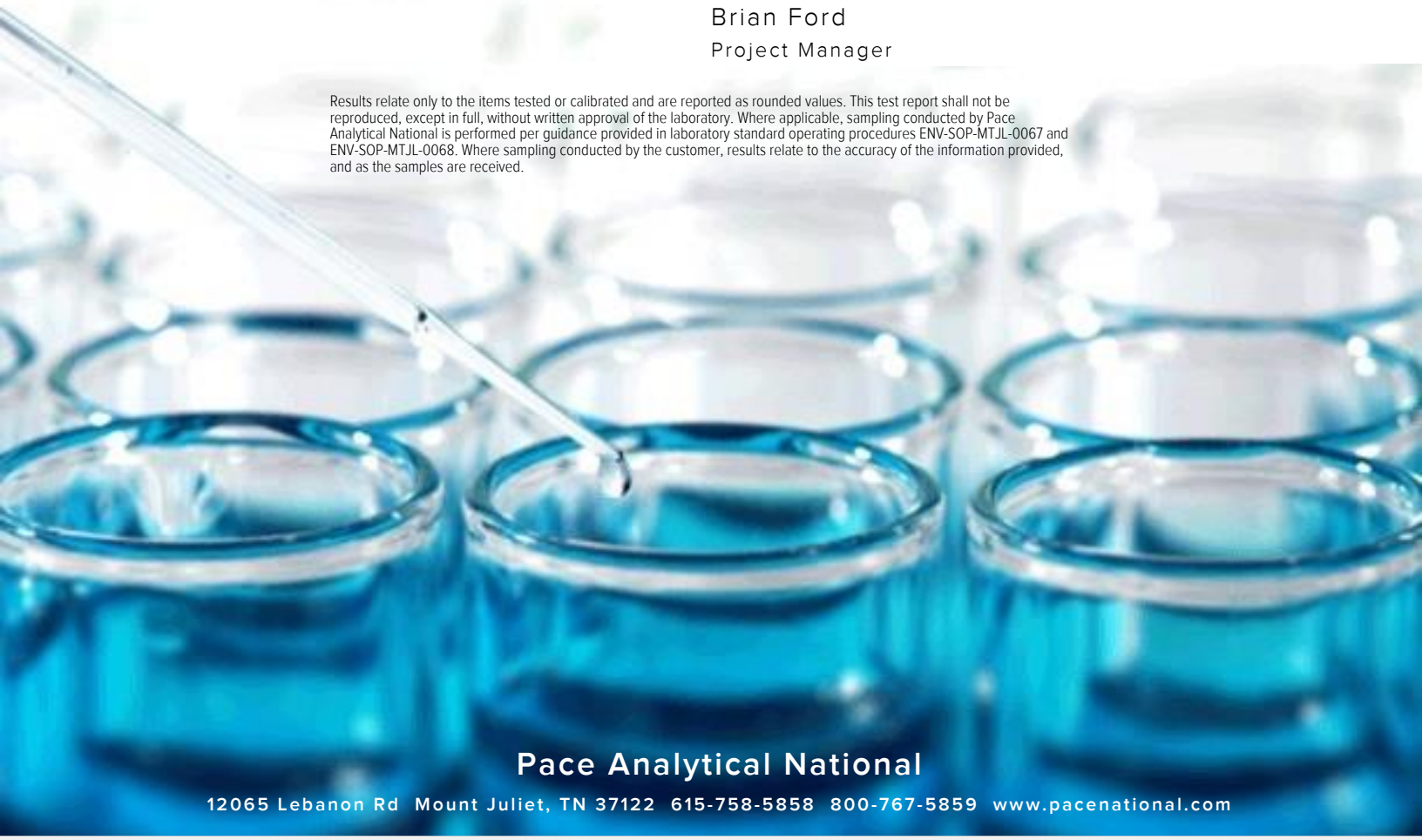
Sample Delivery Group:	L1592302
Samples Received:	03/07/2023
Project Number:	30157380.02
Description:	KMEP Harbor Island
Site:	2720 13TH AVENUE SW SEATTLE,WA
Report To:	Kyle Haslam 1100 Olive Way, Suite 800 Seattle, WA 98101

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.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

TMW-2 L1592302-01 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 10:10 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020001	10	03/10/23 13:36	03/10/23 13:36	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019910	1	03/09/23 12:40	03/09/23 12:40	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 12:18	03/08/23 12:18	DWR	Mt. Juliet, TN

TMW-1 L1592302-02 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 10:45 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020001	5	03/10/23 13:49	03/10/23 13:49	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019910	1	03/09/23 13:02	03/09/23 13:02	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 12:38	03/08/23 12:38	DWR	Mt. Juliet, TN

MW-19 L1592302-03 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 12:10 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020001	10	03/10/23 14:02	03/10/23 14:02	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 02:46	03/09/23 02:46	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 12:58	03/08/23 12:58	DWR	Mt. Juliet, TN

MW-9 L1592302-04 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 12:00 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020001	1	03/10/23 14:15	03/10/23 14:15	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 03:08	03/09/23 03:08	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 13:19	03/08/23 13:19	DWR	Mt. Juliet, TN

TMW-6 L1592302-05 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 13:30 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020001	100	03/10/23 14:27	03/10/23 14:27	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	10	03/09/23 07:11	03/09/23 07:11	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	10	03/08/23 17:45	03/08/23 17:45	DWR	Mt. Juliet, TN

MW-21 L1592302-06 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 10:00 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 03:30	03/09/23 03:30	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 13:39	03/08/23 13:39	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2023387	1	03/15/23 12:49	03/15/23 22:20	NH	Mt. Juliet, TN

A-21 L1592302-07 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 13:10 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 03:52	03/09/23 03:52	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 13:59	03/08/23 13:59	DWR	Mt. Juliet, TN

A-5 L1592302-08 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 14:25 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 04:14	03/09/23 04:14	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 14:20	03/08/23 14:20	DWR	Mt. Juliet, TN

TMW-4 L1592302-09 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 15:25 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020189	100	03/09/23 17:25	03/09/23 17:25	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 04:36	03/09/23 04:36	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	5	03/08/23 18:05	03/08/23 18:05	DWR	Mt. Juliet, TN

TMW-5 L1592302-10 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 14:25 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020189	100	03/09/23 18:03	03/09/23 18:03	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 04:58	03/09/23 04:58	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 14:40	03/08/23 14:40	DWR	Mt. Juliet, TN

MW-7 L1592302-11 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 13:35 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020189	5	03/09/23 18:15	03/09/23 18:15	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 05:20	03/09/23 05:20	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 15:01	03/08/23 15:01	DWR	Mt. Juliet, TN

MW-23 L1592302-12 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 10:00 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	5	03/09/23 06:48	03/09/23 06:48	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	5	03/08/23 18:26	03/08/23 18:26	DWR	Mt. Juliet, TN

TMW-3 L1592302-13 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 12:40 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020189	100	03/09/23 18:28	03/09/23 18:28	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 05:42	03/09/23 05:42	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 15:21	03/08/23 15:21	DWR	Mt. Juliet, TN

12 L1592302-14 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 11:25 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020189	100	03/09/23 18:40	03/09/23 18:40	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 06:04	03/09/23 06:04	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 15:42	03/08/23 15:42	DWR	Mt. Juliet, TN

MW-18 L1592302-15 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 15:30 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019543	1	03/09/23 06:26	03/09/23 06:26	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 16:02	03/08/23 16:02	DWR	Mt. Juliet, TN

MW-24 L1592302-16 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 09:55 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019548	5	03/09/23 05:52	03/09/23 05:52	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	10	03/08/23 18:46	03/08/23 18:46	DWR	Mt. Juliet, TN

A-28R L1592302-17 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 12:20 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019548	1	03/09/23 02:57	03/09/23 02:57	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 16:23	03/08/23 16:23	DWR	Mt. Juliet, TN

11 L1592302-18 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 13:50 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020189	5	03/09/23 18:52	03/09/23 18:52	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019548	1	03/09/23 03:18	03/09/23 03:18	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 16:43	03/08/23 16:43	DWR	Mt. Juliet, TN

A-27 L1592302-19 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 11:20 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019548	1	03/09/23 03:40	03/09/23 03:40	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 17:04	03/08/23 17:04	DWR	Mt. Juliet, TN

DUP-1 L1592302-20 GW

Collected by: E.S/J.G | Collected date/time: 03/02/23 00:00 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019548	1	03/09/23 04:02	03/09/23 04:02	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019132	1	03/08/23 17:24	03/08/23 17:24	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2022342	1	03/13/23 17:09	03/14/23 12:38	MWS	Mt. Juliet, TN

DUP-2 L1592302-21 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 00:00 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2020189	5	03/09/23 19:05	03/09/23 19:05	LBR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019548	1	03/09/23 04:24	03/09/23 04:24	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019194	1	03/08/23 15:55	03/08/23 15:55	ACG	Mt. Juliet, TN

TRIP BLANKS L1592302-22 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 00:00 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2019548	1	03/08/23 23:44	03/08/23 23:44	KSD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2019194	1	03/08/23 12:50	03/08/23 12:50	KSD	Mt. Juliet, TN

DRUM L1592302-23 GW

Collected by: E.S/J.G | Collected date/time: 03/03/23 15:00 | Received date/time: 03/07/23 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG2019306	1	03/08/23 17:30	03/09/23 08:45	SRT	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2019256	1	03/08/23 16:55	03/09/23 10:21	JPD	Mt. Juliet, TN

CASE NARRATIVE

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

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	901000		50000	10	03/10/2023 13:36	WG2020001

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	03/09/2023 12:40	WG2019910
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*03/09/2023 12:40*	WG2019910

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	03/08/2023 12:18	WG2019132
Toluene	ND		1.00	1	03/08/2023 12:18	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 12:18	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 12:18	WG2019132
(S) Toluene-d8	*103*		*80.0-120*		*03/08/2023 12:18*	WG2019132
(S) 4-Bromofluorobenzene	*98.0*		*77.0-126*		*03/08/2023 12:18*	WG2019132
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*03/08/2023 12:18*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	204000		25000	5	03/10/2023 13:49	WG2020001

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	03/09/2023 13:02	WG2019910
(S) a,a,a-Trifluorotoluene(FID)	*111*		*78.0-120*		*03/09/2023 13:02*	WG2019910

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	03/08/2023 12:38	WG2019132
Toluene	ND		1.00	1	03/08/2023 12:38	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 12:38	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 12:38	WG2019132
(S) Toluene-d8	*104*		*80.0-120*		*03/08/2023 12:38*	WG2019132
(S) 4-Bromofluorobenzene	*96.2*		*77.0-126*		*03/08/2023 12:38*	WG2019132
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*03/08/2023 12:38*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	764000		50000	10	03/10/2023 14:02	WG2020001

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	1330		100	1	03/09/2023 02:46	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*107*		*78.0-120*		*03/09/2023 02:46*	WG2019543

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	03/08/2023 12:58	WG2019132
Toluene	ND		1.00	1	03/08/2023 12:58	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 12:58	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 12:58	WG2019132
(S) Toluene-d8	*97.0*		*80.0-120*		*03/08/2023 12:58*	WG2019132
(S) 4-Bromofluorobenzene	*92.1*		*77.0-126*		*03/08/2023 12:58*	WG2019132
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/08/2023 12:58*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	6230		5000	1	03/10/2023 14:15	WG2020001

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	148	B	100	1	03/09/2023 03:08	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*101*		*78.0-120*		*03/09/2023 03:08*	WG2019543

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	03/08/2023 13:19	WG2019132
Toluene	ND		1.00	1	03/08/2023 13:19	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 13:19	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 13:19	WG2019132
(S) Toluene-d8	*103*		*80.0-120*		*03/08/2023 13:19*	WG2019132
(S) 4-Bromofluorobenzene	*96.9*		*77.0-126*		*03/08/2023 13:19*	WG2019132
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/08/2023 13:19*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	2800000		500000	100	03/10/2023 14:27	WG2020001

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	5690	B	1000	10	03/09/2023 07:11	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*96.3*		*78.0-120*		*03/09/2023 07:11*	WG2019543

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		10.0	10	03/08/2023 17:45	WG2019132
Toluene	ND		10.0	10	03/08/2023 17:45	WG2019132
Ethylbenzene	224		10.0	10	03/08/2023 17:45	WG2019132
Total Xylenes	279		30.0	10	03/08/2023 17:45	WG2019132
(S) Toluene-d8	*100*		*80.0-120*		*03/08/2023 17:45*	WG2019132
(S) 4-Bromofluorobenzene	*95.0*		*77.0-126*		*03/08/2023 17:45*	WG2019132
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*03/08/2023 17:45*	WG2019132

Sample Narrative:

L1592302-05 WG2019132: Non-target compounds too high to run at a lower dilution.

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/09/2023 03:30	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*101*		*78.0-120*		*03/09/2023 03:30*	WG2019543

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	03/08/2023 13:39	WG2019132
Toluene	ND		1.00	1	03/08/2023 13:39	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 13:39	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 13:39	WG2019132
(S) Toluene-d8	*103*		*80.0-120*		*03/08/2023 13:39*	WG2019132
(S) 4-Bromofluorobenzene	*96.6*		*77.0-126*		*03/08/2023 13:39*	WG2019132
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*03/08/2023 13:39*	WG2019132

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		100	1	03/15/2023 22:20	WG2023387
Residual Range Organics (RRO)	ND		250	1	03/15/2023 22:20	WG2023387
(S) o-Terphenyl	*77.0*		*31.0-160*		*03/15/2023 22:20*	WG2023387

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/09/2023 03:52	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*101*		*78.0-120*		*03/09/2023 03:52*	WG2019543

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	03/08/2023 13:59	WG2019132
Toluene	ND		1.00	1	03/08/2023 13:59	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 13:59	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 13:59	WG2019132
(S) Toluene-d8	*103*		*80.0-120*		*03/08/2023 13:59*	WG2019132
(S) 4-Bromofluorobenzene	*95.9*		*77.0-126*		*03/08/2023 13:59*	WG2019132
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*03/08/2023 13:59*	WG2019132

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	510	B	100	1	03/09/2023 04:14	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*98.8*		*78.0-120*		*03/09/2023 04:14*	WG2019543

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	03/08/2023 14:20	WG2019132
Toluene	ND		1.00	1	03/08/2023 14:20	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 14:20	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 14:20	WG2019132
(S) Toluene-d8	*101*		*80.0-120*		*03/08/2023 14:20*	WG2019132
(S) 4-Bromofluorobenzene	*95.0*		*77.0-126*		*03/08/2023 14:20*	WG2019132
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*03/08/2023 14:20*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfate	1550000		500000	100	03/09/2023 17:25	WG2020189

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2090		100	1	03/09/2023 04:36	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*104*		*78.0-120*		*03/09/2023 04:36*	WG2019543

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	ND		5.00	5	03/08/2023 18:05	WG2019132
Toluene	ND		5.00	5	03/08/2023 18:05	WG2019132
Ethylbenzene	6.91		5.00	5	03/08/2023 18:05	WG2019132
Total Xylenes	ND		15.0	5	03/08/2023 18:05	WG2019132
(S) Toluene-d8	*102*		*80.0-120*		*03/08/2023 18:05*	WG2019132
(S) 4-Bromofluorobenzene	*96.0*		*77.0-126*		*03/08/2023 18:05*	WG2019132
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/08/2023 18:05*	WG2019132

Sample Narrative:

L1592302-09 WG2019132: Non-target compounds too high to run at a lower dilution.

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	Batch
	ug/l		ug/l		date / time	
Sulfate	2010000		500000	100	03/09/2023 18:03	WG2020189

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	986		100	1	03/09/2023 04:58	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*98.8*		*78.0-120*		*03/09/2023 04:58*	WG2019543

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	03/08/2023 14:40	WG2019132
Toluene	ND		1.00	1	03/08/2023 14:40	WG2019132
Ethylbenzene	7.76		1.00	1	03/08/2023 14:40	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 14:40	WG2019132
(S) Toluene-d8	*97.6*		*80.0-120*		*03/08/2023 14:40*	WG2019132
(S) 4-Bromofluorobenzene	*93.6*		*77.0-126*		*03/08/2023 14:40*	WG2019132
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*03/08/2023 14:40*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	694000		25000	5	03/09/2023 18:15	WG2020189

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	128	B	100	1	03/09/2023 05:20	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*101*		*78.0-120*		*03/09/2023 05:20*	WG2019543

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	03/08/2023 15:01	WG2019132
Toluene	ND		1.00	1	03/08/2023 15:01	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 15:01	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 15:01	WG2019132
(S) Toluene-d8	*103*		*80.0-120*		*03/08/2023 15:01*	WG2019132
(S) 4-Bromofluorobenzene	*96.4*		*77.0-126*		*03/08/2023 15:01*	WG2019132
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/08/2023 15:01*	WG2019132

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2440	B	500	5	03/09/2023 06:48	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*96.1*		*78.0-120*		*03/09/2023 06:48*	WG2019543

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	62.4		5.00	5	03/08/2023 18:26	WG2019132
Toluene	ND		5.00	5	03/08/2023 18:26	WG2019132
Ethylbenzene	ND		5.00	5	03/08/2023 18:26	WG2019132
Total Xylenes	ND		15.0	5	03/08/2023 18:26	WG2019132
(S) Toluene-d8	*102*		*80.0-120*		*03/08/2023 18:26*	WG2019132
(S) 4-Bromofluorobenzene	*96.4*		*77.0-126*		*03/08/2023 18:26*	WG2019132
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*03/08/2023 18:26*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	1830000		500000	100	03/09/2023 18:28	WG2020189

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	146	B	100	1	03/09/2023 05:42	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*99.3*		*78.0-120*		*03/09/2023 05:42*	WG2019543

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	03/08/2023 15:21	WG2019132
Toluene	ND		1.00	1	03/08/2023 15:21	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 15:21	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 15:21	WG2019132
(S) Toluene-d8	*101*		*80.0-120*		*03/08/2023 15:21*	WG2019132
(S) 4-Bromofluorobenzene	*96.1*		*77.0-126*		*03/08/2023 15:21*	WG2019132
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*03/08/2023 15:21*	WG2019132

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	1280000		500000	100	03/09/2023 18:40	WG2020189

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	2140		100	1	03/09/2023 06:04	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*94.6*		*78.0-120*		*03/09/2023 06:04*	WG2019543

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	7.93		1.00	1	03/08/2023 15:42	WG2019132
Toluene	3.73		1.00	1	03/08/2023 15:42	WG2019132
Ethylbenzene	73.1		1.00	1	03/08/2023 15:42	WG2019132
Total Xylenes	43.9		3.00	1	03/08/2023 15:42	WG2019132
(S) Toluene-d8	*96.1*		*80.0-120*		*03/08/2023 15:42*	WG2019132
(S) 4-Bromofluorobenzene	*93.1*		*77.0-126*		*03/08/2023 15:42*	WG2019132
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/08/2023 15:42*	WG2019132

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	183	B	100	1	03/09/2023 06:26	WG2019543
(S) a,a,a-Trifluorotoluene(FID)	*100*		*78.0-120*		*03/09/2023 06:26*	WG2019543

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	03/08/2023 16:02	WG2019132
Toluene	ND		1.00	1	03/08/2023 16:02	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 16:02	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 16:02	WG2019132
(S) Toluene-d8	*103*		*80.0-120*		*03/08/2023 16:02*	WG2019132
(S) 4-Bromofluorobenzene	*97.8*		*77.0-126*		*03/08/2023 16:02*	WG2019132
(S) 1,2-Dichloroethane-d4	*105*		*70.0-130*		*03/08/2023 16:02*	WG2019132

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	7160		500	5	03/09/2023 05:52	WG2019548
(S) a,a,a-Trifluorotoluene(FID)	*99.6*		*78.0-120*		*03/09/2023 05:52*	WG2019548

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	301		10.0	10	03/08/2023 18:46	WG2019132
Toluene	17.8		10.0	10	03/08/2023 18:46	WG2019132
Ethylbenzene	508		10.0	10	03/08/2023 18:46	WG2019132
Total Xylenes	150		30.0	10	03/08/2023 18:46	WG2019132
(S) Toluene-d8	*99.6*		*80.0-120*		*03/08/2023 18:46*	WG2019132
(S) 4-Bromofluorobenzene	*95.1*		*77.0-126*		*03/08/2023 18:46*	WG2019132
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/08/2023 18:46*	WG2019132

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2180		100	1	03/09/2023 02:57	WG2019548
(S) a,a,a-Trifluorotoluene(FID)	*100*		*78.0-120*		*03/09/2023 02:57*	WG2019548

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	2.94		1.00	1	03/08/2023 16:23	WG2019132
Toluene	1.68		1.00	1	03/08/2023 16:23	WG2019132
Ethylbenzene	4.69		1.00	1	03/08/2023 16:23	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 16:23	WG2019132
(S) Toluene-d8	*98.9*		*80.0-120*		*03/08/2023 16:23*	WG2019132
(S) 4-Bromofluorobenzene	*94.8*		*77.0-126*		*03/08/2023 16:23*	WG2019132
(S) 1,2-Dichloroethane-d4	*108*		*70.0-130*		*03/08/2023 16:23*	WG2019132

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	Batch
	ug/l		ug/l		date / time	
Sulfate	218000		25000	5	03/09/2023 18:52	WG2020189

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	03/09/2023 03:18	WG2019548
(S) a,a,a-Trifluorotoluene(FID)	*108*		*78.0-120*		*03/09/2023 03:18*	WG2019548

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	03/08/2023 16:43	WG2019132
Toluene	ND		1.00	1	03/08/2023 16:43	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 16:43	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 16:43	WG2019132
(S) Toluene-d8	*102*		*80.0-120*		*03/08/2023 16:43*	WG2019132
(S) 4-Bromofluorobenzene	*96.6*		*77.0-126*		*03/08/2023 16:43*	WG2019132
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*03/08/2023 16:43*	WG2019132

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1610		100	1	03/09/2023 03:40	WG2019548
(S) a,a,a-Trifluorotoluene(FID)	*97.8*		*78.0-120*		*03/09/2023 03:40*	WG2019548

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	27.7		1.00	1	03/08/2023 17:04	WG2019132
Toluene	ND		1.00	1	03/08/2023 17:04	WG2019132
Ethylbenzene	28.9		1.00	1	03/08/2023 17:04	WG2019132
Total Xylenes	4.86		3.00	1	03/08/2023 17:04	WG2019132
(S) Toluene-d8	*96.8*		*80.0-120*		*03/08/2023 17:04*	WG2019132
(S) 4-Bromofluorobenzene	*94.1*		*77.0-126*		*03/08/2023 17:04*	WG2019132
(S) 1,2-Dichloroethane-d4	*109*		*70.0-130*		*03/08/2023 17:04*	WG2019132

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/09/2023 04:02	WG2019548
(S) a,a,a-Trifluorotoluene(FID)	*108*		*78.0-120*		*03/09/2023 04:02*	WG2019548

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	03/08/2023 17:24	WG2019132
Toluene	ND		1.00	1	03/08/2023 17:24	WG2019132
Ethylbenzene	ND		1.00	1	03/08/2023 17:24	WG2019132
Total Xylenes	ND		3.00	1	03/08/2023 17:24	WG2019132
(S) Toluene-d8	*103*		*80.0-120*		*03/08/2023 17:24*	WG2019132
(S) 4-Bromofluorobenzene	*96.9*		*77.0-126*		*03/08/2023 17:24*	WG2019132
(S) 1,2-Dichloroethane-d4	*106*		*70.0-130*		*03/08/2023 17:24*	WG2019132

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		100	1	03/14/2023 12:38	WG2022342
Residual Range Organics (RRO)	ND		250	1	03/14/2023 12:38	WG2022342
(S) o-Terphenyl	*51.5*		*31.0-160*		*03/14/2023 12:38*	WG2022342

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	692000		25000	5	03/09/2023 19:05	WG2020189

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	03/09/2023 04:24	WG2019548
(S) a,a,a-Trifluorotoluene(FID)	*108*		*78.0-120*		*03/09/2023 04:24*	WG2019548

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	03/08/2023 15:55	WG2019194
Toluene	ND		1.00	1	03/08/2023 15:55	WG2019194
Ethylbenzene	ND		1.00	1	03/08/2023 15:55	WG2019194
Total Xylenes	ND		3.00	1	03/08/2023 15:55	WG2019194
(S) Toluene-d8	*106*		*80.0-120*		*03/08/2023 15:55*	WG2019194
(S) 4-Bromofluorobenzene	*82.8*		*77.0-126*		*03/08/2023 15:55*	WG2019194
(S) 1,2-Dichloroethane-d4	*103*		*70.0-130*		*03/08/2023 15:55*	WG2019194

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	03/08/2023 23:44	WG2019548
(S) a,a,a-Trifluorotoluene(FID)	*110*		*78.0-120*		*03/08/2023 23:44*	WG2019548

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	03/08/2023 12:50	WG2019194
Toluene	ND		1.00	1	03/08/2023 12:50	WG2019194
Ethylbenzene	ND		1.00	1	03/08/2023 12:50	WG2019194
Total Xylenes	ND		3.00	1	03/08/2023 12:50	WG2019194
(S) Toluene-d8	*108*		*80.0-120*		*03/08/2023 12:50*	WG2019194
(S) 4-Bromofluorobenzene	*84.0*		*77.0-126*		*03/08/2023 12:50*	WG2019194
(S) 1,2-Dichloroethane-d4	*99.7*		*70.0-130*		*03/08/2023 12:50*	WG2019194

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	03/09/2023 08:45	WG2019306

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Arsenic	8.23		2.00	1	03/09/2023 10:21	WG2019256
Barium	7.46		2.00	1	03/09/2023 10:21	WG2019256
Cadmium	ND		1.00	1	03/09/2023 10:21	WG2019256
Chromium	ND		2.00	1	03/09/2023 10:21	WG2019256
Lead	ND		2.00	1	03/09/2023 10:21	WG2019256
Selenium	ND		2.00	1	03/09/2023 10:21	WG2019256
Silver	ND		2.00	1	03/09/2023 10:21	WG2019256

QUALITY CONTROL SUMMARY

L1592302-01,02,03,04,05

Method Blank (MB)

(MB) R3899587-1 03/09/23 22:02

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	U		594	5000

L1592650-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1592650-04 03/09/23 22:29 • (DUP) R3899587-3 03/09/23 22:43

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	323000	322000	1	0.369	E	15

L1591898-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1591898-01 03/10/23 15:44 • (DUP) R3899616-1 03/10/23 15:57

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	11600	11600	1	0.135		15

Laboratory Control Sample (LCS)

(LCS) R3899587-2 03/09/23 22:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	40000	100	80.0-120	

L1592650-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1592650-04 03/09/23 22:29 • (MS) R3899587-4 03/09/23 22:56

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	323000	363000	79.2	1	80.0-120	E V

L1591898-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1591898-01 03/10/23 15:44 • (MS) R3899616-2 03/10/23 16:10 • (MSD) R3899616-3 03/10/23 16:23

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 %
Sulfate	50000	11600	60800	60900	98.3	98.5	1	80.0-120			0.164	15

QUALITY CONTROL SUMMARY

L1592302-09,10,11,13,14,18,21

Method Blank (MB)

(MB) R3899598-1 03/09/23 12:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	U		594	5000

L1592379-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1592379-04 03/09/23 16:35 • (DUP) R3899598-3 03/09/23 16:48

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	29900	29900	1	0.0698		15

L1592398-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1592398-02 03/09/23 22:24 • (DUP) R3899598-6 03/09/23 23:02

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	ND	ND	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3899598-2 03/09/23 12:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	40300	101	80.0-120	

L1592379-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1592379-04 03/09/23 16:35 • (MS) R3899598-4 03/09/23 17:00 • (MSD) R3899598-5 03/09/23 17:13

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 %
Sulfate	50000	29900	75600	75600	91.3	91.4	1	80.0-120			0.0968	15

L1592398-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1592398-02 03/09/23 22:24 • (MS) R3899598-7 03/09/23 23:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	50000	ND	50400	101	1	80.0-120	

Method Blank (MB)

(MB) R3899038-1 03/09/23 08:30

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.100	0.200

Laboratory Control Sample (LCS)

(LCS) R3899038-2 03/09/23 08:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	3.00	2.90	96.6	80.0-120	

L1592457-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1592457-01 03/09/23 08:38 • (MS) R3899038-3 03/09/23 08:41 • (MSD) R3899038-4 03/09/23 08:43

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	3.10	2.96	103	98.7	1	75.0-125			4.73	20

Method Blank (MB)

(MB) R3899098-1 03/09/23 10:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Arsenic	U		0.180	2.00
Barium	U		0.381	2.00
Cadmium	U		0.150	1.00
Chromium	U		1.24	2.00
Lead	U		0.849	2.00
Selenium	U		0.300	2.00
Silver	U		0.0700	2.00

Laboratory Control Sample (LCS)

(LCS) R3899098-2 03/09/23 10:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	50.0	46.3	92.6	80.0-120	
Barium	50.0	46.3	92.5	80.0-120	
Cadmium	50.0	50.3	101	80.0-120	
Chromium	50.0	48.6	97.3	80.0-120	
Lead	50.0	47.2	94.4	80.0-120	
Selenium	50.0	49.9	99.9	80.0-120	
Silver	50.0	49.1	98.2	80.0-120	

L1592416-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1592416-01 03/09/23 10:08 • (MS) R3899098-4 03/09/23 10:15 • (MSD) R3899098-5 03/09/23 10:18

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 %
Arsenic	50.0	ND	49.1	49.7	96.0	97.2	1	75.0-125			1.26	20
Barium	50.0	35.3	83.5	85.2	96.4	99.7	1	75.0-125			1.99	20
Cadmium	50.0	ND	49.5	49.5	98.9	99.0	1	75.0-125			0.132	20
Chromium	50.0	ND	48.6	49.8	97.2	99.5	1	75.0-125			2.36	20
Lead	50.0	ND	47.9	48.2	95.7	96.4	1	75.0-125			0.702	20
Selenium	50.0	ND	53.1	55.3	106	111	1	75.0-125			4.12	20
Silver	50.0	ND	48.6	49.7	97.2	99.3	1	75.0-125			2.17	20

Method Blank (MB)

(MB) R3898939-2 03/08/23 20:33

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	68.8	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*101*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3898939-1 03/08/23 19:29

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5410	98.4	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*104*	*78.0-120*	

Method Blank (MB)

(MB) R3899253-2 03/08/23 22:43

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)	*109*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3899253-1 03/08/23 21:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5540	101	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*108*	*78.0-120*	

Method Blank (MB)

(MB) R3899192-2 03/09/23 10:39

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)	*110*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3899192-1 03/09/23 09:13

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5690	103	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*104*	*78.0-120*	

Method Blank (MB)

(MB) R3899699-3 03/08/23 10:00

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Toluene	U		0.278	1.00
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*103*			*80.0-120*
(S) 4-Bromofluorobenzene	*95.8*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3899699-1 03/08/23 08:18 • (LCSD) R3899699-2 03/08/23 08:38

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	4.65	4.69	93.0	93.8	70.0-123			0.857	20
Toluene	5.00	4.70	4.64	94.0	92.8	79.0-120			1.28	20
Ethylbenzene	5.00	4.59	4.69	91.8	93.8	79.0-123			2.16	20
Xylenes, Total	15.0	13.5	13.5	90.0	90.0	79.0-123			0.000	20
(S) Toluene-d8				*102*	*101*	*80.0-120*				
(S) 4-Bromofluorobenzene				*95.9*	*94.8*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*105*	*105*	*70.0-130*				

Method Blank (MB)

(MB) R3898701-3 03/08/23 09:58

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Toluene	U		0.278	1.00
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*108*			*80.0-120*
(S) 4-Bromofluorobenzene	*80.9*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*101*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3898701-1 03/08/23 08:56

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	5.88	118	70.0-123	
Toluene	5.00	5.82	116	79.0-120	
Ethylbenzene	5.00	5.49	110	79.0-123	
Xylenes, Total	15.0	16.2	108	79.0-123	
(S) Toluene-d8			*107*	*80.0-120*	
(S) 4-Bromofluorobenzene			*86.6*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*101*	*70.0-130*	

Method Blank (MB)

(MB) R3900908-1 03/14/23 11:39

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Diesel Range Organics (DRO)	269		33.3	100
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*67.0*			*31.0-160*

Laboratory Control Sample (LCS)

(LCS) R3900908-2 03/14/23 11:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	1500	1040	69.3	50.0-150	
(S) o-Terphenyl			*66.0*	*31.0-160*	

Method Blank (MB)

(MB) R3901780-1 03/15/23 20:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Diesel Range Organics (DRO)	U		33.3	100
Residual Range Organics (RRO)	U		83.3	250
(S) o-Terphenyl	*91.5*			*31.0-160*

Laboratory Control Sample (LCS)

(LCS) R3901780-2 03/15/23 20:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Diesel Range Organics (DRO)	1500	1200	80.0	50.0-150	
(S) o-Terphenyl			*100*	*31.0-160*	

L1593734-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1593734-01 03/15/23 21:13 • (MS) R3901780-3 03/15/23 21:36 • (MSD) R3901780-4 03/15/23 21:58

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	%	%		%			%	%
Diesel Range Organics (DRO)	1500	718	1510	1200	52.8	32.1	1	50.0-150		J3 J6	22.9	20
(S) o-Terphenyl					*68.0*	*75.5*		*31.0-160*				

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.

Qualifier Description

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.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* 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 Analytical.

COOLER 1 OF 2

Company Name/Address:
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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected: SEATTLE, WA

Please Circle: PT MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): E. SCHELLER J. GREEN

Site/Facility ID # **2720 13TH AVENUE SW**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

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

Quote #

Analysis / Container / Preservative

Chain of Custody Page 1 of 3

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1592302
1089

Acctnum: **KINMOROCA**
Template: **T224131**
Prelogin: **P979216**
PM: **110 - Brian Ford**
PB: CR 2.13.23

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	BTEX 8260 40mlAmb-HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	RCRA8 Metals 250mlHDPE-HNO3	Sulfate 125mlHDPE-NoPres	Remarks	Sample # (lab only)
~~MW-24~~ TMW- 2	G	GW	—	3-2-23	10:10	7		X		X		X		-01
TMW-1	G	GW	—	3-2-23	1045	7		X		X		X		-02
MW-19	G	GW	—	3-2-23	1210	7		X		X		X		-03
MW-9	G	GW	—	3-2-23	1200	7		X		X		X		-04
TMW-6	G	GW	—	3-2-23	1330	7		X		X		X		-05
MW-21	G	GW	—	3-2-23	10	9 8		X	X	X				-06
A-21	G	GW	—	3-2-23	1310	6		X		X				-07
A-5	G	GW	—	3-2-23	1425	6		X		X				-08
TMW-4	G	GW	—	3-2-23	1525	7		X		X		X		-09
TMW-5	G	GW	—	3-2-23	1425	7		X		X		X		-10

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No (HCL) MeoH TBR	If preservation required by Login: Date/Time
	3-6-23	1600			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp 0.5+0.7 °C Bottles Received: 9.6+0.4=10.0 13	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/4/23 Time: 0930	Hold: / Condition: NCF / OK

COOLER 1 OF 2

Company Name/Address:
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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected: SEATTLE, WA

Please Circle: PT MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): SCHELLER, GREEN

Site/Facility ID # **2720 13TH AVENUE SW**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ____ Y X

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

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	BTEX 8260 40mlAmb-HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	RCRA8 Metals 250mlHDPE-HNO3	Sulfate 125mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-7	G	GW	—	3-3-23	1335	7		X		X		X		-11
MW-23	G	GW	—	3-3-23	1000	6 7		X		X				-12
TMW-3	G	GW	—	3-3-23	1840	7		X		X		X		-13
12	G	GW	—	3-3-23	1125	7		X		X		X		-14
MW-18	G	GW	—	3-3-23	1530	6		X		X				-15
MW-24	G	GW	—	3-3-23	0955	6		X		X				-16
A-28R	G	GW	—	3-3-23	1220	6		X		X				-17
11	G	GW	—	3-3-23	1350	7		X		X		X		-18
A-27	G	GW	—	3-3-23	1120	6		X		X				-19
DUP-1	G	GW	—	3-2-23	—	9 8		X	X	X				-20

Chain of Custody Page 2 of 3

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1592302

Table #

Acctnum: **KINMOROCA**
Template: **T224131**
Prelogin: **P979216**
PM: **110 - Brian Ford**
PB: CR 2-13-23

Shipped Via:

Immediately Packed on Ice N ____ Y X

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: (Yes) No (HCL) MeoH TBR	If preservation required by Login: Date/Time
	3-6-23	1600			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.6+0.4=5.0 °C Bottles Received: 113	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/7/23 Time: 0830	Hold: / Condition: NCF / OK

COLOR 1 OF 2

Company Name/Address:
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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected:

Please Circle: PT MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print):

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	*Nitrate 125mlHDPE-NoPres	BTEX 8260 40mlAmb-HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX 40mlAmb HCl	RCRA8 Metals 250mlHDPE-HNO3	Sulfate 125mlHDPE-NoPres					Remarks	Sample # (lab only)
DUP-2	G	GW	—	3-3-23	—	7		X		X		X						-21
TRIP BLANKS	—	GW	—	—	—	4		X		X								-22
DRUM	C	GW	—	3-3-23	1500	1					X							-23
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																

Analysis / Container / Preservative

Chain of Custody Page 3 of 3

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1592302

Table #

Acctnum: **KINMOROCA**
Template: **T224131**
Prelogin: **P979216**
PM: **110 - Brian Ford**
PB: CR 2-13-23

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	3-6-23	1600		4	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: ~~NS~~ 4.6+0=4.6 °C Bottles Received: 113	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/7/23 Time: 0830	Hold: / Condition: NCF / OK

ANALYTICAL REPORT

October 04, 2023

Kinder Morgan- Houston, TX

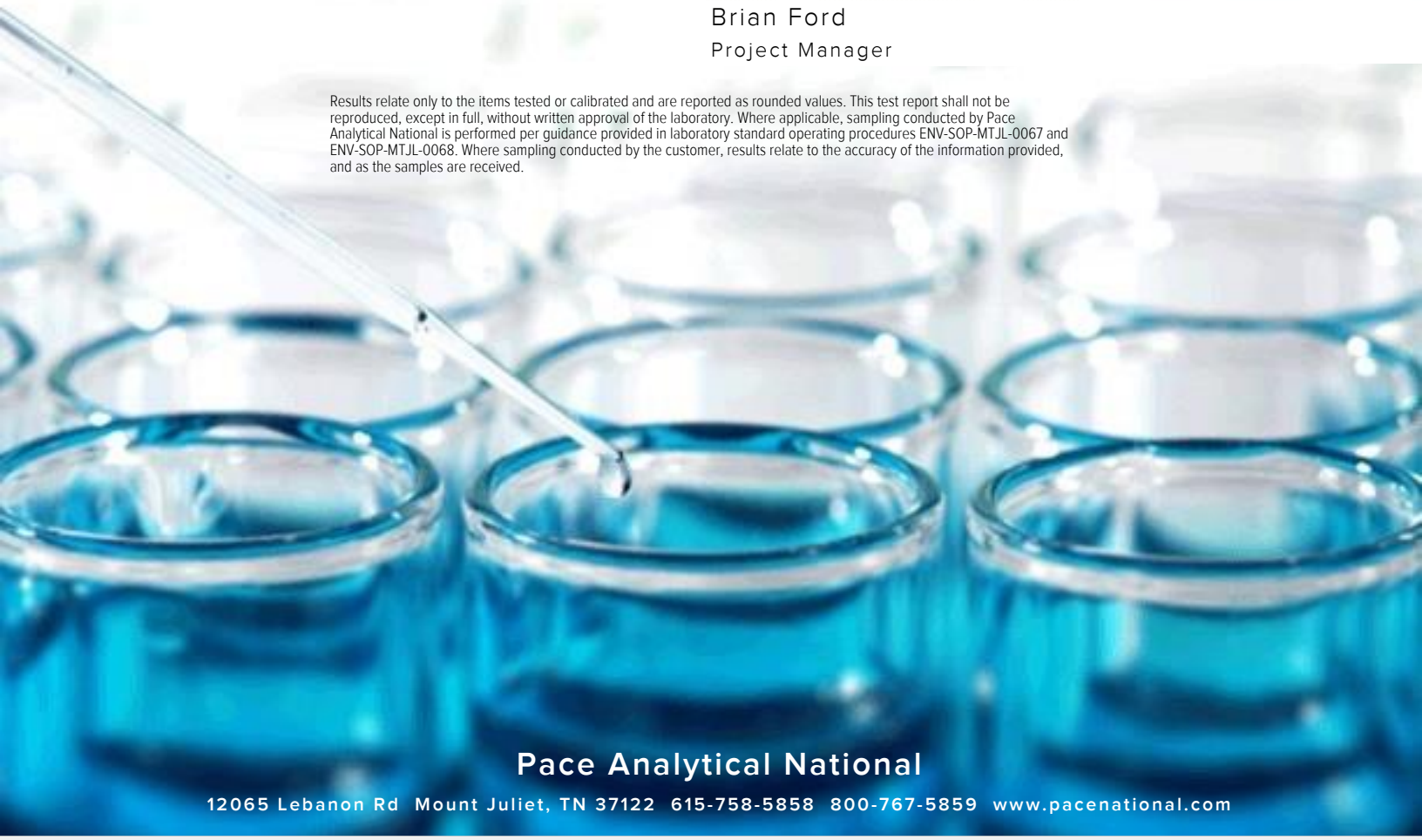
Sample Delivery Group:	L1658709
Samples Received:	09/22/2023
Project Number:	30157380.02
Description:	KMEP Harbor Island
Site:	2720 13TH AVENUE SW SEATTLE,WA
Report To:	Kyle Haslam 1100 Olive Way, Suite 800 Seattle, WA 98101

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.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-23 L1658709-01 GW

Collected by: RP/CW | Collected date/time: 09/21/23 13:30 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG2138384	20	09/24/23 10:01	09/24/23 10:01	CAH	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG2138160	1	09/23/23 13:51	09/23/23 13:51	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2137928	1	09/22/23 22:13	09/22/23 22:13	ASM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2138082	1	09/24/23 15:21	09/27/23 21:11	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 12:30	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	5	09/30/23 00:00	09/30/23 00:00	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2141864	10	09/30/23 17:37	09/30/23 17:37	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140236	5	09/27/23 18:48	09/27/23 18:48	DYW	Mt. Juliet, TN

MW-24 L1658709-02 GW

Collected by: RP/CW | Collected date/time: 09/21/23 12:15 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG2138384	50	09/24/23 10:02	09/24/23 10:02	CAH	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG2138160	1	09/23/23 13:52	09/23/23 13:52	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2137928	1	09/22/23 22:25	09/22/23 22:25	ASM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2138082	1	09/24/23 15:21	09/27/23 21:15	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 13:34	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	5	09/30/23 00:23	09/30/23 00:23	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2141864	10	09/30/23 17:43	09/30/23 17:43	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140236	10	09/27/23 19:09	09/27/23 19:09	DYW	Mt. Juliet, TN

A-28R L1658709-03 GW

Collected by: RP/CW | Collected date/time: 09/21/23 10:50 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG2138384	50	09/24/23 10:03	09/24/23 10:03	CAH	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG2138160	1	09/23/23 13:52	09/23/23 13:52	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2137928	1	09/22/23 22:38	09/22/23 22:38	ASM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2138082	1	09/24/23 15:21	09/27/23 21:18	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 13:37	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 21:00	09/29/23 21:00	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2141863	1	09/30/23 15:46	09/30/23 15:46	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140236	1	09/27/23 15:42	09/27/23 15:42	DYW	Mt. Juliet, TN

TMW-B1 L1658709-04 GW

Collected by: RP/CW | Collected date/time: 09/21/23 14:30 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG2138384	50	09/24/23 10:03	09/24/23 10:03	CAH	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG2138160	1	09/23/23 13:53	09/23/23 13:53	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2137928	1	09/22/23 22:50	09/22/23 22:50	ASM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 21:22	09/29/23 21:22	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2141864	10	09/30/23 17:47	09/30/23 17:47	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140236	1	09/27/23 16:03	09/27/23 16:03	DYW	Mt. Juliet, TN

A-27 L1658709-05 GW

Collected by: RP/CW | Collected date/time: 09/21/23 09:20 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Fe B-2011	WG2138384	50	09/24/23 10:04	09/24/23 10:04	CAH	Mt. Juliet, TN
Wet Chemistry by Method 4500S2 D-2011	WG2138160	1	09/23/23 13:53	09/23/23 13:53	EPW	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG2137928	1	09/22/23 23:03	09/22/23 23:03	ASM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 21:45	09/29/23 21:45	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method RSK175	WG2141863	1	09/30/23 16:05	09/30/23 16:05	BAW	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 12:38	09/27/23 12:38	JCP	Mt. Juliet, TN

A-21 L1658709-06 GW

Collected by: RP/CW | Collected date/time: 09/21/23 16:10 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2138082	1	09/24/23 15:21	09/27/23 21:21	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 13:40	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 22:08	09/29/23 22:08	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 13:00	09/27/23 13:00	JCP	Mt. Juliet, TN

TRIP BLANK L1658709-07 GW

Collected by: RP/CW | Collected date/time: 09/21/23 00:00 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 18:00	09/29/23 18:00	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 11:34	09/27/23 11:34	JCP	Mt. Juliet, TN

CASE NARRATIVE

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

Wet Chemistry by Method 3500Fe B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Ferrous Iron	13500	T8	1000	20	09/24/2023 10:01	WG2138384

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	09/23/2023 13:51	WG2138160

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate	197		100	1	09/22/2023 22:13	WG2137928
Sulfate	ND		5000	1	09/22/2023 22:13	WG2137928

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	09/27/2023 21:11	WG2138082
Lead,Dissolved	ND		2.00	1	10/03/2023 12:30	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2740	B	500	5	09/30/2023 00:00	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*99.6*		*78.0-120*		*09/30/2023 00:00*	WG2141636

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	8620		100	10	09/30/2023 17:37	WG2141864

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	154		5.00	5	09/27/2023 18:48	WG2140236
Toluene	6.65		5.00	5	09/27/2023 18:48	WG2140236
Ethylbenzene	ND		5.00	5	09/27/2023 18:48	WG2140236
Total Xylenes	ND		15.0	5	09/27/2023 18:48	WG2140236
(S) Toluene-d8	*91.9*		*80.0-120*		*09/27/2023 18:48*	WG2140236
(S) 4-Bromofluorobenzene	*92.8*		*77.0-126*		*09/27/2023 18:48*	WG2140236
(S) 1,2-Dichloroethane-d4	*111*		*70.0-130*		*09/27/2023 18:48*	WG2140236

Wet Chemistry by Method 3500Fe B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Ferrous Iron	54700	T8	2500	50	09/24/2023 10:02	WG2138384

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	09/23/2023 13:52	WG2138160

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate	161		100	1	09/22/2023 22:25	WG2137928
Sulfate	ND		5000	1	09/22/2023 22:25	WG2137928

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	09/27/2023 21:15	WG2138082
Lead,Dissolved	ND		2.00	1	10/03/2023 13:34	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	7730		500	5	09/30/2023 00:23	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*99.7*		*78.0-120*		*09/30/2023 00:23*	WG2141636

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	12500		100	10	09/30/2023 17:43	WG2141864

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	552		10.0	10	09/27/2023 19:09	WG2140236
Toluene	28.4		10.0	10	09/27/2023 19:09	WG2140236
Ethylbenzene	876		10.0	10	09/27/2023 19:09	WG2140236
Total Xylenes	141		30.0	10	09/27/2023 19:09	WG2140236
(S) Toluene-d8	*92.8*		*80.0-120*		*09/27/2023 19:09*	WG2140236
(S) 4-Bromofluorobenzene	*92.0*		*77.0-126*		*09/27/2023 19:09*	WG2140236
(S) 1,2-Dichloroethane-d4	*110*		*70.0-130*		*09/27/2023 19:09*	WG2140236

Wet Chemistry by Method 3500Fe B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Ferrous Iron	22500	T8	2500	50	09/24/2023 10:03	WG2138384

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	09/23/2023 13:52	WG2138160

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate	216		100	1	09/22/2023 22:38	WG2137928
Sulfate	9670		5000	1	09/22/2023 22:38	WG2137928

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	09/27/2023 21:18	WG2138082
Lead,Dissolved	ND		2.00	1	10/03/2023 13:37	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	2490		100	1	09/29/2023 21:00	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*113*		*78.0-120*		*09/29/2023 21:00*	WG2141636

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	6300		10.0	1	09/30/2023 15:46	WG2141863

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	37.8		1.00	1	09/27/2023 15:42	WG2140236
Toluene	2.85		1.00	1	09/27/2023 15:42	WG2140236
Ethylbenzene	2.14		1.00	1	09/27/2023 15:42	WG2140236
Total Xylenes	ND		3.00	1	09/27/2023 15:42	WG2140236
(S) Toluene-d8	*89.4*		*80.0-120*		*09/27/2023 15:42*	WG2140236
(S) 4-Bromofluorobenzene	*91.5*		*77.0-126*		*09/27/2023 15:42*	WG2140236
(S) 1,2-Dichloroethane-d4	*113*		*70.0-130*		*09/27/2023 15:42*	WG2140236

Wet Chemistry by Method 3500Fe B-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Ferrous Iron	31000	T8	2500	50	09/24/2023 10:03	WG2138384

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfide	ND		50.0	1	09/23/2023 13:53	WG2138160

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Nitrate	225		100	1	09/22/2023 22:50	WG2137928
Sulfate	ND		5000	1	09/22/2023 22:50	WG2137928

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	7120		100	1	09/29/2023 21:22	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*105*		*78.0-120*		*09/29/2023 21:22*	WG2141636

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Methane	12200		100	10	09/30/2023 17:47	WG2141864

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	7.64		1.00	1	09/27/2023 16:03	WG2140236
Toluene	1.70		1.00	1	09/27/2023 16:03	WG2140236
Ethylbenzene	75.6		1.00	1	09/27/2023 16:03	WG2140236
Total Xylenes	14.9		3.00	1	09/27/2023 16:03	WG2140236
(S) Toluene-d8	*92.8*		*80.0-120*		*09/27/2023 16:03*	WG2140236
(S) 4-Bromofluorobenzene	*95.5*		*77.0-126*		*09/27/2023 16:03*	WG2140236
(S) 1,2-Dichloroethane-d4	*150*	J1	*70.0-130*		*09/27/2023 16:03*	WG2140236

Wet Chemistry by Method 3500Fe B-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Ferrous Iron	9390	T8	2500	50	09/24/2023 10:04	WG2138384

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Sulfide	ND		50.0	1	09/23/2023 13:53	WG2138160

Wet Chemistry by Method 9056A

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Nitrate	102	P1	100	1	09/22/2023 23:03	WG2137928
Sulfate	ND		5000	1	09/22/2023 23:03	WG2137928

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1280		100	1	09/29/2023 21:45	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*104*		*78.0-120*		*09/29/2023 21:45*	WG2141636

Volatile Organic Compounds (GC) by Method RSK175

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Methane	2910		10.0	1	09/30/2023 16:05	WG2141863

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	9.40		1.00	1	09/27/2023 12:38	WG2140244
Toluene	ND		1.00	1	09/27/2023 12:38	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 12:38	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 12:38	WG2140244
(S) Toluene-d8	*101*		*80.0-120*		*09/27/2023 12:38*	WG2140244
(S) 4-Bromofluorobenzene	*96.3*		*77.0-126*		*09/27/2023 12:38*	WG2140244
(S) 1,2-Dichloroethane-d4	*100*		*70.0-130*		*09/27/2023 12:38*	WG2140244

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	09/27/2023 21:21	WG2138082
Lead,Dissolved	ND		2.00	1	10/03/2023 13:40	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	225	B	100	1	09/29/2023 22:08	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*105*		*78.0-120*		*09/29/2023 22:08*	WG2141636

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	09/27/2023 13:00	WG2140244
Toluene	ND		1.00	1	09/27/2023 13:00	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 13:00	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 13:00	WG2140244
(S) Toluene-d8	*109*		*80.0-120*		*09/27/2023 13:00*	WG2140244
(S) 4-Bromofluorobenzene	*96.5*		*77.0-126*		*09/27/2023 13:00*	WG2140244
(S) 1,2-Dichloroethane-d4	*95.1*		*70.0-130*		*09/27/2023 13:00*	WG2140244

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/29/2023 18:00	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/29/2023 18:00*	WG2141636

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	09/27/2023 11:34	WG2140244
Toluene	ND		1.00	1	09/27/2023 11:34	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 11:34	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 11:34	WG2140244
(S) Toluene-d8	*109*		*80.0-120*		*09/27/2023 11:34*	WG2140244
(S) 4-Bromofluorobenzene	*92.3*		*77.0-126*		*09/27/2023 11:34*	WG2140244
(S) 1,2-Dichloroethane-d4	*99.2*		*70.0-130*		*09/27/2023 11:34*	WG2140244

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3977042-1 09/24/23 09:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Ferrous Iron	U		15.0	50.0

L1658482-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1658482-09 09/24/23 09:58 • (DUP) R3977042-5 09/24/23 09:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Ferrous Iron	672	676	1	0.593		20

L1659028-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1659028-01 09/24/23 10:05 • (DUP) R3977042-6 09/24/23 10:06

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Ferrous Iron	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3977042-2 09/24/23 09:53

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Ferrous Iron	1000	1140	114	85.0-115	

L1658482-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658482-01 09/24/23 09:54 • (MS) R3977042-3 09/24/23 09:54 • (MSD) R3977042-4 09/24/23 09:54

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	%	%		%			%	%
Ferrous Iron	1000	ND	910	939	91.0	93.9	1	80.0-120			3.14	20

Method Blank (MB)

(MB) R3976912-1 09/23/23 13:51

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfide	U		25.0	50.0

L1658971-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1658971-02 09/23/23 13:54 • (DUP) R3976912-5 09/23/23 13:55

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3976912-2 09/23/23 13:51

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfide	500	479	95.8	85.0-115	

L1658709-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658709-01 09/23/23 13:51 • (MS) R3976912-3 09/23/23 13:52 • (MSD) R3976912-4 09/23/23 13:52

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 %
Sulfide	500	ND	480	461	96.0	92.2	1	80.0-120			4.04	20

Method Blank (MB)

(MB) R3977050-1 09/22/23 18:55

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Nitrate	U		48.0	100
Sulfate	U		594	5000

L1658618-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1658618-05 09/22/23 21:22 • (DUP) R3977050-3 09/23/23 03:15

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate	1170	1130	1	3.04		15
Sulfate	6260	6350	1	1.40		15

L1658709-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1658709-05 09/22/23 23:03 • (DUP) R3977050-6 09/23/23 03:52

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Nitrate	102	ND	1	200	P1	15
Sulfate	ND	ND	1	2.01		15

Laboratory Control Sample (LCS)

(LCS) R3977050-2 09/22/23 19:08

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate	8000	7560	94.5	80.0-120	
Sulfate	40000	40100	100	80.0-120	

L1658618-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658618-05 09/22/23 21:22 • (MS) R3977050-4 09/23/23 03:27 • (MSD) R3977050-5 09/23/23 03:40

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 %
Nitrate	8000	1170	8920	9280	96.9	101	1	80.0-120			3.89	15
Sulfate	40000	6260	46200	46400	99.8	100	1	80.0-120			0.446	15

L1658709-05 Original Sample (OS) • Matrix Spike (MS)

(OS) L1658709-05 09/22/23 23:03 • (MS) R3977050-7 09/23/23 04:05

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Nitrate	8000	102	7590	93.6	1	80.0-120	
Sulfate	40000	ND	40600	96.3	1	80.0-120	

Method Blank (MB)

(MB) R3978642-1 09/27/23 23:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3978642-2 09/27/23 23:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	49.6	99.2	80.0-120	

L1658771-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658771-08 09/27/23 23:10 • (MS) R3978642-4 09/27/23 23:16 • (MSD) R3978642-5 09/27/23 23:19

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	48.9	49.1	97.8	98.1	1	75.0-125			0.273	20

Method Blank (MB)

(MB) R3981067-1 10/03/23 12:24

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead,Dissolved	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3981067-2 10/03/23 12:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	50.0	47.8	95.6	80.0-120	

L1658709-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658709-01 10/03/23 12:30 • (MS) R3981067-4 10/03/23 12:37 • (MSD) R3981067-5 10/03/23 12:40

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	48.4	48.1	96.9	96.2	1	75.0-125			0.629	20

Method Blank (MB)

(MB) R3981182-2 09/29/23 16:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	63.3	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*107*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3981182-1 09/29/23 16:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	4820	87.6	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*112*	*78.0-120*	

Method Blank (MB)

(MB) R3980003-2 09/30/23 13:36

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Methane	3.10	J	2.91	10.0

L1658655-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1658655-05 09/30/23 14:44 • (DUP) R3980003-3 09/30/23 14:46

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	200	P1	20

L1658709-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1658709-05 09/30/23 16:05 • (DUP) R3980003-4 09/30/23 16:09

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	2910	2930	1	0.685		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3980003-1 09/30/23 13:33 • (LCSD) R3980003-7 09/30/23 16:46

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	67.3	65.6	99.3	96.8	85.0-115			2.56	20

L1658551-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658551-07 09/30/23 13:38 • (MS) R3980003-5 09/30/23 16:35 • (MSD) R3980003-6 09/30/23 16:42

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 %
Methane	67.8	482	552	586	103	153	1	50.0-150		V	5.98	20

Method Blank (MB)

(MB) R3980018-2 09/30/23 17:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Methane	3.24	J	2.91	10.0

L1658819-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1658819-01 09/30/23 18:01 • (DUP) R3980018-3 09/30/23 18:03

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Methane	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3980018-1 09/30/23 17:04 • (LCSD) R3980018-4 09/30/23 18:10

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	66.8	68.9	98.5	102	85.0-115			3.10	20

Method Blank (MB)

(MB) R3978856-3 09/27/23 10:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*96.4*			*80.0-120*
(S) 4-Bromofluorobenzene	*90.3*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3978856-1 09/27/23 09:24 • (LCSD) R3978856-2 09/27/23 09:45

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	5.79	5.84	116	117	70.0-123			0.860	20
Toluene	5.00	5.27	5.34	105	107	79.0-120			1.32	20
Ethylbenzene	5.00	4.72	4.83	94.4	96.6	79.0-123			2.30	20
Total Xylenes	15.0	13.3	13.2	88.7	88.0	79.0-123			0.755	20
(S) Toluene-d8				*94.5*	*93.8*	*80.0-120*				
(S) 4-Bromofluorobenzene				*88.8*	*90.4*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*115*	*112*	*70.0-130*				

Method Blank (MB)

(MB) R3979027-4 09/27/23 11:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*110*			*80.0-120*
(S) 4-Bromofluorobenzene	*93.3*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*95.8*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3979027-1 09/27/23 09:30 • (LCSD) R3979027-2 09/27/23 09:51

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	4.44	4.60	88.8	92.0	70.0-123			3.54	20
Toluene	5.00	4.48	4.57	89.6	91.4	79.0-120			1.99	20
Ethylbenzene	5.00	4.46	4.60	89.2	92.0	79.0-123			3.09	20
Total Xylenes	15.0	13.1	13.2	87.3	88.0	79.0-123			0.760	20
(S) Toluene-d8				*108*	*106*	*80.0-120*				
(S) 4-Bromofluorobenzene				*96.8*	*96.9*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*97.0*	*94.5*	*70.0-130*				

GLOSSARY OF TERMS

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.

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.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	Sample(s) received past/too close to holding time expiration.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* 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 Analytical.

Company Name/Address:
Kinder Morgan- Houston, TX(Scott Martin)

L100 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;Matt.Annis@arcadis.

Project Description: **KMEP Harbor Island**

City/State Collected: SEATTLE, WA

Please Circle: (PT) MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): ROBERTO PIEMONTESE, CARLIN WONG

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: STD TAT

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	FF Diss Lead 6020 250mlHDPE HNO3	Ferrous Iron 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX,BTEX 8260 40mlAmb-HCl	SULFIDE 250mlAmb-S-NaOH+ZnAc	Sulfate 125mlHDPE-NoPres	Total Lead 6020 250mlHDPE-HNO3	Total RCRA8 Metals 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-23	G	GW		9/21/23	13:30	13	X	X	X	X		X	X	X	X			-01
MW-24	G	GW		9/21/23	12:15	13	X	X	X	X		X	X	X	X			-02
A-28R	G	GW		9/21/23	10:50	13	X	X	X	X		X	X	X	X			-03
TMW-B1	G	GW		9/21/23	14:30	11	X		X	X		X	X	X				-04
A-27	G	GW		9/21/23	9:20	11	X		X	X		X	X	X				-05
A-21	G	GW		9/21/23	16:10	8		X				X			X			-06
TRIP BLANK	—	GW		—	—	2						X						-07
		GW																
		GW																
		GW																

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG: L1458709

Tab: C013

Acctnum: **KINMOROCA**
Template: **T236436**
Prelogin: **P1018992**
PM: **110 - Brian Ford**
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6426 8303 8667

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: (Yes / No) HCl / MeOH TBR	If pres
	9/21/23	17:35		✓	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 5.4 °C 5.4	Bottles Received: 68
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9.22.23	Time: 0900

PH-10BDH4321 TR[illegible]
CR6-20221V
PH-10BDH4321 TR[illegible]
CR6-20221V

Hold:

Condition: NCF / OK

9/22-NCF-L1658709 KINMOROCA

R5

Time estimate: oh **Time spent:** oh

Members

Hailey Melson (responsible) BF Brian Ford

Due on *26 September 2023 8:00 AM* for target *Done*

- [ ] Parameter(s) past holding time
- [ ] Temperature not in range
- [ ] Improper container type
- [ ] pH not in range
- [ ] Insufficient sample volume
- [ ] Sample is biphasic
- [ ] Vials received with headspace
- [x] Broken container
- [ ] Sufficient sample remains
- [ ] If broken container: Insufficient packing material around container
- [ ] If broken container: Insufficient packing material inside cooler
- [ ] If broken container: Improper handling by carrier:_____
- [ ] If broken container: Sample was frozen
- [ ] If broken container: Container lid not intact
- [ ] Client informed by Call
- [ ] Client informed by Email
- [ ] Client informed by Voicemail
- [ ] Date/Time:_____
- [x] PM initials:_____bjf_____
- [ ] Client Contact:_____

Comments

Hailey Melson *22 September 2023 5:27 PM*

1 broken NWTPHGX container received for ID: TMW-B1

Brian Ford *23 September 2023 3:45 PM*

proceed with remaining containers

Hailey Melson *23 September 2023 4:06 PM*

Done

ANALYTICAL REPORT

October 09, 2023

Kinder Morgan- Houston, TX

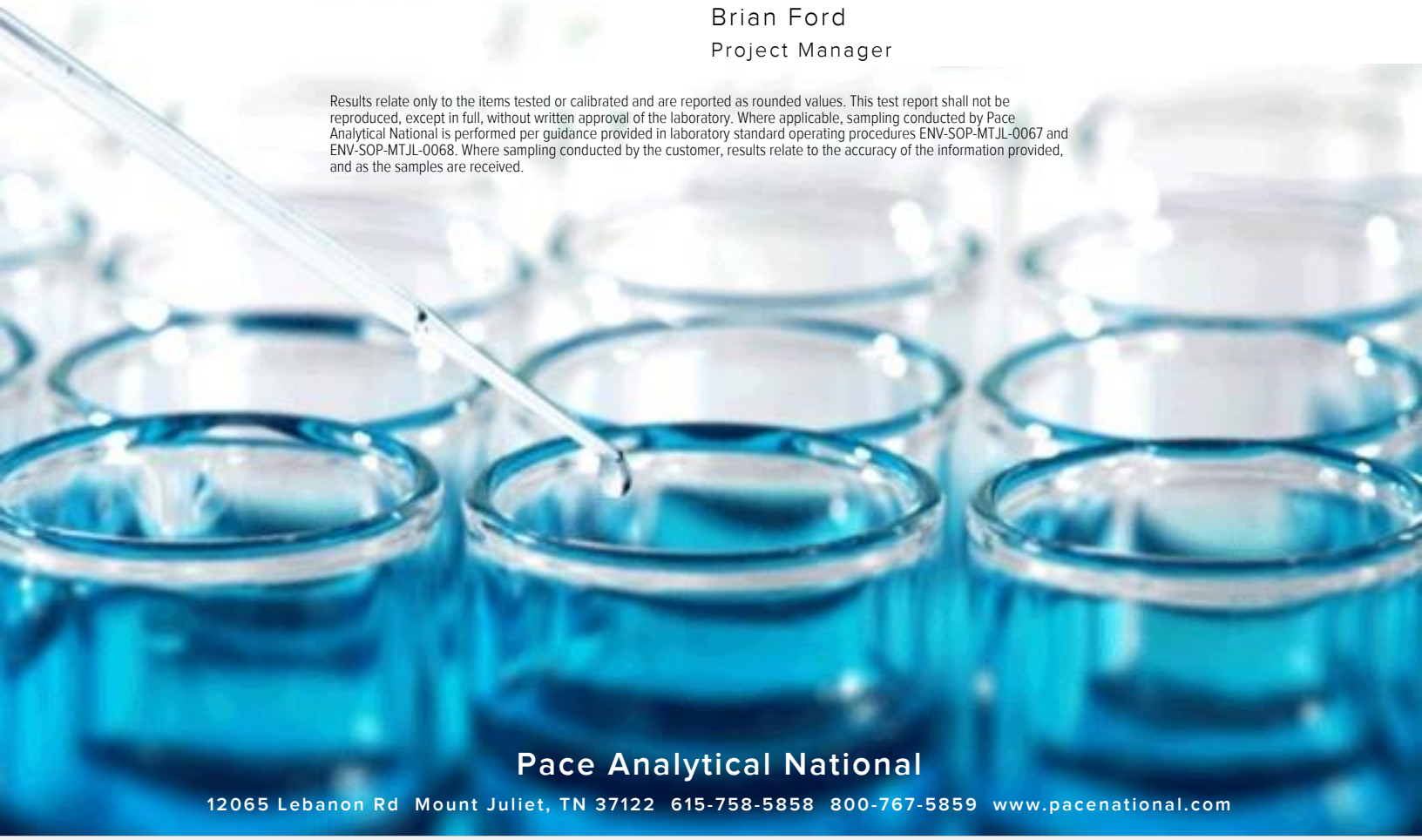
Sample Delivery Group:	L1658771
Samples Received:	09/22/2023
Project Number:	30157380.02
Description:	KMEP Harbor Island
Site:	2720 13TH AVENUE SW SEATTLE,WA
Report To:	Kyle Haslam 1100 Olive Way, Suite 800 Seattle, WA 98101

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.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-19 L1658771-01 GW

Collected by: RP/CW | Collected date/time: 09/19/23 15:50 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2142047	20	09/30/23 04:35	09/30/23 04:35	HMM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 22:30	09/29/23 22:30	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 13:22	09/27/23 13:22	JCP	Mt. Juliet, TN

TMW-1 L1658771-02 GW

Collected by: RP/CW | Collected date/time: 09/19/23 15:14 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	5	09/29/23 03:24	09/29/23 03:24	GEB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 22:53	09/29/23 22:53	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 13:44	09/27/23 13:44	JCP	Mt. Juliet, TN

TMW-5 L1658771-03 GW

Collected by: RP/CW | Collected date/time: 09/20/23 13:41 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	10	09/29/23 03:40	09/29/23 03:40	GEB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 23:15	09/29/23 23:15	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 14:06	09/27/23 14:06	JCP	Mt. Juliet, TN

TMW-2 L1658771-04 GW

Collected by: RP/CW | Collected date/time: 09/20/23 09:10 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	20	09/29/23 03:56	09/29/23 03:56	GEB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141636	1	09/29/23 23:38	09/29/23 23:38	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 14:28	09/27/23 14:28	JCP	Mt. Juliet, TN

MW-20 L1658771-05 GW

Collected by: RP/CW | Collected date/time: 09/20/23 11:44 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 04:15	09/30/23 04:15	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 14:49	09/27/23 14:49	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 04:26	DMG	Mt. Juliet, TN

MW-2 L1658771-06 GW

Collected by: RP/CW | Collected date/time: 09/20/23 15:30 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2138082	1	09/24/23 15:21	09/27/23 21:25	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 14:29	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 04:37	09/30/23 04:37	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 15:11	09/27/23 15:11	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 04:46	DMG	Mt. Juliet, TN

MW-9 L1658771-07 GW

Collected by: RP/CW | Collected date/time: 09/20/23 14:21 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	1	09/29/23 04:12	09/29/23 04:12	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2138082	1	09/24/23 15:21	09/27/23 21:28	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 14:32	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 05:00	09/30/23 05:00	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 15:33	09/27/23 15:33	JCP	Mt. Juliet, TN

MW-3 L1658771-08 GW

Collected by: RP/CW | Collected date/time: 09/20/23 12:37 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2138082	1	09/24/23 15:21	09/27/23 23:10	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 14:35	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 05:22	09/30/23 05:22	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 15:55	09/27/23 15:55	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 05:06	DMG	Mt. Juliet, TN

A-23R L1658771-09 GW

Collected by: RP/CW | Collected date/time: 09/20/23 10:30 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 05:45	09/30/23 05:45	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2140244	1	09/27/23 16:17	09/27/23 16:17	JCP	Mt. Juliet, TN

MW-14 L1658771-10 GW

Collected by: RP/CW | Collected date/time: 09/20/23 12:00 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 06:07	09/30/23 06:07	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141608	1	09/29/23 05:31	09/29/23 05:31	JBE	Mt. Juliet, TN

MW-22 L1658771-11 GW

Collected by: RP/CW | Collected date/time: 09/20/23 14:20 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 06:29	09/30/23 06:29	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141608	1	09/29/23 05:51	09/29/23 05:51	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 05:25	DMG	Mt. Juliet, TN

MW-18 L1658771-12 GW

Collected by: RP/CW | Collected date/time: 09/20/23 13:00 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 06:52	09/30/23 06:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141608	1	09/29/23 06:11	09/29/23 06:11	JBE	Mt. Juliet, TN

MW-5 L1658771-13 GW

Collected by: RP/CW | Collected date/time: 09/20/23 09:19 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2138586	1	09/26/23 03:28	10/08/23 10:40	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139074	1	09/29/23 11:01	10/03/23 14:39	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 07:14	09/30/23 07:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141630	1	09/29/23 23:27	09/29/23 23:27	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 05:45	DMG	Mt. Juliet, TN

TMW-6 L1658771-14 GW

Collected by: RP/CW | Collected date/time: 09/20/23 16:10 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	5	09/29/23 05:47	09/29/23 05:47	GEB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	10	09/30/23 08:21	09/30/23 08:21	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141630	10	09/30/23 05:17	09/30/23 05:17	DYW	Mt. Juliet, TN

TRIP BLANK L1658771-15 GW

Collected by: RP/CW | Collected date/time: 09/20/23 00:00 | Received date/time: 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141637	1	09/30/23 03:52	09/30/23 03:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141630	1	09/29/23 22:46	09/29/23 22:46	DYW	Mt. Juliet, TN

CASE NARRATIVE

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

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	1080000		100000	20	09/30/2023 04:35	WG2142047

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	537	B	100	1	09/29/2023 22:30	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*96.1*		*78.0-120*		*09/29/2023 22:30*	WG2141636

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	09/27/2023 13:22	WG2140244
Toluene	ND		1.00	1	09/27/2023 13:22	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 13:22	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 13:22	WG2140244
(S) Toluene-d8	*99.1*		*80.0-120*		*09/27/2023 13:22*	WG2140244
(S) 4-Bromofluorobenzene	*95.4*		*77.0-126*		*09/27/2023 13:22*	WG2140244
(S) 1,2-Dichloroethane-d4	*94.1*		*70.0-130*		*09/27/2023 13:22*	WG2140244

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	158000		25000	5	09/29/2023 03:24	WG2140929

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	112	B	100	1	09/29/2023 22:53	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*108*		*78.0-120*		*09/29/2023 22:53*	WG2141636

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	09/27/2023 13:44	WG2140244
Toluene	ND		1.00	1	09/27/2023 13:44	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 13:44	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 13:44	WG2140244
(S) Toluene-d8	*106*		*80.0-120*		*09/27/2023 13:44*	WG2140244
(S) 4-Bromofluorobenzene	*92.9*		*77.0-126*		*09/27/2023 13:44*	WG2140244
(S) 1,2-Dichloroethane-d4	*95.3*		*70.0-130*		*09/27/2023 13:44*	WG2140244

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	636000		50000	10	09/29/2023 03:40	WG2140929

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	840		100	1	09/29/2023 23:15	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*108*		*78.0-120*		*09/29/2023 23:15*	WG2141636

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	6.68		1.00	1	09/27/2023 14:06	WG2140244
Toluene	1.65		1.00	1	09/27/2023 14:06	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 14:06	WG2140244
Total Xylenes	4.55		3.00	1	09/27/2023 14:06	WG2140244
(S) Toluene-d8	*103*		*80.0-120*		*09/27/2023 14:06*	WG2140244
(S) 4-Bromofluorobenzene	*95.8*		*77.0-126*		*09/27/2023 14:06*	WG2140244
(S) 1,2-Dichloroethane-d4	*95.4*		*70.0-130*		*09/27/2023 14:06*	WG2140244

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	1030000		100000	20	09/29/2023 03:56	WG2140929

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	09/29/2023 23:38	WG2141636
(S) a,a,a-Trifluorotoluene(FID)	*107*		*78.0-120*		*09/29/2023 23:38*	WG2141636

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	09/27/2023 14:28	WG2140244
Toluene	ND		1.00	1	09/27/2023 14:28	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 14:28	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 14:28	WG2140244
(S) Toluene-d8	*106*		*80.0-120*		*09/27/2023 14:28*	WG2140244
(S) 4-Bromofluorobenzene	*94.1*		*77.0-126*		*09/27/2023 14:28*	WG2140244
(S) 1,2-Dichloroethane-d4	*97.4*		*70.0-130*		*09/27/2023 14:28*	WG2140244

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 04:15	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 04:15*	WG2141637

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	09/27/2023 14:49	WG2140244
Toluene	ND		1.00	1	09/27/2023 14:49	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 14:49	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 14:49	WG2140244
(S) Toluene-d8	*108*		*80.0-120*		*09/27/2023 14:49*	WG2140244
(S) 4-Bromofluorobenzene	*93.8*		*77.0-126*		*09/27/2023 14:49*	WG2140244
(S) 1,2-Dichloroethane-d4	*96.6*		*70.0-130*		*09/27/2023 14:49*	WG2140244

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/03/2023 04:26	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 04:26	WG2141695
(S) o-Terphenyl	*53.7*		*52.0-156*		*10/03/2023 04:26*	WG2141695

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	09/27/2023 21:25	WG2138082
Lead,Dissolved	ND		2.00	1	10/03/2023 14:29	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 04:37	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 04:37*	WG2141637

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	09/27/2023 15:11	WG2140244
Toluene	ND		1.00	1	09/27/2023 15:11	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 15:11	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 15:11	WG2140244
(S) Toluene-d8	*107*		*80.0-120*		*09/27/2023 15:11*	WG2140244
(S) 4-Bromofluorobenzene	*95.0*		*77.0-126*		*09/27/2023 15:11*	WG2140244
(S) 1,2-Dichloroethane-d4	*98.1*		*70.0-130*		*09/27/2023 15:11*	WG2140244

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/03/2023 04:46	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 04:46	WG2141695
(S) o-Terphenyl	*52.6*		*52.0-156*		*10/03/2023 04:46*	WG2141695

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	Batch
	ug/l		ug/l		date / time	
Sulfate	ND		5000	1	09/29/2023 04:12	WG2140929

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	9.22		2.00	1	09/27/2023 21:28	WG2138082
Lead,Dissolved	ND		2.00	1	10/03/2023 14:32	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	325	B	100	1	09/30/2023 05:00	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 05:00*	WG2141637

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	09/27/2023 15:33	WG2140244
Toluene	ND		1.00	1	09/27/2023 15:33	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 15:33	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 15:33	WG2140244
(S) Toluene-d8	*110*		*80.0-120*		*09/27/2023 15:33*	WG2140244
(S) 4-Bromofluorobenzene	*99.9*		*77.0-126*		*09/27/2023 15:33*	WG2140244
(S) 1,2-Dichloroethane-d4	*97.9*		*70.0-130*		*09/27/2023 15:33*	WG2140244

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	09/27/2023 23:10	WG2138082
Lead,Dissolved	ND		2.00	1	10/03/2023 14:35	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 05:22	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 05:22*	WG2141637

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	09/27/2023 15:55	WG2140244
Toluene	ND		1.00	1	09/27/2023 15:55	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 15:55	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 15:55	WG2140244
(S) Toluene-d8	*109*		*80.0-120*		*09/27/2023 15:55*	WG2140244
(S) 4-Bromofluorobenzene	*95.1*		*77.0-126*		*09/27/2023 15:55*	WG2140244
(S) 1,2-Dichloroethane-d4	*99.2*		*70.0-130*		*09/27/2023 15:55*	WG2140244

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/03/2023 05:06	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 05:06	WG2141695
(S) o-Terphenyl	*62.6*		*52.0-156*		*10/03/2023 05:06*	WG2141695

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 05:45	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 05:45*	WG2141637

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	09/27/2023 16:17	WG2140244
Toluene	ND		1.00	1	09/27/2023 16:17	WG2140244
Ethylbenzene	ND		1.00	1	09/27/2023 16:17	WG2140244
Total Xylenes	ND		3.00	1	09/27/2023 16:17	WG2140244
(S) Toluene-d8	*107*		*80.0-120*		*09/27/2023 16:17*	WG2140244
(S) 4-Bromofluorobenzene	*95.1*		*77.0-126*		*09/27/2023 16:17*	WG2140244
(S) 1,2-Dichloroethane-d4	*99.1*		*70.0-130*		*09/27/2023 16:17*	WG2140244

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 06:07	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 06:07*	WG2141637

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	09/29/2023 05:31	WG2141608
Toluene	ND		1.00	1	09/29/2023 05:31	WG2141608
Ethylbenzene	ND		1.00	1	09/29/2023 05:31	WG2141608
Total Xylenes	ND		3.00	1	09/29/2023 05:31	WG2141608
(S) Toluene-d8	*95.6*		*80.0-120*		*09/29/2023 05:31*	WG2141608
(S) 4-Bromofluorobenzene	*91.7*		*77.0-126*		*09/29/2023 05:31*	WG2141608
(S) 1,2-Dichloroethane-d4	*112*		*70.0-130*		*09/29/2023 05:31*	WG2141608

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 06:29	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 06:29*	WG2141637

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	09/29/2023 05:51	WG2141608
Toluene	ND		1.00	1	09/29/2023 05:51	WG2141608
Ethylbenzene	ND		1.00	1	09/29/2023 05:51	WG2141608
Total Xylenes	ND		3.00	1	09/29/2023 05:51	WG2141608
(S) Toluene-d8	*95.4*		*80.0-120*		*09/29/2023 05:51*	WG2141608
(S) 4-Bromofluorobenzene	*93.8*		*77.0-126*		*09/29/2023 05:51*	WG2141608
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*09/29/2023 05:51*	WG2141608

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	381		200	1	10/03/2023 05:25	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 05:25	WG2141695
(S) o-Terphenyl	*64.7*		*52.0-156*		*10/03/2023 05:25*	WG2141695

Sample Narrative:

L1658771-11 WG2141695: Sample does not resemble laboratory standards.

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 06:52	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*106*		*78.0-120*		*09/30/2023 06:52*	WG2141637

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	09/29/2023 06:11	WG2141608
Toluene	ND		1.00	1	09/29/2023 06:11	WG2141608
Ethylbenzene	ND		1.00	1	09/29/2023 06:11	WG2141608
Total Xylenes	ND		3.00	1	09/29/2023 06:11	WG2141608
(S) Toluene-d8	*96.6*		*80.0-120*		*09/29/2023 06:11*	WG2141608
(S) 4-Bromofluorobenzene	*92.6*		*77.0-126*		*09/29/2023 06:11*	WG2141608
(S) 1,2-Dichloroethane-d4	*114*		*70.0-130*		*09/29/2023 06:11*	WG2141608

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	3.26		2.00	1	10/08/2023 10:40	WG2138586
Lead,Dissolved	ND		2.00	1	10/03/2023 14:39	WG2139074

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 07:14	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*107*		*78.0-120*		*09/30/2023 07:14*	WG2141637

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	09/29/2023 23:27	WG2141630
Toluene	ND		1.00	1	09/29/2023 23:27	WG2141630
Ethylbenzene	ND		1.00	1	09/29/2023 23:27	WG2141630
Total Xylenes	ND		3.00	1	09/29/2023 23:27	WG2141630
(S) Toluene-d8	*92.8*		*80.0-120*		*09/29/2023 23:27*	WG2141630
(S) 4-Bromofluorobenzene	*90.8*		*77.0-126*		*09/29/2023 23:27*	WG2141630
(S) 1,2-Dichloroethane-d4	*112*		*70.0-130*		*09/29/2023 23:27*	WG2141630

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/03/2023 05:45	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 05:45	WG2141695
(S) o-Terphenyl	*52.2*		*52.0-156*		*10/03/2023 05:45*	WG2141695

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	Batch
	ug/l		ug/l		date / time	
Sulfate	415000		25000	5	09/29/2023 05:47	WG2140929

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	5620	B	1000	10	09/30/2023 08:21	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*103*		*78.0-120*		*09/30/2023 08:21*	WG2141637

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		10.0	10	09/30/2023 05:17	WG2141630
Toluene	ND		10.0	10	09/30/2023 05:17	WG2141630
Ethylbenzene	522		10.0	10	09/30/2023 05:17	WG2141630
Total Xylenes	618		30.0	10	09/30/2023 05:17	WG2141630
(S) Toluene-d8	*94.9*		*80.0-120*		*09/30/2023 05:17*	WG2141630
(S) 4-Bromofluorobenzene	*95.1*		*77.0-126*		*09/30/2023 05:17*	WG2141630
(S) 1,2-Dichloroethane-d4	*109*		*70.0-130*		*09/30/2023 05:17*	WG2141630

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 03:52	WG2141637
(S) a,a,a-Trifluorotoluene(FID)	*107*		*78.0-120*		*09/30/2023 03:52*	WG2141637

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	09/29/2023 22:46	WG2141630
Toluene	ND		1.00	1	09/29/2023 22:46	WG2141630
Ethylbenzene	ND		1.00	1	09/29/2023 22:46	WG2141630
Total Xylenes	ND		3.00	1	09/29/2023 22:46	WG2141630
(S) Toluene-d8	*94.9*		*80.0-120*		*09/29/2023 22:46*	WG2141630
(S) 4-Bromofluorobenzene	*88.8*		*77.0-126*		*09/29/2023 22:46*	WG2141630
(S) 1,2-Dichloroethane-d4	*112*		*70.0-130*		*09/29/2023 22:46*	WG2141630

QUALITY CONTROL SUMMARY

L1658771-02,03,04,07,14

Method Blank (MB)

(MB) R3979666-1 09/29/23 02:31

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	U		594	5000

L1658771-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1658771-07 09/29/23 04:12 • (DUP) R3979666-3 09/29/23 04:27

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	ND	ND	1	0.884		15

L1658819-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1658819-02 09/29/23 07:54 • (DUP) R3979666-6 09/29/23 08:10

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	82800	82800	1	0.0129		15

Laboratory Control Sample (LCS)

(LCS) R3979666-2 09/29/23 02:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	39800	99.5	80.0-120	

L1658771-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658771-07 09/29/23 04:12 • (MS) R3979666-4 09/29/23 04:43 • (MSD) R3979666-5 09/29/23 04:59

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 %
Sulfate	40000	ND	41800	42100	94.6	95.3	1	80.0-120			0.725	15

L1658819-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1658819-03 09/29/23 08:58 • (MS) R3979666-7 09/29/23 09:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	40000	39400	69300	74.9	1	80.0-120	J6

QUALITY CONTROL SUMMARY

L1658771-01

Method Blank (MB)

(MB) R3980137-1 09/29/23 12:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Sulfate	U		594	5000

L1658572-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1658572-14 09/29/23 22:13 • (DUP) R3980137-3 09/29/23 22:29

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	61500	61600	1	0.0738		15

L1658572-24 Original Sample (OS) • Duplicate (DUP)

(OS) L1658572-24 09/30/23 03:00 • (DUP) R3980137-6 09/30/23 03:16

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Sulfate	ND	ND	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3980137-2 09/29/23 12:46

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Sulfate	40000	39100	97.8	80.0-120	

L1658572-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658572-14 09/29/23 22:13 • (MS) R3980137-4 09/29/23 23:17 • (MSD) R3980137-5 09/29/23 23:33

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	%	%		%			%	%
Sulfate	40000	61500	89200	89100	69.3	68.9	1	80.0-120	J6	J6	0.165	15

L1658572-24 Original Sample (OS) • Matrix Spike (MS)

(OS) L1658572-24 09/30/23 03:00 • (MS) R3980137-7 09/30/23 03:32

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	ug/l	ug/l	ug/l	%		%	
Sulfate	40000	ND	36900	92.2	1	80.0-120	

Method Blank (MB)

(MB) R3978642-1 09/27/23 23:03

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3978642-2 09/27/23 23:06

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	49.6	99.2	80.0-120	

L1658771-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658771-08 09/27/23 23:10 • (MS) R3978642-4 09/27/23 23:16 • (MSD) R3978642-5 09/27/23 23:19

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	48.9	49.1	97.8	98.1	1	75.0-125			0.273	20

Method Blank (MB)

(MB) R3983424-1 10/08/23 10:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Lead	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3983424-2 10/08/23 10:37

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Lead	50.0	54.7	109	80.0-120	

L1658771-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658771-13 10/08/23 10:40 • (MS) R3983424-4 10/08/23 10:47 • (MSD) R3983424-5 10/08/23 10:50

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	%	%		%			%	%
Lead	50.0	3.26	55.2	56.2	104	106	1	75.0-125			1.94	20

Method Blank (MB)

(MB) R3981067-1 10/03/23 12:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Lead,Dissolved	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3981067-2 10/03/23 12:27

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Lead,Dissolved	50.0	47.8	95.6	80.0-120	

L1658709-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658709-01 10/03/23 12:30 • (MS) R3981067-4 10/03/23 12:37 • (MSD) R3981067-5 10/03/23 12:40

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	%	%		%			%	%
Lead,Dissolved	50.0	ND	48.4	48.1	96.9	96.2	1	75.0-125			0.629	20

Method Blank (MB)

(MB) R3981182-2 09/29/23 16:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	63.3	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*107*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3981182-1 09/29/23 16:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	4820	87.6	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*112*	*78.0-120*	

Method Blank (MB)

(MB) R3981513-2 09/30/23 03:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	60.9	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*106*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3981513-1 09/30/23 02:31

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	4890	88.9	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*112*	*78.0-120*	

Method Blank (MB)

(MB) R3979027-4 09/27/23 11:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*110*			*80.0-120*
(S) 4-Bromofluorobenzene	*93.3*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*95.8*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3979027-1 09/27/23 09:30 • (LCSD) R3979027-2 09/27/23 09:51

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	4.44	4.60	88.8	92.0	70.0-123			3.54	20
Toluene	5.00	4.48	4.57	89.6	91.4	79.0-120			1.99	20
Ethylbenzene	5.00	4.46	4.60	89.2	92.0	79.0-123			3.09	20
Total Xylenes	15.0	13.1	13.2	87.3	88.0	79.0-123			0.760	20
(S) Toluene-d8				*108*	*106*	*80.0-120*				
(S) 4-Bromofluorobenzene				*96.8*	*96.9*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*97.0*	*94.5*	*70.0-130*				

Method Blank (MB)

(MB) R3981201-3 09/29/23 05:12

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*97.1*			*80.0-120*
(S) 4-Bromofluorobenzene	*89.4*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*110*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3981201-1 09/29/23 04:13 • (LCSD) R3981201-2 09/29/23 04:33

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	4.87	4.82	97.4	96.4	70.0-123			1.03	20
Toluene	5.00	4.64	4.49	92.8	89.8	79.0-120			3.29	20
Ethylbenzene	5.00	4.50	4.38	90.0	87.6	79.0-123			2.70	20
Total Xylenes	15.0	13.3	13.4	88.7	89.3	79.0-123			0.749	20
(S) Toluene-d8				*97.5*	*96.5*	*80.0-120*				
(S) 4-Bromofluorobenzene				*92.3*	*96.3*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*103*	*105*	*70.0-130*				

Method Blank (MB)

(MB) R3979959-3 09/29/23 20:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*92.1*			*80.0-120*
(S) 4-Bromofluorobenzene	*93.2*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*115*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3979959-1 09/29/23 19:21 • (LCSD) R3979959-2 09/29/23 19:41

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	5.62	5.77	112	115	70.0-123			2.63	20
Toluene	5.00	5.05	5.15	101	103	79.0-120			1.96	20
Ethylbenzene	5.00	4.49	4.78	89.8	95.6	79.0-123			6.26	20
Total Xylenes	15.0	13.0	13.4	86.7	89.3	79.0-123			3.03	20
(S) Toluene-d8				*92.1*	*93.3*	*80.0-120*				
(S) 4-Bromofluorobenzene				*91.7*	*91.9*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*114*	*113*	*70.0-130*				

Method Blank (MB)

(MB) R3980778-1 10/03/23 03:28

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
(S) o-Terphenyl	*58.5*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3980778-2 10/03/23 03:47 • (LCSD) R3980778-3 10/03/23 04:07

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	1130	1120	75.3	74.7	50.0-150			0.889	20
(S) o-Terphenyl				*62.0*	*65.0*	*52.0-156*				

GLOSSARY OF TERMS

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.

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* 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 Analytical.

Company Name/Address:
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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected: SEATTLE, WA

Please Circle: PT MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): ROBERTO PIEMONTESE, CARLIN WONG

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: STD TAT

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	FF Diss Lead 6020 250mlHDPE HNO3	Ferrous Iron 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX,BTEX 8260 40mlAmb-HCl	SULFIDE 250mlAmb-S-NaOH+ZnAc	Sulfate 125mlHDPE-NoPres	Total Lead 6020 250mlHDPE-HNO3	Total RCRA8 Metals 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-19	G	GW		09/19/23	15:30	7						X		X				-01
TMW-1	G	GW		09/19/23	15:14	7						X		X				-02
TMW-5	G	GW		09/20/23	13:41	7						X		X				-03
TMW-2	G	GW		09/20/23	9:10	7						X		X				-04
MW-20	G	GW		09/20/23	11:44	8					X	X						-05
MW-2	G	GW		09/20/23	15:30	10		X			X	X			X			-06
MW-9	G	GW		09/20/23	14:21	9		X				X		X	X			-07
MW-3	G	GW		09/20/23	12:37	9/10		X			X	X			X			-08
A-23R	G	GW		09/20/23	10:30	6						X						-09
MW-14	G	GW		09/20/23	12:00	6						X						-10

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 165877
D195

Acctnum: **KINMOROCA**
Template: **T236436**
Prelogin: **P1018992**
PM: **110 - Brian Ford**
PB:
Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time. 9/22

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 6426 8303 8834

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	9/21/23	17:35		2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: D/AS °C Bottles Received: 4.5+0=4.5 10	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9122123 Time: 0900	Hold: Condition: NCF / OK
			Alexa Mitchell @		

Company Name/Address:
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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected: SEATTLE, WA

Please Circle: (PT) MT CT ET

Phone: **206-726-4713**

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Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): ROBERTO PIEMONTESE, CARLIN WONG

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: STD TAT

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	FF Diss Lead 6020 250mlHDPE HNO3	Ferrous Iron 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX,BTEX 8260 40mlAmb-HCl	SULFIDE 250mlAmb-S-NaOH+ZnAc	Sulfate 125mlHDPE-NoPres	Total Lead 6020 250mlHDPE-HNO3	Total RCRA8 Metals 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-22	G	GW		09/20/23	14:20	8					X	X						-11
MW-18	G	GW		09/20/23	13:00	6						X						-12
MW-5	G	GW		09/20/23	9:19	8		X			X	X			X			-13
~~TRIP BLANK~~ RP	~~VA~~ RP	GW		~~09/20/23~~ NP	~~9:19~~ RP													
TMW-6	G	GW		09/20/23	16:10	7						X		X				-14
TRIP BLANK	-	GW		-	-	2						X						-15
		GW																
		GW																
		GW																
		GW																

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 165877

Table #

Acctnum: **KINMOROCA**
Template: **T236436**
Prelogin: **P1018992**
PM: **110 - Brian Ford**
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6426 8303 8834

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	9/21/23	17:35		2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: ~~D~~ °C Bottles Received: 4.5+0=4.5 10	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) alexa mitchell	Date: 9/22/23 Time: 0900	Hold: Condition: NCF / OK

ANALYTICAL REPORT

October 09, 2023

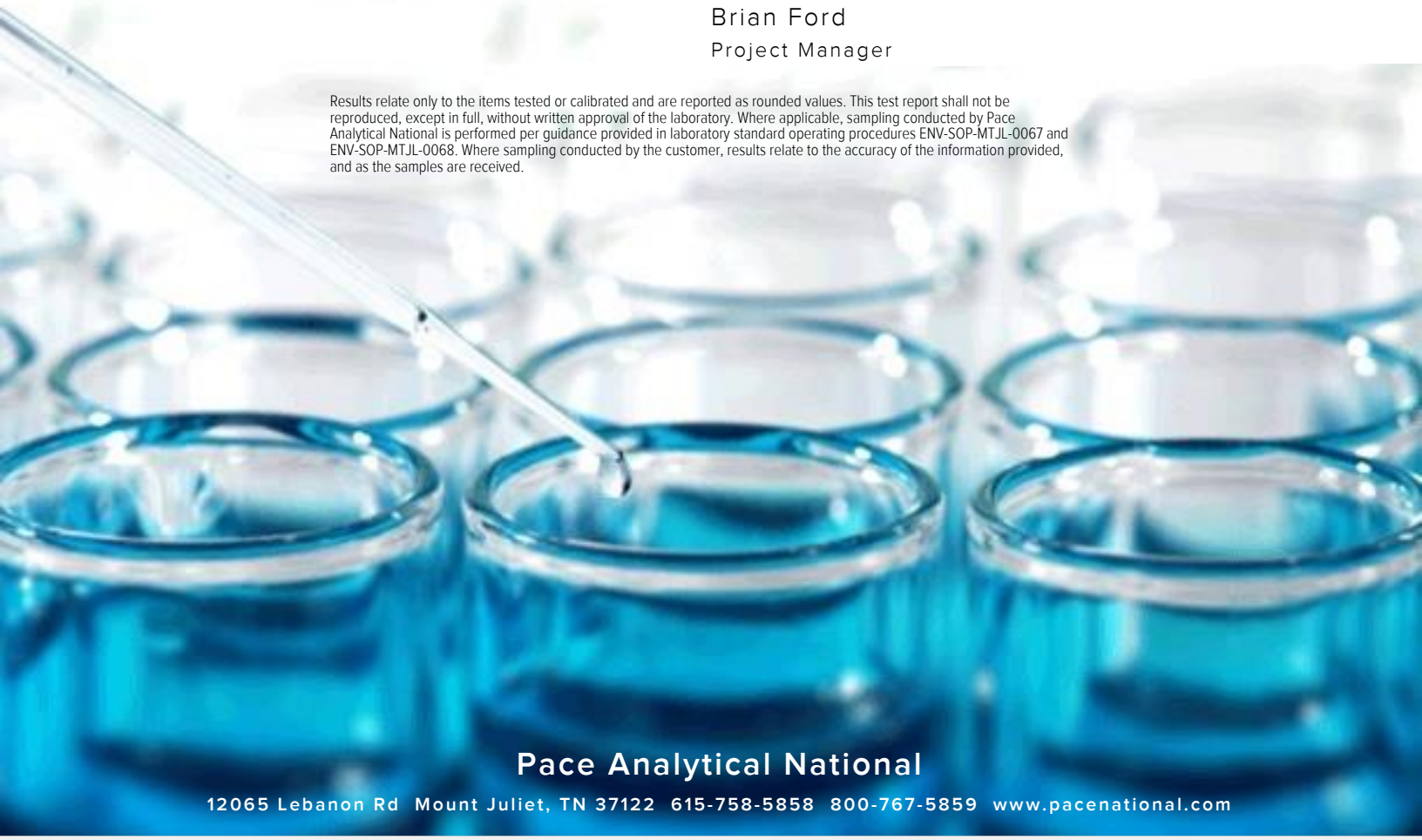
Kinder Morgan- Houston, TX

Sample Delivery Group:	L1658798
Samples Received:	09/22/2023
Project Number:	30157380.02
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.



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-8 L1658798-01 GW

Collected by | Collected date/time 09/21/23 14:24 | Received date/time 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2138586	1	09/26/23 03:28	10/08/23 10:53	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139075	1	09/30/23 08:48	10/02/23 13:09	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141639	1	09/29/23 07:41	09/29/23 07:41	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 21:54	09/28/23 21:54	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 06:05	DMG	Mt. Juliet, TN

12 L1658798-02 GW

Collected by | Collected date/time 09/21/23 09:47 | Received date/time 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	20	09/29/23 06:03	09/29/23 06:03	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2138586	1	09/26/23 03:28	10/08/23 10:56	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139075	1	09/30/23 08:48	10/02/23 15:55	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141639	1	09/29/23 08:03	09/29/23 08:03	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 22:13	09/28/23 22:13	JBE	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2143388	10	10/02/23 23:20	10/02/23 23:20	DYW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 06:24	DMG	Mt. Juliet, TN

MW-7 L1658798-03 GW

Collected by | Collected date/time 09/21/23 10:37 | Received date/time 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	5	09/29/23 06:19	09/29/23 06:19	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2138586	1	09/26/23 03:28	10/08/23 11:00	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139075	1	09/30/23 08:48	10/02/23 15:58	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141639	1	09/29/23 08:26	09/29/23 08:26	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 22:32	09/28/23 22:32	JBE	Mt. Juliet, TN

TMW-4 L1658798-04 GW

Collected by | Collected date/time 09/21/23 12:26 | Received date/time 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	5	09/29/23 06:35	09/29/23 06:35	GEB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141639	1	09/29/23 08:49	09/29/23 08:49	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	5	09/29/23 02:20	09/29/23 02:20	JBE	Mt. Juliet, TN

TMW-3 L1658798-05 GW

Collected by | Collected date/time 09/21/23 11:47 | Received date/time 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	5	09/29/23 06:51	09/29/23 06:51	GEB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141639	1	09/29/23 09:12	09/29/23 09:12	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 22:51	09/28/23 22:51	JBE	Mt. Juliet, TN

MW-21 L1658798-06 GW

Collected by | Collected date/time 09/21/23 15:16 | Received date/time 09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141639	1	09/29/23 09:35	09/29/23 09:35	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 23:10	09/28/23 23:10	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	1	10/02/23 08:42	10/03/23 06:44	DMG	Mt. Juliet, TN

11 L1658798-07 GW

Collected by	Collected date/time	Received date/time
	09/21/23 13:06	09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	5	09/29/23 07:07	09/29/23 07:07	GEB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141643	1	09/29/23 04:49	09/29/23 04:49	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 23:29	09/28/23 23:29	JBE	Mt. Juliet, TN

DUP-1 L1658798-08 GW

Collected by	Collected date/time	Received date/time
	09/21/23 00:00	09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2140929	5	09/29/23 07:22	09/29/23 07:22	GEB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2138586	1	09/26/23 03:28	10/08/23 11:03	SJM	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2139075	1	09/30/23 08:48	10/02/23 16:02	LD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141643	1	09/29/23 05:13	09/29/23 05:13	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 23:48	09/28/23 23:48	JBE	Mt. Juliet, TN

DUP-2 L1658798-09 GW

Collected by	Collected date/time	Received date/time
	09/21/23 00:00	09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141643	1	09/29/23 05:37	09/29/23 05:37	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/29/23 00:07	09/29/23 00:07	JBE	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2141695	2	10/02/23 08:42	10/03/23 07:04	DMG	Mt. Juliet, TN

TRIP BLANK L1658798-10 GW

Collected by	Collected date/time	Received date/time
	09/21/23 00:00	09/22/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2141643	1	09/29/23 04:00	09/29/23 04:00	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2141572	1	09/28/23 21:16	09/28/23 21:16	JBE	Mt. Juliet, TN

CASE NARRATIVE

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

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	10.4		2.00	1	10/08/2023 10:53	WG2138586
Lead,Dissolved	6.98		2.00	1	10/02/2023 13:09	WG2139075

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/29/2023 07:41	WG2141639
(S) a,a,a-Trifluorotoluene(FID)	*93.0*		*78.0-120*		*09/29/2023 07:41*	WG2141639

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	09/28/2023 21:54	WG2141572
Toluene	ND		1.00	1	09/28/2023 21:54	WG2141572
Ethylbenzene	ND		1.00	1	09/28/2023 21:54	WG2141572
Total Xylenes	ND		3.00	1	09/28/2023 21:54	WG2141572
(S) Toluene-d8	*105*		*80.0-120*		*09/28/2023 21:54*	WG2141572
(S) 4-Bromofluorobenzene	*103*		*77.0-126*		*09/28/2023 21:54*	WG2141572
(S) 1,2-Dichloroethane-d4	*93.4*		*70.0-130*		*09/28/2023 21:54*	WG2141572

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	290		200	1	10/03/2023 06:05	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 06:05	WG2141695
(S) o-Terphenyl	*58.4*		*52.0-156*		*10/03/2023 06:05*	WG2141695

Sample Narrative:

L1658798-01 WG2141695: Sample does not resemble laboratory standards.

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	756000		100000	20	09/29/2023 06:03	WG2140929

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	9.03		2.00	1	10/08/2023 10:56	WG2138586
Lead,Dissolved	4.03		2.00	1	10/02/2023 15:55	WG2139075

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	2610		100	1	09/29/2023 08:03	WG2141639
(S) a,a,a-Trifluorotoluene(FID)	*88.7*		*78.0-120*		*09/29/2023 08:03*	WG2141639

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	9.29		1.00	1	09/28/2023 22:13	WG2141572
Toluene	10.8		1.00	1	09/28/2023 22:13	WG2141572
Ethylbenzene	88.6		10.0	10	10/02/2023 23:20	WG2143388
Total Xylenes	194		3.00	1	09/28/2023 22:13	WG2141572
(S) Toluene-d8	*104*		*80.0-120*		*09/28/2023 22:13*	WG2141572
(S) Toluene-d8	*104*		*80.0-120*		*10/02/2023 23:20*	WG2143388
(S) 4-Bromofluorobenzene	*108*		*77.0-126*		*09/28/2023 22:13*	WG2141572
(S) 4-Bromofluorobenzene	*86.4*		*77.0-126*		*10/02/2023 23:20*	WG2143388
(S) 1,2-Dichloroethane-d4	*93.1*		*70.0-130*		*09/28/2023 22:13*	WG2141572
(S) 1,2-Dichloroethane-d4	*112*		*70.0-130*		*10/02/2023 23:20*	WG2143388

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)	1200		200	1	10/03/2023 06:24	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 06:24	WG2141695
(S) o-Terphenyl	*60.0*		*52.0-156*		*10/03/2023 06:24*	WG2141695

Sample Narrative:

L1658798-02 WG2141695: Sample resembles laboratory standard for Kerosene.

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	525000		25000	5	09/29/2023 06:19	WG2140929

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	4.45		2.00	1	10/08/2023 11:00	WG2138586
Lead,Dissolved	3.33		2.00	1	10/02/2023 15:58	WG2139075

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	571		100	1	09/29/2023 08:26	WG2141639
(S) a,a,a-Trifluorotoluene(FID)	*90.1*		*78.0-120*		*09/29/2023 08:26*	WG2141639

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	09/28/2023 22:32	WG2141572
Toluene	1.78		1.00	1	09/28/2023 22:32	WG2141572
Ethylbenzene	11.0		1.00	1	09/28/2023 22:32	WG2141572
Total Xylenes	6.70		3.00	1	09/28/2023 22:32	WG2141572
(S) Toluene-d8	*106*		*80.0-120*		*09/28/2023 22:32*	WG2141572
(S) 4-Bromofluorobenzene	*105*		*77.0-126*		*09/28/2023 22:32*	WG2141572
(S) 1,2-Dichloroethane-d4	*92.3*		*70.0-130*		*09/28/2023 22:32*	WG2141572

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	175000		25000	5	09/29/2023 06:35	WG2140929

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	3080		100	1	09/29/2023 08:49	WG2141639
(S) a,a,a-Trifluorotoluene(FID)	*93.3*		*78.0-120*		*09/29/2023 08:49*	WG2141639

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	ND		5.00	5	09/29/2023 02:20	WG2141572
Toluene	13.6		5.00	5	09/29/2023 02:20	WG2141572
Ethylbenzene	101		5.00	5	09/29/2023 02:20	WG2141572
Total Xylenes	34.9		15.0	5	09/29/2023 02:20	WG2141572
(S) Toluene-d8	*102*		*80.0-120*		*09/29/2023 02:20*	WG2141572
(S) 4-Bromofluorobenzene	*107*		*77.0-126*		*09/29/2023 02:20*	WG2141572
(S) 1,2-Dichloroethane-d4	*92.8*		*70.0-130*		*09/29/2023 02:20*	WG2141572

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	573000		25000	5	09/29/2023 06:51	WG2140929

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	401		100	1	09/29/2023 09:12	WG2141639
(S) a,a,a-Trifluorotoluene(FID)	*94.4*		*78.0-120*		*09/29/2023 09:12*	WG2141639

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	09/28/2023 22:51	WG2141572
Toluene	ND		1.00	1	09/28/2023 22:51	WG2141572
Ethylbenzene	1.25		1.00	1	09/28/2023 22:51	WG2141572
Total Xylenes	ND		3.00	1	09/28/2023 22:51	WG2141572
(S) Toluene-d8	*104*		*80.0-120*		*09/28/2023 22:51*	WG2141572
(S) 4-Bromofluorobenzene	*110*		*77.0-126*		*09/28/2023 22:51*	WG2141572
(S) 1,2-Dichloroethane-d4	*91.0*		*70.0-130*		*09/28/2023 22:51*	WG2141572

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	272		100	1	09/29/2023 09:35	WG2141639
(S) a,a,a-Trifluorotoluene(FID)	*91.6*		*78.0-120*		*09/29/2023 09:35*	WG2141639

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	09/28/2023 23:10	WG2141572
Toluene	ND		1.00	1	09/28/2023 23:10	WG2141572
Ethylbenzene	ND		1.00	1	09/28/2023 23:10	WG2141572
Total Xylenes	ND		3.00	1	09/28/2023 23:10	WG2141572
(S) Toluene-d8	*104*		*80.0-120*		*09/28/2023 23:10*	WG2141572
(S) 4-Bromofluorobenzene	*111*		*77.0-126*		*09/28/2023 23:10*	WG2141572
(S) 1,2-Dichloroethane-d4	*92.8*		*70.0-130*		*09/28/2023 23:10*	WG2141572

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	3480		200	1	10/03/2023 06:44	WG2141695
Residual Range Organics (RRO)	ND		250	1	10/03/2023 06:44	WG2141695
(S) o-Terphenyl	*65.8*		*52.0-156*		*10/03/2023 06:44*	WG2141695

Sample Narrative:

L1658798-06 WG2141695: Sample resembles laboratory standard for Diesel.

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	Batch
	ug/l		ug/l		date / time	
Sulfate	193000		25000	5	09/29/2023 07:07	WG2140929

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	09/29/2023 04:49	WG2141643
(S) a,a,a-Trifluorotoluene(FID)	*94.0*		*78.0-120*		*09/29/2023 04:49*	WG2141643

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	09/28/2023 23:29	WG2141572
Toluene	ND		1.00	1	09/28/2023 23:29	WG2141572
Ethylbenzene	ND		1.00	1	09/28/2023 23:29	WG2141572
Total Xylenes	ND		3.00	1	09/28/2023 23:29	WG2141572
(S) Toluene-d8	*105*		*80.0-120*		*09/28/2023 23:29*	WG2141572
(S) 4-Bromofluorobenzene	*104*		*77.0-126*		*09/28/2023 23:29*	WG2141572
(S) 1,2-Dichloroethane-d4	*93.5*		*70.0-130*		*09/28/2023 23:29*	WG2141572

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Sulfate	528000		25000	5	09/29/2023 07:22	WG2140929

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Lead	3.90		2.00	1	10/08/2023 11:03	WG2138586
Lead,Dissolved	4.11		2.00	1	10/02/2023 16:02	WG2139075

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	622		100	1	09/29/2023 05:13	WG2141643
(S) a,a,a-Trifluorotoluene(FID)	*94.6*		*78.0-120*		*09/29/2023 05:13*	WG2141643

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	09/28/2023 23:48	WG2141572
Toluene	1.89		1.00	1	09/28/2023 23:48	WG2141572
Ethylbenzene	9.53		1.00	1	09/28/2023 23:48	WG2141572
Total Xylenes	6.97		3.00	1	09/28/2023 23:48	WG2141572
(S) Toluene-d8	*104*		*80.0-120*		*09/28/2023 23:48*	WG2141572
(S) 4-Bromofluorobenzene	*110*		*77.0-126*		*09/28/2023 23:48*	WG2141572
(S) 1,2-Dichloroethane-d4	*90.6*		*70.0-130*		*09/28/2023 23:48*	WG2141572

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	248		100	1	09/29/2023 05:37	WG2141643
(S) a,a,a-Trifluorotoluene(FID)	*94.2*		*78.0-120*		*09/29/2023 05:37*	WG2141643

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	09/29/2023 00:07	WG2141572
Toluene	ND		1.00	1	09/29/2023 00:07	WG2141572
Ethylbenzene	ND		1.00	1	09/29/2023 00:07	WG2141572
Total Xylenes	ND		3.00	1	09/29/2023 00:07	WG2141572
(S) Toluene-d8	*105*		*80.0-120*		*09/29/2023 00:07*	WG2141572
(S) 4-Bromofluorobenzene	*113*		*77.0-126*		*09/29/2023 00:07*	WG2141572
(S) 1,2-Dichloroethane-d4	*96.0*		*70.0-130*		*09/29/2023 00:07*	WG2141572

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	4820		400	2	10/03/2023 07:04	WG2141695
Residual Range Organics (RRO)	ND		500	2	10/03/2023 07:04	WG2141695
(S) o-Terphenyl	*65.8*		*52.0-156*		*10/03/2023 07:04*	WG2141695

Sample Narrative:

L1658798-09 WG2141695: Sample resembles laboratory standard for Diesel.

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/29/2023 04:00	WG2141643
(S) a,a,a-Trifluorotoluene(FID)	*93.0*		*78.0-120*		*09/29/2023 04:00*	WG2141643

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	09/28/2023 21:16	WG2141572
Toluene	ND		1.00	1	09/28/2023 21:16	WG2141572
Ethylbenzene	ND		1.00	1	09/28/2023 21:16	WG2141572
Total Xylenes	ND		3.00	1	09/28/2023 21:16	WG2141572
(S) Toluene-d8	*103*		*80.0-120*		*09/28/2023 21:16*	WG2141572
(S) 4-Bromofluorobenzene	*106*		*77.0-126*		*09/28/2023 21:16*	WG2141572
(S) 1,2-Dichloroethane-d4	*92.4*		*70.0-130*		*09/28/2023 21:16*	WG2141572

QUALITY CONTROL SUMMARY

L1658798-02,03,04,05,07,08

Method Blank (MB)

(MB) R3979666-1 09/29/23 02:31

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Sulfate	U		594	5000

L1658771-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1658771-07 09/29/23 04:12 • (DUP) R3979666-3 09/29/23 04:27

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	ND	ND	1	0.884		15

L1658819-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1658819-02 09/29/23 07:54 • (DUP) R3979666-6 09/29/23 08:10

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	82800	82800	1	0.0129		15

Laboratory Control Sample (LCS)

(LCS) R3979666-2 09/29/23 02:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	40000	39800	99.5	80.0-120	

L1658771-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658771-07 09/29/23 04:12 • (MS) R3979666-4 09/29/23 04:43 • (MSD) R3979666-5 09/29/23 04:59

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 %
Sulfate	40000	ND	41800	42100	94.6	95.3	1	80.0-120			0.725	15

L1658819-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1658819-03 09/29/23 08:58 • (MS) R3979666-7 09/29/23 09:14

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Sulfate	40000	39400	69300	74.9	1	80.0-120	J6

Method Blank (MB)

(MB) R3983424-1 10/08/23 10:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Lead	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3983424-2 10/08/23 10:37

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Lead	50.0	54.7	109	80.0-120	

L1658771-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658771-13 10/08/23 10:40 • (MS) R3983424-4 10/08/23 10:47 • (MSD) R3983424-5 10/08/23 10:50

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	%	%		%			%	%
Lead	50.0	3.26	55.2	56.2	104	106	1	75.0-125			1.94	20

Method Blank (MB)

(MB) R3980709-1 10/02/23 13:02

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead,Dissolved	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3980709-2 10/02/23 13:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	50.0	49.5	98.9	80.0-120	

L1658798-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1658798-01 10/02/23 13:09 • (MS) R3980709-4 10/02/23 13:16 • (MSD) R3980709-5 10/02/23 13:19

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	6.98	56.5	54.6	99.1	95.3	1	75.0-125			3.46	20

Method Blank (MB)

(MB) R3980758-3 09/28/23 21:28

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)	*94.2*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3980758-1 09/28/23 19:33

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	6290	114	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*97.4*	*78.0-120*	

Method Blank (MB)

(MB) R3979819-2 09/29/23 03:35

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)	*94.0*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3979819-1 09/29/23 02:46

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	6000	109	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*97.7*	*78.0-120*	

Method Blank (MB)

(MB) R3980578-3 09/28/23 20:13

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*109*			*80.0-120*
(S) 4-Bromofluorobenzene	*104*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*86.8*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3980578-1 09/28/23 18:39 • (LCSD) R3980578-2 09/28/23 18:58

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	5.11	4.98	102	99.6	70.0-123			2.58	20
Toluene	5.00	5.42	5.27	108	105	79.0-120			2.81	20
Ethylbenzene	5.00	5.83	5.76	117	115	79.0-123			1.21	20
Total Xylenes	15.0	18.0	17.8	120	119	79.0-123			1.12	20
(S) Toluene-d8				*107*	*104*	*80.0-120*				
(S) 4-Bromofluorobenzene				*107*	*106*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*91.9*	*92.5*	*70.0-130*				

Method Blank (MB)

(MB) R3981243-3 10/02/23 15:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylbenzene	U		0.384	1.00
(S) Toluene-d8	*108*			*80.0-120*
(S) 4-Bromofluorobenzene	*83.6*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*125*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3981243-1 10/02/23 14:21 • (LCSD) R3981243-2 10/02/23 14:42

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 %
Ethylbenzene	5.00	4.26	4.31	85.2	86.2	79.0-123			1.17	20
(S) Toluene-d8				*105*	*104*	*80.0-120*				
(S) 4-Bromofluorobenzene				*87.0*	*87.6*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*116*	*118*	*70.0-130*				

Method Blank (MB)

(MB) R3980778-1 10/03/23 03:28

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
(S) o-Terphenyl	*58.5*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3980778-2 10/03/23 03:47 • (LCSD) R3980778-3 10/03/23 04:07

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	1130	1120	75.3	74.7	50.0-150			0.889	20
(S) o-Terphenyl				*62.0*	*65.0*	*52.0-156*				

GLOSSARY OF TERMS

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.

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

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* 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 Analytical.

Company Name/Address: **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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected: SEATTLE, WA

Please Circle: (PT) MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): ROBERTO PIEMONTESE

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: STD TAT

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of cntrs	*Nitrate 125mlHDPE-NoPres	FF Diss Lead 6020 250mlHDPE HNO3	Ferrous Iron 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX,BTEX 8260 40mlAmb-HCl	SULFIDE 250mlAmb-S-NaOH+ZnAc	Sulfate 125mlHDPE-NoPres	Total Lead 6020 250mlHDPE-HNO3	Total RCRA8 Metals 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-8	G	GW		9/21/23	14:24	10		X			X	X			X			-01
12	G	GW		9/21/23	9:47	11		X			X	X		X	X			-02
MW-7	G	GW		9/21/23	10:37	9		X				X		X	X			-03
TMW-4	G	GW		9/21/23	12:26	7						X		X				-04
TMW-3	G	GW		9/21/23	11:47	7						X		X				-05
MW-21	G	GW		9/21/23	15:16	8					X	X						-06
11	G	GW		9/21/23	13:05	7						X		X				-07
DUP-1	G	GW		9/21/23	—	9		X				X		X	X			-08
DUP-2	G	GW		9/21/23	—	8					X	X						-09
TRIP BLANK	G	GW		—	—	2						X						-10

Chain of Custody Page 1 of 1

Pace — PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 658798

D197

Acctnum: **KINMOROCA**

Template: **T236436**

Prelogin: **P1018992**

PM: **110 - Brian Ford**

PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking # 642683039823

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	09/21/23	17:35		2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 0.7 °C Bottles Received:	
			4.7+0=4.7 corrected	75	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF / OK
			Alexa Mitchell	9/22/23 0900	

ANALYTICAL REPORT

October 12, 2023

Kinder Morgan- Houston, TX

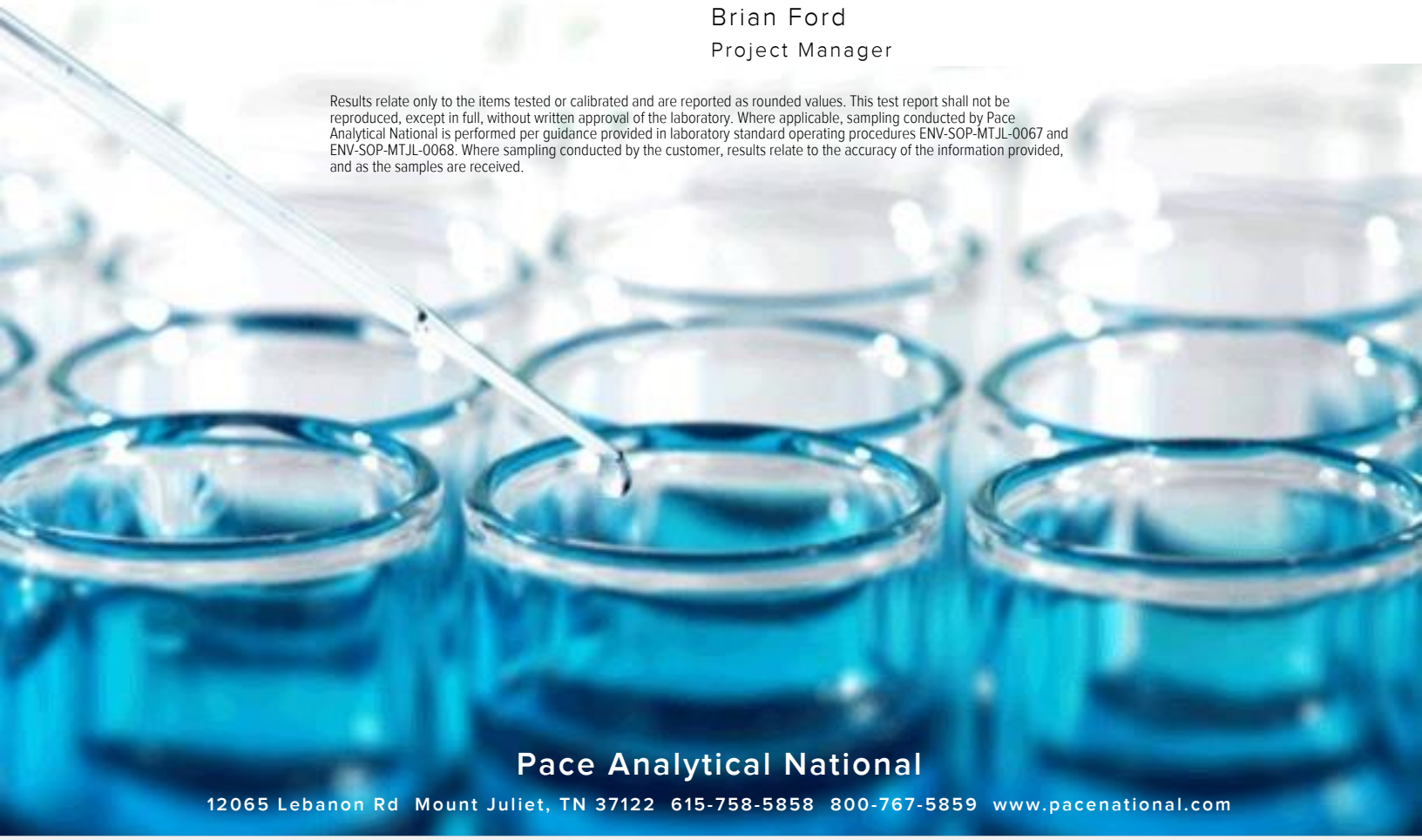
Sample Delivery Group:	L1659629
Samples Received:	09/26/2023
Project Number:	30157380.02
Description:	KMEP Harbor Island
Site:	2720 13TH AVENUE SW SEATTLE,WA
Report To:	Kyle Haslam 1100 Olive Way, Suite 800 Seattle, WA 98101

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.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

DRUM-1 L1659629-01 GW

Collected by: RP/CW
Collected date/time: 09/22/23 15:15
Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Mercury by Method 7470A	WG2141290	1	09/29/23 23:33	10/01/23 13:07	AKB	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2140631	1	10/01/23 22:27	10/11/23 17:06	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142277	1	09/30/23 19:12	09/30/23 19:12	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142241	1	09/30/23 04:31	09/30/23 04:31	JBE	Mt. Juliet, TN

TRIP BLANK L1659629-02 GW

Collected by: RP/CW
Collected date/time: 09/22/23 00:00
Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142277	1	09/30/23 20:19	09/30/23 20:19	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142241	1	09/30/23 01:54	09/30/23 01:54	JBE	Mt. Juliet, TN

CASE NARRATIVE

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

Mercury by Method 7470A

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Mercury	ND		0.200	1	10/01/2023 13:07	WG2141290

Metals (ICPMS) by Method 6020B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Arsenic	18.8		2.00	1	10/11/2023 17:06	WG2140631
Barium	13.4		2.00	1	10/11/2023 17:06	WG2140631
Cadmium	ND		1.00	1	10/11/2023 17:06	WG2140631
Chromium	ND		2.00	1	10/11/2023 17:06	WG2140631
Lead	ND		2.00	1	10/11/2023 17:06	WG2140631
Selenium	ND		2.00	1	10/11/2023 17:06	WG2140631
Silver	ND		2.00	1	10/11/2023 17:06	WG2140631

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	208		100	1	09/30/2023 19:12	WG2142277
(S) a,a,a-Trifluorotoluene(FID)	*90.0*		*78.0-120*		*09/30/2023 19:12*	WG2142277

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Benzene	2.44		1.00	1	09/30/2023 04:31	WG2142241
Toluene	ND		1.00	1	09/30/2023 04:31	WG2142241
Ethylbenzene	ND		1.00	1	09/30/2023 04:31	WG2142241
Total Xylenes	ND		3.00	1	09/30/2023 04:31	WG2142241
(S) Toluene-d8	*91.9*		*80.0-120*		*09/30/2023 04:31*	WG2142241
(S) 4-Bromofluorobenzene	*98.8*		*77.0-126*		*09/30/2023 04:31*	WG2142241
(S) 1,2-Dichloroethane-d4	*128*		*70.0-130*		*09/30/2023 04:31*	WG2142241

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/30/2023 20:19	WG2142277
(S) a,a,a-Trifluorotoluene(FID)	*91.1*		*78.0-120*		*09/30/2023 20:19*	WG2142277

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	09/30/2023 01:54	WG2142241
Toluene	ND		1.00	1	09/30/2023 01:54	WG2142241
Ethylbenzene	ND		1.00	1	09/30/2023 01:54	WG2142241
Total Xylenes	ND		3.00	1	09/30/2023 01:54	WG2142241
(S) Toluene-d8	*93.3*		*80.0-120*		*09/30/2023 01:54*	WG2142241
(S) 4-Bromofluorobenzene	*90.1*		*77.0-126*		*09/30/2023 01:54*	WG2142241
(S) 1,2-Dichloroethane-d4	*120*		*70.0-130*		*09/30/2023 01:54*	WG2142241

Method Blank (MB)

(MB) R3980130-1 10/01/23 12:26

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.100	0.200

Laboratory Control Sample (LCS)

(LCS) R3980130-2 10/01/23 12:28

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	3.00	3.03	101	80.0-120	

L1659545-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659545-02 10/01/23 12:31 • (MS) R3980130-3 10/01/23 12:33 • (MSD) R3980130-4 10/01/23 12:36

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	1.20	4.23	4.11	101	97.0	1	75.0-125			2.91	20

QUALITY CONTROL SUMMARY

L1659629-01

Method Blank (MB)

(MB) R3984956-1 10/11/23 15:16

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Arsenic	U		0.180	2.00
Barium	U		0.381	2.00
Cadmium	U		0.150	1.00
Chromium	U		1.24	2.00
Lead	U		0.849	2.00
Selenium	U		0.300	2.00
Silver	U		0.0700	2.00

Laboratory Control Sample (LCS)

(LCS) R3984956-2 10/11/23 15:20

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	50.0	56.3	113	80.0-120	
Barium	50.0	50.4	101	80.0-120	
Cadmium	50.0	52.8	106	80.0-120	
Chromium	50.0	55.8	112	80.0-120	
Lead	50.0	52.6	105	80.0-120	
Selenium	50.0	54.2	108	80.0-120	
Silver	50.0	55.6	111	80.0-120	

L1659545-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659545-02 10/11/23 15:23 • (MS) R3984956-4 10/11/23 15:30 • (MSD) R3984956-5 10/11/23 15:33

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 %
Arsenic	50.0	ND	53.4	54.0	106	107	1	75.0-125			0.983	20
Barium	50.0	316	366	437	101	242	1	75.0-125	E	E V	17.6	20
Cadmium	50.0	ND	53.3	54.3	105	107	1	75.0-125			1.94	20
Chromium	50.0	3.12	54.7	53.7	103	101	1	75.0-125			1.85	20
Lead	50.0	ND	53.0	53.3	106	107	1	75.0-125			0.577	20
Selenium	50.0	ND	60.9	56.9	119	111	1	75.0-125			6.86	20
Silver	50.0	ND	54.8	56.3	108	111	1	75.0-125			2.71	20

Method Blank (MB)

(MB) R3980727-2 09/30/23 11:44

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)	*91.8*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3980727-1 09/30/23 10:35

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5810	106	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*100*	*78.0-120*	

L1659179-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659179-03 09/30/23 20:42 • (MS) R3980727-3 09/30/23 21:47 • (MSD) R3980727-4 09/30/23 22:09

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	110000	4520	113000	142000	98.6	125	20	10.0-155		J3	22.7	21
(S) a,a,a-Trifluorotoluene(FID)					*94.5*	*97.2*		*78.0-120*				

Sample Narrative:

OS: Lowest possible dilution due to sample foaming.

Method Blank (MB)

(MB) R3981222-3 09/30/23 01:34

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*96.3*			*80.0-120*
(S) 4-Bromofluorobenzene	*95.8*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*121*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3981222-1 09/30/23 00:35 • (LCSD) R3981222-2 09/30/23 00:55

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	5.11	4.75	102	95.0	70.0-123			7.30	20
Toluene	5.00	4.57	4.38	91.4	87.6	79.0-120			4.25	20
Ethylbenzene	5.00	4.51	4.31	90.2	86.2	79.0-123			4.54	20
Total Xylenes	15.0	13.3	12.8	88.7	85.3	79.0-123			3.83	20
(S) Toluene-d8				*92.4*	*92.9*	*80.0-120*				
(S) 4-Bromofluorobenzene				*96.6*	*93.4*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*116*	*116*	*70.0-130*				

GLOSSARY OF TERMS

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.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* 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 Analytical.

Company Name/Address:
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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected: Seattle, WA

Please Circle: PT MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): ROBERTO PIEMONTESE, CARLIN WONG

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: STD TAT

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	FF Diss Lead 6020 250mlHDPE HNO3	Ferrous Iron 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX,BTEX 8260 40mlAmb-HCl	SULFIDE 250mlAmb-S-NaOH+ZnAc	Sulfate 125mlHDPE-NoPres	Total Lead 6020 250mlHDPE-HNO3	Total RCRA8 Metals 250mlHDPE-HNO3	Remarks	Sample # (lab only)
DRUM-1	C	GW		09/22/23	15:15	7						X				X		-01
FWD TRIP BLANK	—	GW		—	—	2						X						-02
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 659629
D028

Acctnum: **KINMOROCA**
Template: **T236436**
Prelogin: **P1018992**
PM: **110 - Brian Ford**
PB:
Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 642683038812

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	9/25/2023	1100		2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: LAB °C Bottles Received:	
				4.1+0=4.1 7	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF / OK
			Aleta Mitchell	9/26/23 0900	

ANALYTICAL REPORT

October 06, 2023

Kinder Morgan- Houston, TX

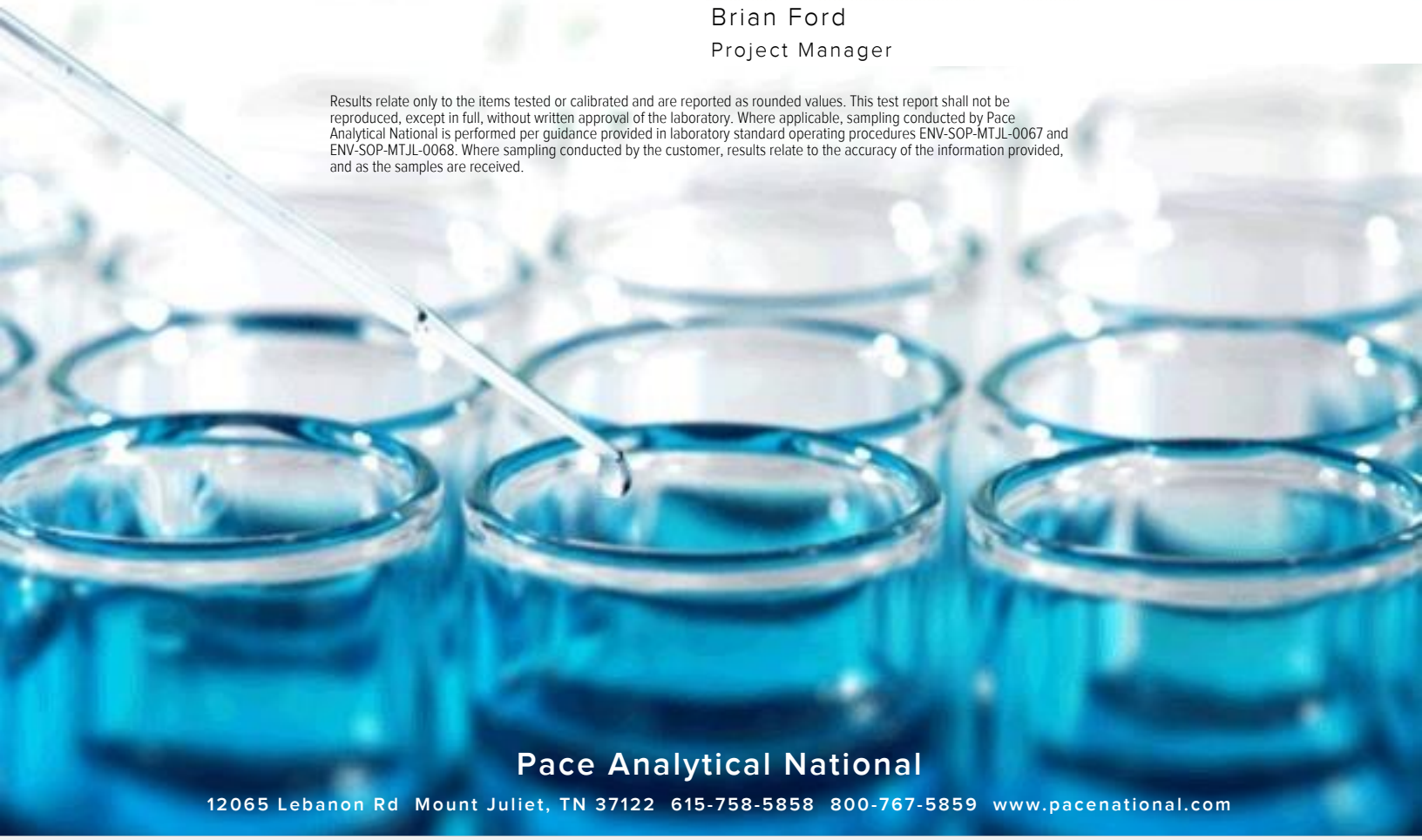
Sample Delivery Group:	L1659770
Samples Received:	09/26/2023
Project Number:	30157380.02
Description:	KMEP Harbor Island
Site:	2720 13TH AVENUE SW SEATTLE,WA
Report To:	Kyle Haslam 1100 Olive Way, Suite 800 Seattle, WA 98101

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.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-6 L1659770-01 GW

Collected by: RP/CW | Collected date/time: 09/22/23 12:40 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2142448	1	10/03/23 11:27	10/03/23 17:17	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2144999	1	10/05/23 01:31	10/05/23 11:30	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2144393	1	10/04/23 16:52	10/04/23 16:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	09/30/23 21:56	09/30/23 21:56	JCP	Mt. Juliet, TN

MW-4 L1659770-02 GW

Collected by: RP/CW | Collected date/time: 09/22/23 13:45 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 11:31	10/01/23 11:31	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	09/30/23 22:19	09/30/23 22:19	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 05:00	MAA	Mt. Juliet, TN

MW-07R L1659770-03 GW

Collected by: RP/CW | Collected date/time: 09/22/23 12:17 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2142448	1	10/03/23 11:27	10/03/23 17:20	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2144999	1	10/05/23 01:31	10/05/23 11:34	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 11:50	10/01/23 11:50	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	09/30/23 22:41	09/30/23 22:41	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 05:20	MAA	Mt. Juliet, TN

MW-12R L1659770-04 GW

Collected by: RP/CW | Collected date/time: 09/22/23 13:04 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2142448	1	10/03/23 11:27	10/03/23 17:23	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2144999	1	10/05/23 01:31	10/05/23 11:37	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	10	10/01/23 16:38	10/01/23 16:38	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	09/30/23 23:02	09/30/23 23:02	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 05:39	MAA	Mt. Juliet, TN

MW-16 L1659770-05 GW

Collected by: RP/CW | Collected date/time: 09/22/23 11:30 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 12:10	10/01/23 12:10	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	09/30/23 23:24	09/30/23 23:24	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 05:59	MAA	Mt. Juliet, TN

SH-02R L1659770-06 GW

Collected by: RP/CW | Collected date/time: 09/22/23 14:20 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2142448	1	10/03/23 11:27	10/03/23 17:26	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2144999	1	10/05/23 01:31	10/05/23 11:40	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 12:32	10/01/23 12:32	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	09/30/23 23:45	09/30/23 23:45	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 06:19	MAA	Mt. Juliet, TN

A-14R L1659770-07 GW

Collected by: RP/CW | Collected date/time: 09/22/23 09:15 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2142448	1	10/03/23 11:27	10/03/23 17:51	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2144999	1	10/05/23 01:31	10/05/23 12:02	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 13:18	10/01/23 13:18	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	10/01/23 00:07	10/01/23 00:07	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 06:38	MAA	Mt. Juliet, TN

MW-1 L1659770-08 GW

Collected by: RP/CW | Collected date/time: 09/22/23 14:15 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2142448	1	10/03/23 11:27	10/03/23 17:54	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2144999	1	10/05/23 01:31	10/05/23 12:06	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 13:38	10/01/23 13:38	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	10/01/23 00:29	10/01/23 00:29	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 06:58	MAA	Mt. Juliet, TN

SH-05R L1659770-09 GW

Collected by: RP/CW | Collected date/time: 09/22/23 11:05 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICPMS) by Method 6020B	WG2142448	1	10/03/23 11:27	10/03/23 17:03	LD	Mt. Juliet, TN
Metals (ICPMS) by Method 6020B	WG2144999	1	10/05/23 01:31	10/05/23 11:17	JPD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 15:40	10/01/23 15:40	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	10/01/23 00:50	10/01/23 00:50	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 07:18	MAA	Mt. Juliet, TN

A-10 L1659770-10 GW

Collected by: RP/CW | Collected date/time: 09/22/23 10:15 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 15:59	10/01/23 15:59	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	10/01/23 01:12	10/01/23 01:12	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2143030	1	10/03/23 17:22	10/04/23 07:37	MAA	Mt. Juliet, TN

A-8 L1659770-11 GW

Collected by: RP/CW | Collected date/time: 09/22/23 09:37 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	10	10/01/23 16:57	10/01/23 16:57	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	10/01/23 01:34	10/01/23 01:34	JCP	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT	WG2145324	1	10/05/23 08:40	10/06/23 01:18	MAA	Mt. Juliet, TN

A-5 L1659770-12 GW

Collected by: RP/CW | Collected date/time: 09/22/23 09:04 | Received date/time: 09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	10	10/01/23 17:16	10/01/23 17:16	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	10/01/23 01:56	10/01/23 01:56	JCP	Mt. Juliet, TN

TRIP BLANK L1659770-13 GW

Collected by	Collected date/time	Received date/time
RP/CW	09/22/23 00:00	09/26/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG2142582	1	10/01/23 08:50	10/01/23 08:50	NCD	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2142383	1	09/30/23 21:12	09/30/23 21:12	JCP	Mt. Juliet, TN

CASE NARRATIVE

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

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	10/05/2023 11:30	WG2144999
Lead,Dissolved	ND		2.00	1	10/03/2023 17:17	WG2142448

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	229	B	100	1	10/04/2023 16:52	WG2144393
(S) a,a,a-Trifluorotoluene(FID)	*107*		*78.0-120*		*10/04/2023 16:52*	WG2144393

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	09/30/2023 21:56	WG2142383
Toluene	ND		1.00	1	09/30/2023 21:56	WG2142383
Ethylbenzene	ND		1.00	1	09/30/2023 21:56	WG2142383
Total Xylenes	ND		3.00	1	09/30/2023 21:56	WG2142383
(S) Toluene-d8	*114*		*80.0-120*		*09/30/2023 21:56*	WG2142383
(S) 4-Bromofluorobenzene	*95.4*		*77.0-126*		*09/30/2023 21:56*	WG2142383
(S) 1,2-Dichloroethane-d4	*93.9*		*70.0-130*		*09/30/2023 21:56*	WG2142383

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	150		100	1	10/01/2023 11:31	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*78.0-120*		*10/01/2023 11:31*	WG2142582

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	09/30/2023 22:19	WG2142383
Toluene	ND		1.00	1	09/30/2023 22:19	WG2142383
Ethylbenzene	ND		1.00	1	09/30/2023 22:19	WG2142383
Total Xylenes	ND		3.00	1	09/30/2023 22:19	WG2142383
(S) Toluene-d8	*110*		*80.0-120*		*09/30/2023 22:19*	WG2142383
(S) 4-Bromofluorobenzene	*93.0*		*77.0-126*		*09/30/2023 22:19*	WG2142383
(S) 1,2-Dichloroethane-d4	*96.8*		*70.0-130*		*09/30/2023 22:19*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	1000		200	1	10/04/2023 05:00	WG2143030
Residual Range Organics (RRO)	1900		250	1	10/04/2023 05:00	WG2143030
(S) o-Terphenyl	*62.5*		*52.0-156*		*10/04/2023 05:00*	WG2143030

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	10/05/2023 11:34	WG2144999
Lead,Dissolved	ND		2.00	1	10/03/2023 17:20	WG2142448

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 11:50	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*97.2*		*78.0-120*		*10/01/2023 11:50*	WG2142582

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	09/30/2023 22:41	WG2142383
Toluene	ND		1.00	1	09/30/2023 22:41	WG2142383
Ethylbenzene	ND		1.00	1	09/30/2023 22:41	WG2142383
Total Xylenes	ND		3.00	1	09/30/2023 22:41	WG2142383
(S) Toluene-d8	*113*		*80.0-120*		*09/30/2023 22:41*	WG2142383
(S) 4-Bromofluorobenzene	*93.5*		*77.0-126*		*09/30/2023 22:41*	WG2142383
(S) 1,2-Dichloroethane-d4	*96.6*		*70.0-130*		*09/30/2023 22:41*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/04/2023 05:20	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 05:20	WG2143030
(S) o-Terphenyl	*55.0*		*52.0-156*		*10/04/2023 05:20*	WG2143030

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	10/05/2023 11:37	WG2144999
Lead,Dissolved	ND		2.00	1	10/03/2023 17:23	WG2142448

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		1000	10	10/01/2023 16:38	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*99.3*		*78.0-120*		*10/01/2023 16:38*	WG2142582

Sample Narrative:

L1659770-04 WG2142582: Elevated RL due to foamy matrix.

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	09/30/2023 23:02	WG2142383
Toluene	ND		1.00	1	09/30/2023 23:02	WG2142383
Ethylbenzene	ND		1.00	1	09/30/2023 23:02	WG2142383
Total Xylenes	ND		3.00	1	09/30/2023 23:02	WG2142383
(S) Toluene-d8	*113*		*80.0-120*		*09/30/2023 23:02*	WG2142383
(S) 4-Bromofluorobenzene	*97.4*		*77.0-126*		*09/30/2023 23:02*	WG2142383
(S) 1,2-Dichloroethane-d4	*95.6*		*70.0-130*		*09/30/2023 23:02*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/04/2023 05:39	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 05:39	WG2143030
(S) o-Terphenyl	*62.0*		*52.0-156*		*10/04/2023 05:39*	WG2143030

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 12:10	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*98.6*		*78.0-120*		*10/01/2023 12:10*	WG2142582

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	09/30/2023 23:24	WG2142383
Toluene	ND		1.00	1	09/30/2023 23:24	WG2142383
Ethylbenzene	ND		1.00	1	09/30/2023 23:24	WG2142383
Total Xylenes	ND		3.00	1	09/30/2023 23:24	WG2142383
(S) Toluene-d8	*114*		*80.0-120*		*09/30/2023 23:24*	WG2142383
(S) 4-Bromofluorobenzene	*92.6*		*77.0-126*		*09/30/2023 23:24*	WG2142383
(S) 1,2-Dichloroethane-d4	*93.9*		*70.0-130*		*09/30/2023 23:24*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/04/2023 05:59	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 05:59	WG2143030
(S) o-Terphenyl	*60.0*		*52.0-156*		*10/04/2023 05:59*	WG2143030

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	10/05/2023 11:40	WG2144999
Lead,Dissolved	ND		2.00	1	10/03/2023 17:26	WG2142448

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 12:32	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*98.4*		*78.0-120*		*10/01/2023 12:32*	WG2142582

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	09/30/2023 23:45	WG2142383
Toluene	ND		1.00	1	09/30/2023 23:45	WG2142383
Ethylbenzene	ND		1.00	1	09/30/2023 23:45	WG2142383
Total Xylenes	ND		3.00	1	09/30/2023 23:45	WG2142383
(S) Toluene-d8	*113*		*80.0-120*		*09/30/2023 23:45*	WG2142383
(S) 4-Bromofluorobenzene	*93.8*		*77.0-126*		*09/30/2023 23:45*	WG2142383
(S) 1,2-Dichloroethane-d4	*96.1*		*70.0-130*		*09/30/2023 23:45*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/04/2023 06:19	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 06:19	WG2143030
(S) o-Terphenyl	*59.0*		*52.0-156*		*10/04/2023 06:19*	WG2143030

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	10/05/2023 12:02	WG2144999
Lead,Dissolved	ND		2.00	1	10/03/2023 17:51	WG2142448

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 13:18	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*100*		*78.0-120*		*10/01/2023 13:18*	WG2142582

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	10/01/2023 00:07	WG2142383
Toluene	ND		1.00	1	10/01/2023 00:07	WG2142383
Ethylbenzene	ND		1.00	1	10/01/2023 00:07	WG2142383
Total Xylenes	ND		3.00	1	10/01/2023 00:07	WG2142383
(S) Toluene-d8	*114*		*80.0-120*		*10/01/2023 00:07*	WG2142383
(S) 4-Bromofluorobenzene	*90.9*		*77.0-126*		*10/01/2023 00:07*	WG2142383
(S) 1,2-Dichloroethane-d4	*97.8*		*70.0-130*		*10/01/2023 00:07*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/04/2023 06:38	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 06:38	WG2143030
(S) o-Terphenyl	*60.0*		*52.0-156*		*10/04/2023 06:38*	WG2143030

Metals (ICPMS) by Method 6020B

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	10/05/2023 12:06	WG2144999
Lead,Dissolved	ND		2.00	1	10/03/2023 17:54	WG2142448

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 13:38	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*98.9*		*78.0-120*		*10/01/2023 13:38*	WG2142582

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	10/01/2023 00:29	WG2142383
Toluene	ND		1.00	1	10/01/2023 00:29	WG2142383
Ethylbenzene	ND		1.00	1	10/01/2023 00:29	WG2142383
Total Xylenes	ND		3.00	1	10/01/2023 00:29	WG2142383
(S) Toluene-d8	*116*		*80.0-120*		*10/01/2023 00:29*	WG2142383
(S) 4-Bromofluorobenzene	*93.6*		*77.0-126*		*10/01/2023 00:29*	WG2142383
(S) 1,2-Dichloroethane-d4	*98.9*		*70.0-130*		*10/01/2023 00:29*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	ND		200	1	10/04/2023 06:58	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 06:58	WG2143030
(S) o-Terphenyl	*59.5*		*52.0-156*		*10/04/2023 06:58*	WG2143030

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	ND		2.00	1	10/05/2023 11:17	WG2144999
Lead,Dissolved	ND		2.00	1	10/03/2023 17:03	WG2142448

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 15:40	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*97.8*		*78.0-120*		*10/01/2023 15:40*	WG2142582

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	10/01/2023 00:50	WG2142383
Toluene	ND		1.00	1	10/01/2023 00:50	WG2142383
Ethylbenzene	ND		1.00	1	10/01/2023 00:50	WG2142383
Total Xylenes	ND		3.00	1	10/01/2023 00:50	WG2142383
(S) Toluene-d8	*112*		*80.0-120*		*10/01/2023 00:50*	WG2142383
(S) 4-Bromofluorobenzene	*91.9*		*77.0-126*		*10/01/2023 00:50*	WG2142383
(S) 1,2-Dichloroethane-d4	*97.0*		*70.0-130*		*10/01/2023 00:50*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	247		200	1	10/04/2023 07:18	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 07:18	WG2143030
(S) o-Terphenyl	*58.0*		*52.0-156*		*10/04/2023 07:18*	WG2143030

Sample Narrative:

L1659770-09 WG2143030: Sample does not resemble laboratory standards.

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 15:59	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*96.9*		*78.0-120*		*10/01/2023 15:59*	WG2142582

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	10/01/2023 01:12	WG2142383
Toluene	ND		1.00	1	10/01/2023 01:12	WG2142383
Ethylbenzene	ND		1.00	1	10/01/2023 01:12	WG2142383
Total Xylenes	ND		3.00	1	10/01/2023 01:12	WG2142383
(S) Toluene-d8	*112*		*80.0-120*		*10/01/2023 01:12*	WG2142383
(S) 4-Bromofluorobenzene	*92.0*		*77.0-126*		*10/01/2023 01:12*	WG2142383
(S) 1,2-Dichloroethane-d4	*96.6*		*70.0-130*		*10/01/2023 01:12*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	525		200	1	10/04/2023 07:37	WG2143030
Residual Range Organics (RRO)	ND		250	1	10/04/2023 07:37	WG2143030
(S) o-Terphenyl	*63.5*		*52.0-156*		*10/04/2023 07:37*	WG2143030

Sample Narrative:

L1659770-10 WG2143030: Sample does not resemble laboratory standards.

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		1000	10	10/01/2023 16:57	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*99.6*		*78.0-120*		*10/01/2023 16:57*	WG2142582

Sample Narrative:

L1659770-11 WG2142582: Elevated RL due to foamy matrix.

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	10/01/2023 01:34	WG2142383
Toluene	ND		1.00	1	10/01/2023 01:34	WG2142383
Ethylbenzene	ND		1.00	1	10/01/2023 01:34	WG2142383
Total Xylenes	ND		3.00	1	10/01/2023 01:34	WG2142383
(S) Toluene-d8	*111*		*80.0-120*		*10/01/2023 01:34*	WG2142383
(S) 4-Bromofluorobenzene	*97.2*		*77.0-126*		*10/01/2023 01:34*	WG2142383
(S) 1,2-Dichloroethane-d4	*96.6*		*70.0-130*		*10/01/2023 01:34*	WG2142383

Semi-Volatile Organic Compounds (GC) by Method NWTPHDX-SGT

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Diesel Range Organics (DRO)	1400		200	1	10/06/2023 01:18	WG2145324
Residual Range Organics (RRO)	ND		250	1	10/06/2023 01:18	WG2145324
(S) o-Terphenyl	*88.9*		*52.0-156*		*10/06/2023 01:18*	WG2145324

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		1000	10	10/01/2023 17:16	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*98.4*		*78.0-120*		*10/01/2023 17:16*	WG2142582

Sample Narrative:

L1659770-12 WG2142582: Elevated RL due to foamy matrix.

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	10/01/2023 01:56	WG2142383
Toluene	ND		1.00	1	10/01/2023 01:56	WG2142383
Ethylbenzene	ND		1.00	1	10/01/2023 01:56	WG2142383
Total Xylenes	ND		3.00	1	10/01/2023 01:56	WG2142383
(S) Toluene-d8	*111*		*80.0-120*		*10/01/2023 01:56*	WG2142383
(S) 4-Bromofluorobenzene	*99.8*		*77.0-126*		*10/01/2023 01:56*	WG2142383
(S) 1,2-Dichloroethane-d4	*93.8*		*70.0-130*		*10/01/2023 01:56*	WG2142383

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	10/01/2023 08:50	WG2142582
(S) a,a,a-Trifluorotoluene(FID)	*95.9*		*78.0-120*		*10/01/2023 08:50*	WG2142582

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	09/30/2023 21:12	WG2142383
Toluene	ND		1.00	1	09/30/2023 21:12	WG2142383
Ethylbenzene	ND		1.00	1	09/30/2023 21:12	WG2142383
Total Xylenes	ND		3.00	1	09/30/2023 21:12	WG2142383
(S) Toluene-d8	*112*		*80.0-120*		*09/30/2023 21:12*	WG2142383
(S) 4-Bromofluorobenzene	*90.5*		*77.0-126*		*09/30/2023 21:12*	WG2142383
(S) 1,2-Dichloroethane-d4	*104*		*70.0-130*		*09/30/2023 21:12*	WG2142383

Method Blank (MB)

(MB) R3981342-1 10/03/23 16:57

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead,Dissolved	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3981342-2 10/03/23 17:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead,Dissolved	50.0	50.7	101	80.0-120	

L1659770-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659770-09 10/03/23 17:03 • (MS) R3981342-4 10/03/23 17:10 • (MSD) R3981342-5 10/03/23 17:13

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	49.8	50.6	99.7	101	1	75.0-125			1.61	20

Method Blank (MB)

(MB) R3982316-1 10/05/23 11:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		0.849	2.00

Laboratory Control Sample (LCS)

(LCS) R3982316-2 10/05/23 11:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	50.0	52.3	105	80.0-120	

L1659770-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659770-09 10/05/23 11:17 • (MS) R3982316-4 10/05/23 11:24 • (MSD) R3982316-5 10/05/23 11:27

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	49.7	54.7	99.3	109	1	75.0-125			9.59	20

Method Blank (MB)

(MB) R3981383-2 10/01/23 08:12

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)	*98.8*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3981383-1 10/01/23 02:03

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5050	91.8	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*105*	*78.0-120*	

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3982225-3 10/04/23 13:05

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	73.3	J	31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*108*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3982225-2 10/04/23 12:20

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5370	97.6	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*114*	*78.0-120*	

Method Blank (MB)

(MB) R3981785-3 09/30/23 20:29

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.331	1.00
Toluene	U		0.412	1.00
Ethylbenzene	U		0.384	1.00
Total Xylenes	U		1.06	3.00
(S) Toluene-d8	*114*			*80.0-120*
(S) 4-Bromofluorobenzene	*93.2*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*94.7*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3981785-1 09/30/23 19:22 • (LCSD) R3981785-2 09/30/23 19:44

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	%	%	%			%	%
Benzene	5.00	4.39	4.70	87.8	94.0	70.0-123			6.82	20
Toluene	5.00	4.73	5.10	94.6	102	79.0-120			7.53	20
Ethylbenzene	5.00	4.84	5.22	96.8	104	79.0-123			7.55	20
Total Xylenes	15.0	14.1	15.0	94.0	100	79.0-123			6.19	20
(S) Toluene-d8				*111*	*110*	*80.0-120*				
(S) 4-Bromofluorobenzene				*94.7*	*92.5*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*95.8*	*93.4*	*70.0-130*				

L1659169-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659169-03 09/30/23 21:35 • (MS) R3981785-4 10/01/23 04:28 • (MSD) R3981785-5 10/01/23 04:50

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	4.94	8.79	8.85	77.0	78.2	1	17.0-158			0.680	27
Toluene	5.00	ND	4.27	3.76	85.4	75.2	1	26.0-154			12.7	28
Ethylbenzene	5.00	13.8	23.6	17.9	196	82.0	1	30.0-155	J5	J3	27.5	27
Total Xylenes	15.0	36.2	48.8	47.5	84.0	75.3	1	29.0-154			2.70	28
(S) Toluene-d8					*105*	*107*		*80.0-120*				
(S) 4-Bromofluorobenzene					*89.8*	*89.5*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*93.7*	*95.3*		*70.0-130*				

Method Blank (MB)

(MB) R3981676-4 10/04/23 10:42

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
(S) o-Terphenyl	*52.0*			*52.0-156*

Laboratory Control Sample (LCS)

(LCS) R3981676-1 10/04/23 00:45

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Diesel Range Organics (DRO)	1500	997	66.5	50.0-150	
(S) o-Terphenyl			*61.5*	*52.0-156*	

L1659743-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1659743-10 10/04/23 02:43 • (MS) R3981676-2 10/04/23 03:02 • (MSD) R3981676-3 10/04/23 03:22

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 %
Diesel Range Organics (DRO)	1500	ND	506	609	33.7	40.6	1	50.0-150	J6	J6	18.5	20
(S) o-Terphenyl					*28.6*	*34.4*		*52.0-156*	J2	J2		

Sample Narrative:

OS: Sample produced emulsion during Extraction process, low surr/spike recoveries due to matrix.

Method Blank (MB)

(MB) R3982833-3 10/05/23 23:07

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
(S) o-Terphenyl	*58.0*			*52.0-156*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3982833-2 10/05/23 22:47 • (LCSD) R3982833-1 10/05/23 22:27

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	1450	1420	96.7	94.7	50.0-150			2.09	20
(S) o-Terphenyl				*114*	*111*	*52.0-156*				

GLOSSARY OF TERMS

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.

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.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch 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.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	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	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* 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 Analytical.

Company Name/Address:
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;Matt.Annis@arcadis.**

Project Description: **KMEP Harbor Island**

City/State Collected: Seattle, WA

Please Circle: (PT) MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): ROBERT W PIEMONTESE, CARLIN WONG

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: STD TAT

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	FF Diss Lead 6020 250mlHDPE HNO3	Ferrous Iron 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX,BTEX 8260 40mlAmb-HCl	SULFIDE 250mlAmb-S-NaOH+ZnAc	Sulfate 125mlHDPE-NoPres	Total Lead 6020 250mlHDPE-HNO3	Total RCRA8 Metals 250mlHDPE-HNO3	Remarks	Sample # (lab only)
MW-6	G	GW		9/22/23	12:40	8		X				X			X			-01
MW-4	G	GW		9/22/23	13:45	8					X	X						-02
MW-07R	G	GW		9/22/23	12:7	10		X			X	X			X			-03
MW-12R	G	GW		9/22/23	13:04	10		X			X	X			X			-04
MW-16	G	GW		9/22/23	11:30	8					X	X						-05
SH-02R	G	GW		9/22/23	14:20	10		X			X	X			X			-06
A-14R	G	GW		9/22/23	9:15	10		X			X	X			X			-07
MW-1	G	GW		9/22/23	14:15	10		X			X	X			X			-08
SH-05R	G	GW		9/22/23	11:05	10		X			X	X			X			-09
A-10	G	GW		9/22/23	10:15	8					X	X						-10

Chain of Custody Page 1 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1659770

Table B119

Acctnum: **KINMOROCA**
Template: **T236436**
Prelogin: **P1018992**
PM: **110 - Brian Ford**
PB:
Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 6337 2250 8998

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: (Yes) / No HCl / MeoH TBR	If applicable
	9/25/2023	1100		2	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp 4.4 °C Bottles Received: 10	If preservation required by Login: Date/Time
				5.8+0=5.4	CR6-20221V
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9.26.23 Time: 9:00	Hold: Condition: NCF / (OK)
			10		

Company Name/Address:
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;Matt.Annis@arcadis.**

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City/State Collected: Seattle, WA

Please Circle: (PT) MT CT ET

Phone: **206-726-4713**

Client Project # **30157380.02**

Lab Project # **KINMOROCA-HARBORISLA**

Collected by (print): ROBERTO PIEMONTESE, CARLIN WONG

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: STD TAT

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	*Nitrate 125mlHDPE-NoPres	FF Diss Lead 6020 250mlHDPE HNO3	Ferrous Iron 250mlAmb-HCl	Methane RSK175 40mlAmb HCl	NWTPHDX w/ silica 40mlAmb-HCl-BT	NWTPHGX,BTEX 8260 40mlAmb-HCl	SULFIDE 250mlAmb-S-NaOH+ZnAc	Sulfate 125mlHDPE-NoPres	Total Lead 6020 250mlHDPE-HNO3	Total RCRA8 Metals 250mlHDPE-HNO3	Remarks	Sample # (lab only)
A-8	G	GW		9/22/23	9:37	8					X	X						-11
A-5	G	GW		9/22/23	9:04	6						X						-12
TRIP BLANK	—	GW		—	—	2						X						-13
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																
		GW																

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
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SDG # L1659770

Table #

Acctnum: **KINMOROCA**
Template: **T236436**
Prelogin: **P1018992**
PM: **110 - Brian Ford**
PB:

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:*Nitrate has a 48 hour holding time.

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

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)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
	9/25/2023	1100			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9.26.23 Time: 9:00	Hold: / Condition: NCF / OK

Appendix D

Historical Groundwater Elevation Data

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (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	3.20	
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

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-4	04/12/21	13.22	6.89	--	6.33	
A-4	10/11/21	13.22	7.28	--	5.94	
A-4	04/18/22	13.22	6.73	--	6.49	
A-4	09/19/22	13.22	7.02	--	6.20	
A-4	03/01/23	13.22	6.46	--	6.76	
A-4	09/19/23	13.22	7.19	--	6.03	
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	

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Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-5	04/12/21	14.13	7.64	--	6.49	
A-5	10/11/21	14.13	8.06	--	6.07	
A-5	04/18/22	14.13	7.52	--	6.61	
A-5	09/19/22	14.13	7.81	--	6.32	
A-5	03/01/23	14.13	6.29	--	7.84	
A-5	09/19/23	14.13	7.93	--	6.20	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-6	04/12/21	12.81	6.65	0.03	6.18	
A-6	10/11/21	12.81	7.07	0.01	5.75	
A-6	04/18/22	12.81	6.33	--	6.48	
A-6	09/20/22	12.81	6.81	--	6.00	
A-6	12/07/22	12.81	6.39	--	6.42	Absorbent sock placed in well
A-6	03/01/23	12.81	7.32	--	5.49	
A-6	09/19/23	12.81	6.87	--	5.94	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	--	7.20	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-8	04/12/21	14.61	7.77	--	6.84	
A-8	10/11/21	14.61	8.22	--	6.39	
A-8	04/18/22	14.61	7.54	--	7.07	
A-8	09/19/22	14.61	8.95	--	5.66	
A-8	03/01/23	14.61	7.46	--	7.15	
A-8	09/19/23	14.61	8.02	--	6.59	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-10	04/12/21	13.51	6.74	--	6.77	
A-10	10/11/21	13.51	7.19	--	6.32	
A-10	04/18/22	13.51	6.70	--	6.81	
A-10	09/19/22	13.51	7.10	--	6.41	
A-10	03/01/23	13.51	6.47	--	7.04	
A-10	09/19/23	13.51	7.08	--	6.43	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-11	04/12/21	14.40	7.57	--	6.83	
A-11	10/11/21	14.40	8.07	--	6.33	
A-11	04/18/22	14.40	7.50	--	6.90	
A-11	09/19/22	14.40	7.85	--	6.55	
A-11	03/01/23	14.40	--	--	--	
A-11	09/19/23	14.40	--	--	--	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-12	04/12/21	12.95	6.43	--	6.52	
A-12	10/11/21	12.95	6.83	--	6.12	
A-12	04/18/22	12.95	12.26	--	0.69	
A-12	09/19/22	12.95	6.60	--	6.35	
A-12	03/01/23	12.95	6.12	--	6.83	
A-12	09/19/23	12.95	6.70	--	6.25	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-14R	04/12/21	14.21	7.50	--	6.71	
A-14R	10/11/21	14.21	7.93	--	6.28	
A-14R	04/18/22	14.21	7.44	--	6.77	
A-14R	09/19/22	14.21	8.74	--	5.47	
A-14R	03/01/23	14.21	7.22	--	6.99	
A-14R	09/19/23	14.21	7.80	--	6.41	
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	1.90	
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	5.60	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-16	04/12/21	14.39	7.76	--	6.63	
A-16	10/11/21	14.39	8.22	0.01	6.18	
A-16	04/18/22	14.39	7.69	--	6.70	
A-16	09/20/22	14.39	8.05	--	6.34	
A-16	12/07/22	14.39	7.71	--	6.68	
A-16	03/01/23	14.39	7.51	--	6.88	
A-16	09/19/23	14.39	8.12	0.07	6.33	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	7.70	--	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-18	04/12/21	14.74	7.91	--	6.83	
A-18	10/11/21	14.74	8.36	--	6.38	
A-18	04/18/22	14.74	7.87	--	6.87	
A-18	09/19/22	14.74	8.18	--	6.56	
A-18	03/01/23	14.74	7.67	--	7.07	
A-18	09/19/23	14.74	8.22	--	6.52	
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	

Appendix D
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Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-19	04/12/21	14.57	7.89	--	6.68	
A-19	10/11/21	14.57	8.30	--	6.27	
A-19	04/18/22	14.57	7.80	--	6.77	
A-19	09/19/22	14.57	8.10	--	6.47	
A-19	03/01/23	14.57	7.64	--	6.93	
A-19	09/19/23	14.57	8.21	--	6.36	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
A-20	03/25/20	14.19	7.42	--	6.77	
A-20	10/19/20	14.19	7.78	--	6.41	
A-20	04/12/21	14.19	7.51	--	6.68	
A-20	10/11/21	14.19	7.86	--	6.33	
A-20	04/18/22	14.19	7.45	--	6.74	
A-20	09/19/22	14.19	7.76	--	6.43	
A-20	03/01/23	14.19	7.33	--	6.86	
A-20	09/19/23	14.19	7.83	--	6.36	
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	

Appendix D
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Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	7.40	--	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-21	04/12/21	14.35	7.60	--	6.75	
A-21	10/11/21	14.35	8.02	--	6.33	
A-21	04/18/22	14.35	7.56	--	6.79	
A-21	09/19/22	14.35	7.86	--	6.49	
A-21	03/01/23	14.35	7.38	--	6.97	
A-21	09/19/23	14.35	7.92	--	6.43	
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	
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

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-22R	04/12/21	14.11	7.45	--	6.66	
A-22R	10/11/21	14.11	7.91	--	6.20	
A-22R	04/18/22	14.11	7.22	--	6.89	
A-22R	09/19/22	14.11	7.63	--	6.48	
A-22R	03/01/23	14.11	7.12	--	6.99	
A-22R	09/19/23	14.11	7.71	--	6.40	
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	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-23R	04/12/21	15.57	8.87	--	6.70	
A-23R	10/11/21	15.57	9.28	--	6.29	
A-23R	04/18/22	15.57	8.80	--	6.77	
A-23R	09/19/22	15.57	9.10	--	6.47	
A-23R	03/01/23	15.57	8.63	--	6.94	
A-23R	09/19/23	15.57	9.16	--	6.41	
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	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-25	04/12/21	13.90	7.26	--	6.64	
A-25	10/11/21	13.90	7.79	--	6.11	
A-25	04/18/22	13.90	7.09	--	6.81	
A-25	09/19/22	13.90	7.51	--	6.39	
A-25	03/01/23	13.90	6.94	--	6.96	
A-25	09/19/23	13.90	7.62	--	6.28	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	--	7.10	
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-26R	04/12/21	14.19	7.50	--	6.69	
A-26R	10/11/21	14.19	8.00	--	6.19	
A-26R	04/18/22	14.19	7.22	--	6.97	
A-26R	09/19/22	14.19	8.72	--	5.47	
A-26R	03/01/23	14.19	7.16	--	7.03	
A-26R	09/19/23	14.19	7.82	--	6.37	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-27	04/12/21	17.22	10.36	--	6.86	
A-27	10/11/21	17.22	10.97	--	6.25	
A-27	04/18/22	17.22	10.2	--	7.02	
A-27	09/19/22	17.22	10.72	--	6.50	
A-27	03/01/23	17.22	10.04	--	7.18	
A-27	09/19/23	17.22	10.83	--	6.39	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-28R	04/12/21	14.93	7.90	--	7.03	
A-28R	10/11/21	14.93	8.57	--	6.36	
A-28R	04/18/22	14.93	7.76	--	7.17	
A-28R	09/19/22	14.93	8.35	--	6.58	
A-28R	03/01/23	14.93	7.54	--	7.39	
A-28R	09/19/23	14.93	8.49	--	6.44	
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

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	--	--	--	--	
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	

Appendix D
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Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
11	04/12/21	12.08	4.02	--	8.06	
11	10/11/21	12.08	5.11	--	6.97	
11	04/18/22	12.08	3.93	--	8.15	
11	09/19/22	12.08	5.19	--	6.89	
11	03/01/23	12.08	3.52	--	8.56	
11	09/19/23	12.08	5.23	--	6.85	
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	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
12	04/12/21	9.79	1.67	--	8.12	
12	10/11/21	9.79	2.60	--	7.19	
12	04/18/22	9.79	1.55	--	8.24	
12	09/19/22	9.79	2.57	--	7.22	
12	03/01/23	9.79	1.13	--	8.66	
12	09/19/23	9.79	2.74	--	7.05	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-1	04/12/21	13.21	5.03	--	8.18	
MW-1	10/11/21	13.21	6.30	--	6.91	
MW-1	04/18/22	13.21	4.99	--	8.22	
MW-1	09/19/22	13.21	6.15	--	7.06	
MW-1	03/01/23	13.21	4.85	--	8.36	
MW-1	09/19/23	13.21	6.30	--	6.91	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
MW-2	04/08/13	15.22	6.36	--	8.86	
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	--	7.10	
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-2	04/12/21	15.22	6.47	--	8.75	
MW-2	10/11/21	15.22	8.06	--	7.16	
MW-2	04/18/22	15.22	8.30	--	6.92	
MW-2	09/19/22	15.22	7.81	--	7.41	
MW-2	03/01/23	15.22	6.18	--	9.04	
MW-2	09/19/23	15.22	7.91	--	7.31	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-3	04/12/21	11.39	2.49	--	8.90	
MW-3	10/11/21	11.39	4.10	--	7.29	
MW-3	04/18/22	11.39	2.39	--	9.00	
MW-3	09/19/22	11.39	3.97	--	7.42	
MW-3	03/01/23	11.39	2.10	--	9.29	
MW-3	09/19/23	11.39	4.06	--	7.33	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	--	7.90	
MW-4	04/12/21	14.69	5.59	--	9.10	
MW-4	10/11/21	14.69	7.21	--	7.48	
MW-4	04/18/22	14.69	5.92	--	8.77	
MW-4	09/19/22	14.69	7.13	--	7.56	
MW-4	03/01/23	14.69	5.65	--	9.04	
MW-4	09/19/23	14.69	7.29	--	7.40	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-5	04/12/21	11.13	2.33	--	8.80	
MW-5	10/11/21	11.13	3.65	--	7.48	
MW-5	04/18/22	11.13	2.22	--	8.91	
MW-5	09/19/22	11.13	3.69	--	7.44	
MW-5	03/01/23	11.13	1.90	--	9.23	
MW-5	09/19/23	11.13	3.78	--	7.35	
MW-6	02/11/02	11.15	6.35	--	4.80	
MW-6	05/20/02	11.15	8.48	--	2.67	
MW-6	08/27/02	11.15	8.45	--	2.70	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-6	04/12/21	15.17	6.52	--	8.65	
MW-6	10/11/21	15.17	7.90	--	7.27	
MW-6	04/18/22	15.17	6.37	--	8.80	
MW-6	09/19/22	15.17	7.69	--	7.48	
MW-6	03/01/23	15.17	6.15	--	9.02	
MW-6	09/19/23	15.17	7.77	--	7.40	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-7	04/12/21	10.62	2.22	--	8.40	
MW-7	10/11/21	10.62	3.26	--	7.36	
MW-7	04/18/22	10.62	2.10	--	8.52	
MW-7	09/19/22	10.62	3.30	--	7.32	
MW-7	03/01/23	10.62	1.74	--	8.88	
MW-7	09/19/23	10.62	3.24	--	7.38	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-8	04/12/21	10.63	3.12	--	7.51	
MW-8	10/11/21	10.63	4.17	--	6.46	
MW-8	04/18/22	10.63	3.05	--	7.58	
MW-8	09/19/22	10.63	4.13	--	6.50	
MW-8	03/01/23	10.63	2.73	--	7.90	
MW-8	09/19/23	10.63	4.25	--	6.38	
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	3.80	
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	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-9	04/12/21	9.75	2.49	--	7.26	
MW-9	10/11/21	9.75	3.33	--	6.42	
MW-9	04/18/22	9.75	2.40	--	7.35	
MW-9	09/19/22	9.75	3.29	--	6.46	
MW-9	03/01/23	9.75	2.09	--	7.66	
MW-9	09/19/23	9.75	3.30	--	6.45	
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

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (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-12R	04/12/21	15.47	7.06	--	8.41	
MW-12R	10/11/21	15.47	8.10	--	7.37	
MW-12R	04/18/22	15.47	7.02	--	8.45	
MW-12R	09/19/22	15.47	7.95	--	7.52	
MW-12R	03/01/23	15.47	6.69	--	8.78	
MW-12R	09/19/23	15.47	8.11	--	7.36	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	

Appendix D
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Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
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ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
MW-14	10/19/20	11.44	3.65	--	7.79	
MW-14	04/12/21	11.44	2.75	--	8.69	
MW-14	10/11/21	11.44	4.10	--	7.34	
MW-14	04/18/22	11.44	2.65	--	8.79	
MW-14	09/19/22	11.44	4.10	--	7.34	
MW-14	03/01/23	11.44	2.29	--	9.15	
MW-14	09/19/23	11.44	4.23	--	7.21	
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	

Appendix D
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Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-16	04/12/21	15.23	6.27	--	8.96	
MW-16	10/11/21	15.23	--	--	--	
MW-16	04/18/22	15.23	6.14	--	9.09	
MW-16	09/19/22	15.23	7.63	--	7.60	
MW-16	03/01/23	15.23	--	--	--	
MW-16	09/19/23	15.23	7.74	--	7.49	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	--	11.00	
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-18	04/12/21	15.49	6.31	--	9.18	
MW-18	10/11/21	15.49	7.99	--	7.50	
MW-18	04/18/22	15.49	6.13	--	9.36	
MW-18	09/19/22	15.49	7.67	--	7.82	
MW-18	03/01/23	15.49	6.05	--	9.44	
MW-18	09/19/23	15.49	7.69	--	7.80	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-19	04/12/21	11.39	2.24	--	9.15	
MW-19	10/11/21	11.39	3.65	--	7.74	
MW-19	04/18/22	11.39	2.15	--	9.24	
MW-19	09/19/22	11.39	3.63	--	7.76	
MW-19	03/01/23	11.39	1.83	--	9.56	
MW-19	09/19/23	11.39	3.38	--	8.01	
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

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-20	04/12/21	11.72	2.65	--	9.07	
MW-20	10/11/21	11.72	4.01	--	7.71	
MW-20	04/18/22	11.72	2.61	--	9.11	
MW-20	09/19/22	11.72	5.97	--	5.75	
MW-20	03/01/23	11.72	2.35	--	9.37	
MW-20	09/19/23	11.72	4.13	--	7.59	
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

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
MW-21	04/12/21	9.41	2.58	--	6.83	
MW-21	10/11/21	9.41	3.34	--	6.07	
MW-21	04/18/22	9.41	2.55	--	6.86	
MW-21	09/19/22	9.41	3.19	--	6.22	
MW-21	03/01/23	9.41	2.26	--	7.15	
MW-21	09/19/23	9.41	3.31	--	6.10	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-22	04/12/21	16.32	7.49	--	8.83	
MW-22	10/11/21	16.32	9.02	--	7.30	
MW-22	04/18/22	16.32	7.36	--	8.96	
MW-22	09/19/22	16.32	8.83	--	7.49	
MW-22	03/01/23	16.32	7.17	--	9.15	
MW-22	09/19/23	16.32	8.96	--	7.36	
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	

Appendix D
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Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
MW-23	10/12/05	14.15	8.10	Sheen	6.05	
MW-23	12/12/05	14.15	7.93	--	6.22	
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-23	04/12/21	14.15	7.41	--	6.74	
MW-23	10/11/21	14.15	7.83	--	6.32	
MW-23	04/18/22	14.15	7.29	--	6.86	
MW-23	09/19/22	14.15	7.61	--	6.54	
MW-23	03/01/23	14.15	7.12	--	7.03	
MW-23	09/19/23	14.15	7.71	--	6.44	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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-24	04/12/21	14.34	7.44	--	6.90	
MW-24	10/11/21	14.34	7.91	--	6.43	
MW-24	04/18/22	14.34	7.28	--	7.06	
MW-24	09/19/22	14.34	8.64	--	5.70	
MW-24	03/01/23	14.34	7.42	--	6.92	
MW-24	09/19/23	14.34	7.72	--	6.62	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
MW-25	04/12/21	13.05	7.16	--	5.89	
MW-25	10/11/21	13.05	7.63	--	5.42	
MW-25	04/18/22	13.05	--	--	--	
MW-25	09/19/22	13.05	--	--	--	
MW-25	03/01/23	13.05	--	--	--	
MW-25	09/19/23	13.05	--	--	--	
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	--	--	--	--	
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	

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	--	8.50	
SH-02R	10/19/20	13.40	5.69	--	7.71	
SH-02R	04/12/21	13.40	4.90	--	8.50	
SH-02R	10/11/21	13.40	6.13	--	7.27	
SH-02R	04/18/22	13.40	4.89	--	8.51	
SH-02R	09/19/22	13.40	6.05	--	7.35	
SH-02R	03/01/23	13.40	4.72	--	8.68	
SH-02R	09/19/23	13.40	6.22	--	7.18	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	

Appendix D
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Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	
SH-05R	04/12/21	13.89	6.79	--	7.10	
SH-05R	10/11/21	13.89	7.40	--	6.49	
SH-05R	04/18/22	13.89	6.67	--	7.22	
SH-05R	09/19/22	13.89	7.17	--	6.72	
SH-05R	03/01/23	13.89	6.41	--	7.48	
SH-05R	09/19/23	13.89	7.30	--	6.59	
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	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
MW-07R	11/18/03	13.92	8.17	--	5.75	
MW-07R	02/24/04	13.92	5.64	--	8.28	

Appendix D
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ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	
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	
MW-07R	04/12/21	13.92	5.89	--	8.03	
MW-07R	10/11/21	13.92	6.90	--	7.02	
MW-07R	04/18/22	13.92	5.83	--	8.09	
MW-07R	09/19/22	13.92	6.67	--	7.25	
MW-07R	03/01/23	13.92	5.27	--	8.65	
MW-07R	09/19/23	13.92	6.96	--	6.96	
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

Appendix D
Historical Groundwater Elevation Data
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

Well ID	Date Measured	Casing Elevation[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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-B1	04/12/21	--	7.37	--	--	
TMW-B1	10/11/21	--	8.51	--	--	
TMW-B1	04/18/22	--	7.20	--	--	
TMW-B1	09/19/22	--	8.31	--	--	
TMW-B1	03/01/23	--	6.96	--	--	
TMW-B1	09/19/23	--	8.31	--	--	
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-1	04/12/21	--	2.79	--	--	
TMW-1	10/11/21	--	4.11	--	--	
TMW-1	04/18/22	--	2.64	--	--	
TMW-1	09/19/22	--	4.05	--	--	
TMW-1	03/01/23	--	2.33	--	--	
TMW-1	09/19/23	--	4.08	--	--	
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	--	--	
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	--	3.20	--	--	
TMW-2	10/01/19	--	4.02	--	--	
TMW-2	03/25/20	--	2.74	--	--	
TMW-2	10/19/20	--	3.86	--	--	
TMW-2	04/12/21	--	2.91	--	--	
TMW-2	10/11/21	--	4.15	--	--	
TMW-2	04/18/22	--	2.74	--	--	
TMW-2	09/19/22	--	4.19	--	--	
TMW-2	03/01/23	--	2.44	--	--	
TMW-2	09/19/23	--	4.22	--	--	
TMW-3	06/21/13	--	3.81	--	--	Baseline monitoring event
TMW-3	07/29/13	--	3.91	--	--	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
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	--	--	
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-3	04/12/21	--	3.11	--	--	
TMW-3	10/11/21	--	4.16	--	--	
TMW-3	04/18/22	--	2.97	--	--	
TMW-3	09/19/22	--	4.21	--	--	
TMW-3	03/01/23	--	2.61	--	--	
TMW-3	09/19/23	--	4.14	--	--	
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	--	1.30	--	--	
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-4	04/12/21	--	2.83	--	--	
TMW-4	10/11/21	--	3.87	--	--	
TMW-4	04/18/22	--	2.55	--	--	
TMW-4	09/19/22	--	3.94	--	--	
TMW-4	03/01/23	--	2.05	--	--	
TMW-4	09/19/23	--	3.04	--	--	
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-5	04/12/21	--	2.70	--	--	
TMW-5	10/11/21	--	3.87	--	--	
TMW-5	04/18/22	--	2.69	--	--	

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[1] (feet NAVD88)	Depth to Groundwater (feet BTOC)	Separate Phase Hydrocarbons (feet)	Groundwater Elevation[1, 2] (feet NAVD88)	Comments
TMW-5	09/19/22	--	3.71	--	--	
TMW-5	03/01/23	--	2.34	--	--	
TMW-5	09/19/23	--	3.74	--	--	
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	--	--	
TMW-6	04/12/21	--	2.01	--	--	
TMW-6	10/11/21	--	3.21	--	--	
TMW-6	04/18/22	--	1.75	--	--	
TMW-6	09/19/22	--	3.03	--	--	
TMW-6	03/01/23	--	1.57	--	--	
TMW-6	09/19/23	--	2.80	--	--	

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

ARCADIS

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**										
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	--	**0.12**	0.0025	<0.001	0.0012	--	--	--	--	--	--	--	--	--	--	
A-5	06/07/05	0.54	2.4	--	1.7	--	**0.12**	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	--	**0.099**	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	--	**0.079**	0.0028	<0.001	0.0025	--	--	--	--	--	--	--	--	--	--	
A-5	03/27/07	**1.4**	--	--	--	--	**0.19**	0.0045	0.0014	0.0050	--	--	0.8	--	--	--	--	--	--	--	
A-5	06/19/07	**1.1**	1.9	--	<0.50	--	**0.09**	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	**1.4**	--	--	--	--	**0.12**	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	**1.5**	--	--	--	--	**0.15**	0.0032	0.0031	0.0076	--	--	1.13	--	--	--	--	--	--	--	
A-5	12/05/08	0.64	--	--	--	--	**0.089**	<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	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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**										
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 o	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	**1.04**	--	--	--	--	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	--	--	--[d]	--	--	--	--	--	--	--	
A-5	04/13/21	**1.42**	--	--	--	--	0.00355	0.00295	<0.00100	0.00355	--	--	0.16	--	--	--	--	--	--	--	
A-5	10/12/21	0.524	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.00	--	--	--	--	--	--	--	
A-5	04/20/22	0.510 B	--	--	--	--	0.00108	0.00128	<0.00100	<0.00300	--	--	1.46	--	--	--	--	--	--	--	
A-5	09/22/22	0.258	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.18	--	--	--	--	--	--	--	
A-5	03/02/23	0.510 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	8.32	--	--	--	--	--	--	--	
A-5	09/22/23	<1.00	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.12	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	--	--	--	

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**										
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-8	10/12/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.00	--	--	--	--	--	--	--	
A-8	09/22/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.18	--	--	--	--	--	--	--	
A-8	09/22/23	<1.00	--	1.40	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.01	--	--	--	--	--	--	--	
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	**15**	--	<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	**13**	--	<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	**19**	--	<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	**30**	--	<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	**1.1**	**89**	--	<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	**35**	--	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	
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	**68**	--	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	

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**										
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-10	10/12/21	<0.100	--	0.360	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.07	--	--	--	--	--	--	--	
A-10	09/22/22	<0.100	--	0.446	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.15	--	--	--	--	--	--	--	
A-10	09/22/23	<0.100	--	0.525	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.05	--	--	--	--	--	--	--	
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	**0.02***	--	--	--	--	--	--	--	--	--	
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	**0.02**	--	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	**0.025***	--	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	**0.032***	--	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	**0.018***	--	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	**0.0072***	--	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	
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	

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**										
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-14R	10/12/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.15	--	--	--	--	--	--	--	
A-14R	09/22/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.20	--	--	--	--	--	--	--	
A-14R	09/22/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.09	--	--	--	--	--	--	--	
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	**2.5**	--	--	--	--	<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	**0.062***	--	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	**0.0085***	--	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	**0.0067***	--	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	
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	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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**										
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	**0.0087**	--	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 o	<0.0010 o	0.024	<0.0010 o	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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**										
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-21	04/13/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.19	--	--	--	--	--	--	--	
A-21	10/12/21	0.154	--	--	--	--	<0.00100	<0.00100	0.00109	<0.00300	0.00326	0.00235	0.39	--	--	--	--	--	--	--	
A-21	04/19/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.80	--	--	--	--	--	--	--	
A-21	09/21/22	0.111	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.34	--	--	--	--	--	--	--	
A-21	03/02/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	8.96	--	--	--	--	--	--	--	
A-21	09/21/23	0.225 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.11	--	--	--	--	--	--	--	
A-22R	05/25/11	**27**	--	--	--	--	**3.4**	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	**0.72*a**	--	--	--	--	--	--	--	--	--	
A-23R	05/20/02	0.74	6.9	--	<0.5	--	**0.15**	<0.001	0.088	0.0067	**0.095*a**	--	--	--	--	--	--	--	--	--	
A-23R	08/28/02	0.62	2.1	--	<0.5	--	**0.20**	0.0035	0.021	0.0075	**0.23***	--	2.40	4.10	--	--	13.00	<0.25	270.00	0.20	
A-23R	11/05/02	0.74	1.7	--	<0.5	--	**0.22**	<0.0015	0.0059	0.014	**0.18***	--	2.40	3.60	--	--	11.00	<0.25	200.00	1.60	
A-23R	02/19/03	0.71	2.3	--	<0.5	--	**0.26**	0.0033	0.0054	0.0059	**0.049***	--	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	**0.38***	--	1.40	7.60	--	--	12.00	<0.25 b	100.00	0.90	
A-23R	11/19/03	**1.0**	0.78	--	<0.50	--	**0.08**	0.0037	0.069	0.0035	**0.13***	--	1.50	8.70	--	--	7.80	<0.25 b	26.00	0.80	
A-23R	02/25/04	**1.6**	0.78	--	<0.50	--	**0.26**	0.0072	0.061	0.015	**0.081***	--	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	**2.3**	0.35	--	<0.50	--	**0.46**	0.012	0.074	0.020	**0.012***	--	1.80	10.00	--	--	11.00	<0.25	31.00	0.34	
A-23R	12/14/04	**2**	0.65	--	<0.50	--	**0.37**	0.0084	0.041	0.013	**0.018***	--	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	**0.035***	--	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	**0.013***	--	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	**0.032***	--	0.80	5.30	--	--	25.00	<0.25	50.00	0.17	
A-23R	03/15/06	**1.1**	<0.25	--	<0.50	--	**0.34**	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	**0.0081***	--	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	**0.035***	--	1.40	3.60	--	--	33.00	<0.25	100.00	<0.10	
A-23R	12/12/06	**2.1**	<0.25	--	<0.50	--	**0.52**	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	--	--	--	--	**0.17**	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
A-23R	12/11/07	0.79	--	--	--	--	**0.095**	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	--	--	--	--	--	--	--	

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**										
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-23R	10/11/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.00	--	--	--	--	--	--	--	
A-23R	09/19/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.12	--	--	--	--	--	--	--	
A-23R	09/20/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
A-25	06/16/11	**4.1**	--	--	--	--	**0.27**	0.038	0.28	0.19	--	--	--	--	--	--	--	--	--	--	
A-26R	05/25/11	**22**	--	--	--	--	**4**	0.095	1.6	0.75	--	--	--	--	--	--	--	--	--	--	
A-27	02/14/02	**2.9**	**11**	--	<0.5	--	**0.13**	0.014	0.096	0.25	--	--	--	--	--	--	--	--	--	--	
A-27	05/22/02	**3.3**	8.2	--	<0.5	--	**0.20**	0.016	0.14	0.38	--	--	--	--	--	--	--	--	--	--	
A-27	08/29/02	**3.8**	8.1	--	<0.5	--	**0.24**	0.016	0.14	0.29	--	--	2.30	7.50	--	--	24.00	<0.25	0.29	0.20	
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	

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**										
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	--	--	--	--	--	--	--	
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**	--	--	--	--	**0.073**	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**	--	--	--	--	**0.078**	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	

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**										
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**	--	--	--	--	**0.072**	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**	--	--	--	--	**0.131**	<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**	--	--	--	--	**0.144**	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-27	04/13/21	0.741	--	--	--	--	0.0181	<0.00100	0.0122	<0.00300	--	--	0.16	--	--	--	--	--	--	--	
A-27	10/13/21	0.929	--	--	--	--	0.0138	0.00116	<0.00100	0.00429	--	--	0.27	3.02	--	--	7.64 T8	<0.100	<5.00	<0.0500	
A-27	04/19/22	**1.190**	--	--	--	--	0.0228	<0.00100	0.0317	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
A-27	09/21/22	0.835	--	--	--	--	0.0343	<0.00100	0.0108	<0.00300	--	--	0.18	2.56	--	--	9.04 T8	<0.100	19.8	1.08	
A-27	03/03/23	**1.610**	--	--	--	--	0.0277	<0.00100	0.0289	0.00486	--	--	7.87	--	--	--	--	--	--	--	
A-27	09/21/23	**1.280**	--	--	--	--	0.00940	<0.00100	<0.00100	<0.00300	--	--	0.11	2.91	--	--	9.39 T8	0.102 P1	<5.00	<0.0500	
A-28R	02/14/02	**5.3**	2.7	--	<0.5	--	**0.66**	0.027	0.42	0.20	**0.035***	--	--	--	--	--	--	--	--	--	
A-28R	05/22/02	**3.1**	6.7	--	<0.5	--	**0.14**	0.010	0.20	0.092	**0.05***	--	--	--	--	--	--	--	--	--	
A-28R	08/29/02	**4.0**	6.0	--	<0.5	--	**0.15**	0.019	0.23	0.078	**0.032***	--	3.60	6.20	--	--	45.00	<0.25	0.73	0.30	
A-28R	11/06/02	**3.4**	1.8	--	<0.5	--	**0.47**	0.015	0.053	0.050	**0.028***	--	2.20	5.90	--	--	46.00	<0.25	0.57	<0.1	
A-28R	02/19/03	**3.5**	4.6	--	<0.5	--	**0.46**	0.015	0.051	0.050	**0.013***	--	3.00	6.30	--	--	48.00	<0.25	0.56	<0.1	
A-28R	06/10/03	**3.7**	2.9	--	<0.25	--	**0.31**	0.0081	0.085	0.051	**0.064***	--	1.20	6.10	--	--	42.00	<0.25	<0.25	<0.1	
A-28R	09/16/03	**3.8**	2.0	--	<0.50	--	**1.0**	0.013	0.075	0.048	**0.17***	--	0.90	10b	--	--	58.00	<0.25 b	0.41	0.50	
A-28R	11/19/03	**4.9**	<0.25	--	<0.50	--	**0.58**	0.012	0.059	0.064	**0.11***	--	1.20	9.90	--	--	47.00	<0.25 b	0.25	<0.1	
A-28R	02/25/04	**5.1**	1.7	--	<0.50	--	**0.63**	0.0093	0.19	0.076	**0.0080***	--	1.80	9.60	--	--	46.00	<0.25 b	<0.25	1.40	
A-28R	05/12/04	**6.5**	2.6	--	<0.50	--	**0.96**	0.012	0.20	0.058	<0.0050*	--	1.90	11.00	--	--	47.00	<0.25	<0.50	<0.10	
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	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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**										
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	--	--	--	--	--	--	--	
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-28R	04/13/21	**3.92**	--	--	--	--	0.02180	0.00239	0.0190	0.00355	--	--	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
Site-Specific Cleanup Levels:		**1.0**	**10**	**10**	**10**	**10**	**0.071**	**200**	**29.0**	**N/A**	**0.0058**										
A-28R	10/13/21	**2.50**	--	--	--	--	0.0222	0.00235	0.00476	<0.00300	<0.00200	<0.00200	0.00	4.15	--	--	37 T8	<0.100	<5.00	<0.0500	
A-28R	04/19/22	**2.280**	--	--	--	--	0.0166	0.00144	0.00562	<0.00300	--	--	0.13	--	--	--	--	--	--	--	
A-28R	09/21/22	**1.040**	--	--	--	--	0.00631	0.00160	0.00263	<0.00300	<0.00200	<0.00200	0.10	3.2	--	--	31.9 T8	<0.100	31.9	0.178	
A-28R	03/03/23	**2.180**	--	--	--	--	0.00294	0.00168	0.00469	<0.00300	--	--	8.39	--	--	--	--	--	--	--	
A-28R	09/21/23	**2.490**	--	--	--	--	0.0378	0.00285	0.00214	<0.00300	<0.00200	<0.00200	0.06	6.30	--	--	22.5 T8	0.216	9.67	<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	--	
11	04/14/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	6.99	--	--	--	--	--	79.9	--	
11	10/12/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	4.30	--	--	--	--	--	45.1	--	
11	04/19/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	4.94	--	--	--	--	--	113	--	
11	09/22/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.41	--	--	--	--	--	103	--	
11	03/03/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	10.92	--	--	--	--	--	218	--	
11	09/21/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.50	--	--	--	--	--	193	--	
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
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	--	

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**										
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	--	
12	04/12/21	**1.290**	--	--	--	--	0.00327	<0.00100	0.00471	0.00605	--	--	1.30	--	--	--	--	--	691	--	
12	10/12/21	**4.10**	--	1.46	--	<0.250	0.0392	0.00746	0.1570	0.0458	**0.0131**	0.00325	0.06	--	--	--	--	--	998	--	
12	04/19/22	**2.070**	--	--	--	--	0.0139	0.00463	0.0940	0.0238	**--**	--	0.04	--	--	--	--	--	1,340	--	
12	09/22/22	**2.430**	--	0.729	--	<0.250	**0.169**	0.01080	0.0912	0.0604	**0.0130**	**0.00584**	3.32	--	--	--	--	--	1,040	--	
12	03/03/23	**2.140**	--	--	--	--	0.00793	0.00373	0.0731	0.0439	**--**	--	0.11	--	--	--	--	--	1,280	--	
12	09/21/23	**2.610**	--	1.200	--	<0.250	0.00929	0.01080	0.0886	0.194	**0.00903**	0.00403	0.03	--	--	--	--	--	756	--	
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	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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-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-1	10/14/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.22	--	--	--	--	--	--	--	
MW-1	09/19/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.10	--	--	--	--	--	--	--	
MW-1	09/22/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.08	--	--	--	--	--	--	--	
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	**0.028***	--	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	**0.026*a**	--	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	**0.062***	--	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	**0.021***	--	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	**0.030***	--	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	**0.036***	--	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	**0.024***	--	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	--	
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	**0.063**	--	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	

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	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-2	10/14/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	2.17	--	--	--	--	--	--	--	
MW-2	9/22/2022*	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	1.35	--	--	--	--	--	--	--	
MW-2	09/20/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.11	--	--	--	--	--	--	--	
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	**0.01***	--	--	--	--	--	--	--	--	--	
MW-3	08/28/02	0.62	2.5	--	<0.5	--	**0.11**	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	--	**0.14**	0.0053	0.021	0.015	**0.006***	--	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	**0.014***	--	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	**0.019***	--	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	**0.042***	--	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	**0.025***	--	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	**0.018***	--	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	--	--	--	--	--	--	--	
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	**0.00743**	<0.00200	4.44	--	--	--	--	--	--	--	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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-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-3	10/13/21	0.131 B	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	3.49	--	--	--	--	--	--	--	
MW-3	09/20/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.85	--	--	--	--	--	--	--	
MW-3	09/20/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.33	--	--	--	--	--	--	--	
MW-4	02/14/02	0.78	**280**	--	<50	--	**0.30**	0.0072	0.0023	0.0082	--	--	--	--	--	--	--	--	--	--	
MW-4	05/21/02	**1.5**	8.6	--	<0.5	--	**0.43**	0.023	0.034	0.13	--	--	--	--	--	--	--	--	--	--	
MW-4	08/28/02	**3.3**	**30**	--	2.6	--	**1.1**	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	**3.1**	**31**	--	<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	**12**	--	<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	**19**	--	<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	**15**	--	<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	**11**	--	<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	**16**	--	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	**19**	--	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	--	--	--	--	--	--	--	--	--	--	
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-4	10/14/21	0.221	--	1.290	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.07	--	--	--	--	--	--	--	
MW-4	09/22/22	0.179	--	0.793	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.20	--	--	--	--	--	--	--	
MW-4	09/22/23	0.150	--	1.000	--	1.900	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.07	--	--	--	--	--	--	--	

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-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	**0.01***	--	--	--	--	--	--	--	--	--	
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	**0.011***	--	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	**0.0086***	--	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	**0.11***	--	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	**0.012***	--	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	**0.0099***	--	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	**0.013***	--	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	**0.0088***	--	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	**0.0094**	--	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	**0.0073**	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	
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-5	10/11/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.22	--	--	--	--	--	--	--	
MW-5	09/20/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	0.00253	<0.00200	0.10	--	--	--	--	--	--	--	
MW-5	09/20/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	0.00326	<0.00200	0.33	--	--	--	--	--	--	--	
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	**1.1**	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	**0.02***	--	1.70	1.70	--	--	10.00	<0.25	5.60	0.70	

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	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	**0.019***	--	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	**1.0**	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	**0.011***	--	1.45	2.80	--	--	2.50	<0.25	9.90	<0.10	
MW-6	03/10/05	**1.0**	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	**1.2**	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	
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	--	--	--	--	--	--	--	--	--	--	

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	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-6	10/14/21	0.211 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.30	--	--	--	--	--	--	--	
MW-6	09/21/22	0.232	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.20	--	--	--	--	--	--	--	
MW-6	09/22/23	0.229 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.10	--	--	--	--	--	--	--	
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	
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	--	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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-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
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	--	

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-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-7	04/13/21	**1.930**	--	--	--	--	<0.00100	<0.00100	0.0239	0.0236	--	--	0.20	--	--	--	--	--	<500	--	
MW-7 (DUP)	04/13/21	**1.970**	--	--	--	--	<0.00100	<0.00100	0.0234	0.0226	--	--	0.20	--	--	--	--	--	473	--	Duplicate of MW-7
MW-7	10/12/21	0.472	--	--	--	--	<0.00100	0.00235	0.0103	0.00956	0.00365	<0.00200	0.89	--	--	--	--	--	2,550	--	
MW-7 (DUP)	10/12/21	0.419	--	--	--	--	<0.00100	0.00215	0.00992	0.00884	0.00392	<0.00200	0.89	--	--	--	--	--	2,690	--	Duplicate of MW-7
MW-7	04/18/22	0.109 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.12	--	--	--	--	--	876	--	
MW-7 (DUP)	04/18/22	0.120 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.12	--	--	--	--	--	870	--	
MW-7	09/20/22	0.119	--	--	--	--	<0.00100	<0.00100	0.00233	<0.00300	0.00406	0.00244 B	0.07	--	--	--	--	--	604	--	
MW-7 (DUP)	09/20/22	0.146	--	--	--	--	<0.00100	<0.00100	0.00244	<0.00300	0.00399	<0.00200	0.07	--	--	--	--	--	591	--	
MW-7	03/03/23	0.128 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	2.37	--	--	--	--	--	694	--	
MW-7 (DUP)	03/03/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	2.37	--	--	--	--	--	692	--	
MW-7	09/21/23	0.571	--	--	--	--	<0.00100	0.00178	0.0110	0.00670	0.00445	0.00333	0.02	--	--	--	--	--	525	--	
MW-7 (DUP)	09/21/23	0.622	--	--	--	--	<0.00100	0.00189	0.00953	0.00697	0.00390	0.00411	0.02	--	--	--	--	--	528	--	
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	
MW-8	03/09/05	<0.25	1.6	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.0094***	--	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	**0.014***	--	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	**0.011***	--	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	**0.0060***	--	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	**0.011***	--	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	**0.0093***	--	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	**0.012***	--	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	**0.0060***	--	3.10	<0.010	--	--	<0.050	7.30	41.00	<0.10	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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-8	06/20/07	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.029**	--	2.20	--	--	--	--	--	--	--	
MW-8	06/04/08	<0.25	0.37	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	**0.064**	--	2.50	--	--	--	--	--	--	--	
MW-8	06/02/09	<0.25	0.52	--	<0.50	--	<0.00050	<0.00050	<0.00050	<0.00050	**0.020**	--	1.52	--	--	--	--	--	--	--	
MW-8	06/09/10	<0.25	0.82	--	0.65	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.013**	--	1.55	--	--	--	--	--	--	--	
MW-8	05/24/11	<0.25	<0.25	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.020**	--	0.85	--	--	--	--	--	--	--	
MW-8	05/31/12	<0.25	<0.25	--	<0.50	--	<0.0010	<0.0010	<0.0010	<0.0010	**0.032**	--	0.79	--	--	--	--	--	--	--	
MW-8	04/10/13	<0.25	--	<0.25	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.046**	--	--	--	--	--	--	--	--	--	
MW-8	04/24/14	<0.25	0.49	<0.25	<0.50	<0.50	<0.0005	<0.0005	<0.0005	<0.0005	**0.027**	--	--	--	--	--	--	--	--	--	
MW-8	09/29/15	<0.100	--	1.75	--	2.07	<0.001	<0.005	<0.001	<0.003	**0.00676**	<0.002	2.06	--	--	--	--	--	--	--	
MW-8	10/13/16	<0.100	--	0.385	--	<0.500	<0.001	<0.005	<0.001	<0.003	**0.0183**	<0.002	0.25	--	--	--	--	--	--	--	
MW-8	10/12/17	<0.100	--	0.390	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	**0.0180**	<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	**0.0130**	<0.00500	1.14	--	--	--	--	--	--	--	
MW-8	10/13/21	<0.100		0.365	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	**0.00645**	<0.00200	3.78	--	--	--	--	--	--	--	
MW-8	09/22/22	<0.100	--	0.523	--	0.51	<0.00100	<0.00100	<0.00100	<0.00300	**0.0110**	0.00325	1.08	--	--	--	--	--	--	--	
MW-8	09/21/23	<0.100	--	0.290	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	**0.0104**	**0.00698**	1.25	--	--	--	--	--	--	--	
MW-9	06/11/03	**6.0**	**13**	--	<0.50	--	0.0031	0.036	0.076	0.60	**0.022***	--	2.10	6.60	--	--	15.00	<0.25	2.00	0.70	
MW-9	09/17/03	**5.3**	**39**	--	0.72	--	0.026	0.027	0.09	0.45	**0.0095***	--	2.10	9.80	--	--	19.00	<0.25 c	1.50	0.70	
MW-9	11/20/03	**8.5**	**19**	--	<0.50	--	<0.005	0.018	0.14	1.1	**0.0096***	--	1.60	2.20	--	--	14.00	<0.25 c	66.00	0.30	
MW-9	02/26/04	**4.1**	**28**	--	<0.50	--	0.022	0.0072	0.025	0.47	**0.0083***	--	1.10	15.00	--	--	12.00	<0.25 b	8.10	0.80	
MW-9	05/11/04	**4.1**	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	**4.2**	6.2	--	<0.50	--	0.0066	0.025	0.13	0.43	**0.0099***	--	1.80	8.20	--	--	15.00	<0.25	1.00	0.41	
MW-9	12/15/04	**5.4**	7.6	--	<0.50	--	<0.0025	0.011	0.12	0.39	**0.0094***	--	1.76	5.30	--	--	29.00	10.00	180.00	<0.10	
MW-9	03/09/05	**4.5**	3.5	--	<0.50	--	0.0037	0.0047	0.042	0.18	**0.021***	--	4.70	4.30	--	--	7.20	<0.25	4.40	0.30	
MW-9	06/08/05	**3.2**	3.9	--	<0.50	--	0.0035	0.0087	0.069	0.17	**0.0076***	--	4.50	6.50	--	--	8.40	<0.25	6.10	0.30	
MW-9	09/21/05	**2.3**	2.6	--	<0.50	--	0.007	0.0077	0.033	0.12	**0.0076***	--	1.70	11.00	--	--	14.00	<0.25	1.90	0.21	
MW-9	12/14/05	**4.7**	1.2	--	<0.50	--	0.0078	0.010	0.12	0.38	**0.0095***	--	3.30	10.00	--	--	9.10	<0.25	17.00	0.11	
MW-9	03/14/06	**2.4**	1.4	--	<0.50	--	0.0024	0.0034	0.018	0.12	**0.013***	--	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	**0.021***	--	0.90	4.60	--	--	5.60	<0.25	0.94	0.13	
MW-9	09/13/06	**1.8**	0.46	--	<0.50	--	0.0044	0.016	0.063	0.064	**0.010***	--	1.90	7.40	--	--	7.50	<0.25	<0.50	<0.10	
MW-9	12/13/06	**2.6**	3.8	--	<0.50	--	<0.0025	<0.0025	0.024	0.19	**0.025***	--	2.40	0.72	--	--	3.60	0.27	12.00	0.19	
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	--	--	--	--	--	--	--	

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-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	--	
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	**0.0123**	<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	**0.00808**	<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-9	04/13/21	0.272	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	4.99	--	--	--	--	--	16.8	--	
MW-9	10/13/21	0.202	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	0.00233	<0.00200	0.60	--	--	--	--	--	7.01	--	
MW-9	04/19/22	0.110 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	4.99	--	--	--	--	--	35.80	--	
MW-9	09/22/22	0.105	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.26	--	--	--	--	--	7.29 P1	--	

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-9	03/02/23	0.148 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	7.03	--	--	--	--	--	6.23	--	
MW-9	09/20/23	0.325 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	**0.00922**	<0.00200	0.48	--	--	--	--	--	<5.00	--	
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	--	**0.08**	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	--	**0.19**	0.0012	<0.001	<0.001	<0.005*	--	--	--	--	--	--	--	--	--	
MW-12R	06/10/03	0.41	1.3	--	<0.25	--	**0.11**	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	**0.013***	--	--	--	--	--	--	--	--	--	
MW-12R	11/19/03	0.42	<0.25	--	<0.50	--	**0.26**	<0.001	<0.001	<0.001	**0.0078**	--	--	--	--	--	--	--	--	--	
MW-12R	02/25/04	0.26	1.8	--	<0.50	--	**0.099**	0.00050	<0.0005	0.00076	**0.010***	--	--	--	--	--	--	--	--	--	
MW-12R	05/12/04	0.56	0.74	--	<0.50	--	**0.20**	<0.001	<0.001	<0.001	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-12R	08/26/04	0.35	0.50	--	<0.50	--	**0.089**	<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	
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-12R	10/14/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.01	--	--	--	--	--	--	--	
MW-12R	09/22/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.25	--	--	--	--	--	--	--	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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-12R	09/22/23	<1.000	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.05	--	--	--	--	--	--	--	
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	**0.0078***	--	--	--	--	--	--	--	--	--	
MW-13R	11/19/03	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.0066**	--	--	--	--	--	--	--	--	--	
MW-13R	02/25/04	<0.25	<0.50	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.012***	--	--	--	--	--	--	--	--	--	
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																				
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	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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-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	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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-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-14	10/12/21	0.331	--	--	--	--	<0.00100	<0.00100	<0.00100	0.00316	--	--	0.07	--	--	--	--	--	--	--	
MW-14	09/20/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
MW-14	09/20/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.11	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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-16	09/21/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	2.04	--	--	--	--	--	--	--	
MW-16	09/22/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.28	--	--	--	--	--	--	--	
MW-17	05/23/11	0.3	--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--	--	--	--	--	--	--	
MW-18	02/13/02	**7.6**	0.77	--	<0.5	--	**1.8**	0.067	0.29	0.34	--	--	--	--	--	--	--	--	--	--	
MW-18	05/21/02	**1.2**	0.30	--	<0.5	--	**0.25**	0.016	0.068	0.068	--	--	--	--	--	--	--	--	--	--	
MW-18	08/29/02	**1.6**	<0.5	--	<0.5	--	**0.45**	0.014	0.032	0.044	--	--	--	--	--	--	--	--	--	--	
MW-18	11/05/02	**1.1**	<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	--	**0.11**	0.0048	0.00087	0.026	--	--	--	--	--	--	--	--	--	--	
MW-18	05/11/04	**1.1**	<0.25	--	<0.50	--	**0.25**	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	--	**0.14**	0.0060	0.0019	0.029	--	--	--	--	--	--	--	--	--	--	
MW-18	03/10/05	0.84	<0.25	--	<0.50	--	**0.25**	0.0049	0.0020	0.021	--	--	--	--	--	--	--	--	--	--	
MW-18	06/07/05	0.68	<0.25	--	<0.50	--	**0.17**	0.0039	0.0019	0.0098	--	--	--	--	--	--	--	--	--	--	
MW-18	09/20/05	**4.0**	<0.25	--	<0.50	--	**0.74**	0.021	0.0091	0.090	--	--	--	--	--	--	--	--	--	--	
MW-18	12/13/05	**2.3**	<0.25	--	<0.50	--	**0.45**	0.015	0.0067	0.033	--	--	--	--	--	--	--	--	--	--	
MW-18	03/15/06	**4.9**	<0.25	--	<0.50	--	**1.2**	0.035	0.025	0.12	--	--	--	--	--	--	--	--	--	--	
MW-18	06/08/06	**1.2**	<0.25	--	<0.50	--	**0.15**	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	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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-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	--	--	--	--	--	--	--	
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-18	04/13/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.21	--	--	--	--	--	--	--	
MW-18	10/14/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.16	--	--	--	--	--	--	--	
MW-18	09/21/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.13	--	--	--	--	--	--	--	
MW-18	03/03/23	0.183 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.48	--	--	--	--	--	--	--	
MW-18	09/20/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.13	--	--	--	--	--	--	--	
MW-19	02/13/02	**29**	6.8	--	<2.5	--	0.057	0.73	0.58	6.5	--	--	--	--	--	--	--	--	--	--	
MW-19	05/21/02	**30**	7.7	--	<0.5	--	0.049	0.65	0.53	6.5	--	--	--	--	--	--	--	--	--	--	
MW-19	08/29/02	**13**	**11**	--	<0.5	--	**0.14**	0.29	0.20	2.1	--	--	0.90	13.00	--	--	19.00	<0.25	<0.25	0.60	
MW-19	11/05/02	**8.2**	3.0	--	<0.5	--	**0.21**	0.37	0.16	1.7	--	--	2.70	10.00	--	--	19.00	<0.25	<0.25	0.40	
MW-19	02/20/03	**38**	**19**	--	<0.5	--	**0.091**	1.2	0.80	8.0	--	--	3.20	13.00	--	--	43.00	<0.25	23.00	0.50	
MW-19	06/11/03	**32**	**15**	--	<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	**4.2**	**12**	--	<0.50	--	**0.19**	0.043	0.19	1.1	--	--	1.40	18.00	--	--	30.00	<0.25 b	5.20	0.70	
MW-19	11/20/03	**22**	**10**	--	<0.50	--	**0.11**	0.67	0.75	6.1	--	--	4.80	18.00	--	--	49.00	<0.25 c	10.00	0.50	
MW-19	02/24/04	**19**	**14**	--	<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	**27**	**13**	--	<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	**22**	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	**15**	7.6	--	<0.50	--	0.039	0.12	0.37	2.7	--	--	3.89	21.00	--	--	44.00	<0.25	31.00	0.22	

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-19	03/09/05	**27**	9.1	--	<0.50	--	**0.073**	0.18	0.56	3.4	--	--	3.42	22.00	--	--	25.00	<0.25	5.30	0.26	
MW-19	06/08/05	**17**	6.3	--	<0.50	--	**0.071**	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	**14**	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	**11**	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	**8.0**	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	**13**	--	--	--	--	<0.010	0.047	0.35	1.8	--	--	2.50	--	--	--	--	--	--	--	
MW-19	06/20/07	**12**	--	--	--	--	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	**10**	--	--	--	--	**0.13**	0.11	0.42	1.3	--	--	3.70	--	--	--	--	--	--	--	
MW-19	12/11/07	**12**	--	--	--	--	**0.11**	0.14	0.40	1.9	--	--	2.13	--	--	--	--	--	--	--	
MW-19	03/04/08	**17**	--	--	--	--	**0.15**	0.28	0.52	2.4	--	--	1.90	--	--	--	--	--	--	--	
MW-19	06/04/08	**11**	--	--	--	--	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	**5.3**	--	--	--	--	**0.078**	0.0063	0.12	0.29	--	--	1.02	--	--	--	--	--	--	--	
MW-19	12/05/08	**7.8**	--	--	--	--	**0.071**	0.047	0.38	0.73	--	--	0.27	--	--	--	--	--	--	--	
MW-19	03/04/09	**9.4**	--	--	--	--	**0.076**	0.13	0.43	1.4	--	--	0.52	--	--	--	--	--	--	--	
MW-19	06/02/09	**13**	--	--	--	--	**0.071**	0.13	0.43	1.6	--	--	0.37	28.00	--	--	6.30	<0.25	<0.50	0.18	
MW-19	09/21/09	**8.4**	--	--	--	--	0.052	0.0097	0.32	0.29	--	--	0.35	--	--	--	--	--	--	--	
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	

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-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-19	04/12/21	**2.14**	--	--	--	--	0.00124	0.0170	0.157	0.0170	--	--	0.15	--	--	--	--	--	8.61	--	
MW-19	10/11/21	**1.90**	--	--	--	--	0.0183	0.0542	0.0254	0.0169	--	--	0.08	--	--	--	--	--	468	--	
MW-19	04/19/22	**1.320**	--	--	--	--	<0.00100	0.00193	0.0183	<0.00300	--	--	0.21	--	--	--	--	--	30	--	
MW-19	09/20/22	**1.780**	--	--	--	--	<0.00100	0.0025	0.0223	0.182	--	--	0.12	--	--	--	--	--	<5.00	--	
MW-19	03/02/23	**1.330**	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	9.72	--	--	--	--	--	764	--	
MW-19	09/19/23	0.537 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.06	--	--	--	--	--	1,080	--	
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	--	--	--	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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-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-20	10/13/21	0.151 B	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.15	--	--	--	--	--	--	--	
MW-20	09/20/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.12	--	--	--	--	--	--	--	
MW-20	09/20/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.16	--	--	--	--	--	--	--	
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	**19**	--	<0.50	--	<0.0025	<0.0025	<0.0025	<0.0025	--	--	0.90	0.013	--	--	2.80	<0.25 c	17.00	0.5	
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	--	--	--	--	--	--	--	

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-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	
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-21	04/14/21	<0.100	--	0.780	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.90	--	--	--	--	--	--	--	
MW-21 (DUP)	04/14/21	<0.100	--	0.662	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.90	--	--	--	--	--	--	--	Duplicate of MW-21
MW-21	10/13/21	0.236	--	0.765	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
MW-21 (DUP)	10/13/21	0.212 B	--	0.711	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	Duplicate of MW-21
MW-21	04/19/22	<0.100	--	0.594	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.28	--	--	--	--	--	--	--	

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-21 (DUP)	04/19/22	<0.100	--	0.633	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.28	--	--	--	--	--	--	--	
MW-21	09/22/22	<0.100	--	1.960	--	<0.500	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.24	--	--	--	--	--	--	--	
MW-21 (DUP)	09/22/22	<0.100	--	1.580	--	<0.500	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.24	--	--	--	--	--	--	--	
MW-21	03/02/23	<0.100	--	<0.100	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.98	--	--	--	--	--	--	--	
MW-21 (DUP)	03/02/23	<0.100	--	<0.100	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.98	--	--	--	--	--	--	--	
MW-21	09/21/23	0.272	--	3.480	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.02	--	--	--	--	--	--	--	
MW-21 (DUP)	09/21/23	0.248	--	4.820	--	<0.500	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.02	--	--	--	--	--	--	--	
MW-22	02/13/02	0.96	9.2	--	<0.5	--	0.012	0.0053	0.017	0.0097	--	--	--	--	--	--	--	--	--	--	
MW-22	05/21/02	**1.1**	7.7	--	<0.5	--	**0.16**	0.049	0.023	0.030	--	--	--	--	--	--	--	--	--	--	
MW-22	08/29/02	**1.4**	2.4	--	<0.5	--	**0.50**	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	--	**0.14**	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	
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	--	--	--	--	--	--	--	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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-22	10/21/20	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	--	--	
MW-22	10/14/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.17	--	--	--	--	--	--	--	
MW-22	09/21/22	<0.100	--	0.485	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.27	--	--	--	--	--	--	--	
MW-22	09/20/23	<0.100	--	0.381	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.06	--	--	--	--	--	--	--	
MW-23	11/19/03	**5.3**	1.4	--	<0.50	--	**0.87**	0.016	0.098	0.23	--	--	--	--	--	--	--	--	--	--	
MW-23	02/25/04	**3.3**	0.85	--	<0.50	--	**0.91**	0.011	0.046	0.030	0.0052*	--	1.60	12	--	--	15	<0.25 b	13.00	0.4	
MW-23	05/12/04	**4.2**	1.3	--	<0.50	--	**1.1**	0.013	0.046	0.048	<0.0050*	--	1.80	13	--	--	19	<0.25	3.60	0.16	
MW-23	08/26/04	**5.3**	0.72	--	<0.50	--	**1.1**	0.023	0.20	0.17	**0.014***	--	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	**6.3**	<0.25	--	<0.50	--	**1.3**	0.014	0.048	0.044	<0.0050*	--	--	--	--	--	--	--	--	--	
MW-23	03/15/06	**7.0**	0.28	--	<0.50	--	**1.4**	0.015	0.19	0.21	<0.0050*	--	2.30	17	--	--	20	<0.25	<0.50	0.23	
MW-23	06/08/06	**5.2**	1.3	--	<0.50	--	**1.4**	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	**8.1**	<0.25	--	<0.50	--	**1.8**	0.02	0.11	0.16	<0.0050*	--	1.90	27	--	--	27	<0.25	<0.50	0.24	
MW-23	03/27/07	**8.4**	--	--	--	--	**1.8**	0.019	0.16	0.16	--	--	2.40	--	--	--	--	--	--	--	
MW-23	06/19/07	**8.7**	--	--	--	--	**1.8**	0.021	0.23	0.23	<0.0050	--	1.20	13	--	--	18	<0.25	<1.0	0.19	
MW-23	09/25/07	**6.9**	--	--	--	--	**1.5**	0.021	0.085	0.11	--	--	2.90	--	--	--	--	--	--	--	
MW-23	12/11/07	**9.1**	--	--	--	--	**1.3**	0.022	0.053	0.097	--	--	2.77	--	--	--	--	--	--	--	
MW-23	03/04/08	**7.8**	--	--	--	--	**1.5**	0.018	0.089	0.10	--	--	2.40	--	--	--	--	--	--	--	
MW-23	06/04/08	**19**	--	--	--	--	**2.4**	0.061	0.59	3.2	<0.0050	--	1.70	12	--	--	63	<0.25	1.0	0.48	
MW-23	09/08/08	**6.4**	--	--	--	--	**0.79**	0.014	0.07	0.038	--	--	--	--	--	--	--	--	--	--	
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 o	0.059	0.0046	--	--	--	--	--	--	--	--	--	--	
MW-23	11/08/12	**2.3**	--	--	--	--	0.021	<0.001	0.065	0.0038	--	--	--	--	--	--	--	--	--	--	

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-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
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-23	04/13/21	**2.34 B**	--	--	--	--	**0.206**	0.0118	0.0106	0.0150	--	--	0.14	--	--	--	--	--	--	--	
MW-23	10/13/21	**4.39**	--	--	--	--	**0.228**	<0.00500	0.0111	0.0169	<0.00200	<0.00200	0.13	9.89	--	--	14.8 T8	<0.100	<5.00	<0.0500	
MW-23	04/19/22	**3.220**	--	--	--	--	**0.173**	0.00609	0.0063	<0.0150	--	--	0.09	--	--	--	--	--	--	--	
MW-23	09/21/22	**2.660**	--	--	--	--	**0.140**	0.00625	0.0084	<0.0150	<0.00200	<0.00200	0.16	12.4	--	--	15.4 T8	<0.100	<5.00	0.09	
MW-23	03/03/23	**2.440 B**	--	--	--	--	0.0624	<0.00500	<0.00500	<0.0150	--	--	0.18	--	--	--	--	--	--	--	
MW-23	09/21/23	**2.740 B**	--	--	--	--	**0.154**	0.00665	<0.00500	<0.0150	<0.00200	<0.00200	0.14	8.62	--	--	13.5 T8	0.197	<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	

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-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	--	--	--	--	--	--	--	
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	--	--	--	--	--	--	--	

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-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	
MW-24	04/13/21	**6.71**	--	--	--	--	**0.508**	0.0243	0.683	0.313	--	--	0.09	--	--	--	--	--	--	--	
MW-24	10/13/21	**9.63**	--	--	--	--	**0.440**	0.0304	0.737	0.216	0.00224	<0.00200	0.00	11.8	--	--	56.7 T8	<0.100	<5.00	<0.0500	
MW-24	04/19/22	**11.10**	--	--	--	--	**0.552**	0.0303	0.776	0.263	--	--	0.16	--	--	--	--	--	--	--	
MW-24	09/21/22	**8.240**	--	--	--	--	**0.407**	0.0217	0.772	0.201	0.00303	<0.00200	0.11	11.6	--	--	52.2 T8	<0.100	<5.00	0.099	
MW-24	03/03/23	**7.160**	--	--	--	--	**0.301**	0.0178	0.508	0.150	--	--	7.27	--	--	--	--	--	--	--	
MW-24	09/21/23	**7.730**	--	--	--	--	**0.552**	0.0284	0.876	0.141	<0.00200	<0.00200	0.10	12.5	--	--	54.7 T8	0.161	<5.00	<0.0500	
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	**0.012***	--	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	**0.034*a**	--	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	**0.059*a**	--	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	--	--	--	--	--	--	--	

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-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-25	10/12/21	<0.100	--	0.437	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	0.00293	<0.00200	0.09	--	--	--	--	--	--	--	
MW-25	04/19/22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-25	09/21/22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-25	03/02/23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-25	09/19/23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
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	**0.015****	--	--	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	--	**0.087**	0.0038	0.00061	0.0023	**0.006***	--	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	**0.0059***	--	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	**0.010***	--	1.90	5.20	--	--	19.00	<0.25 b	5.10	0.40	
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	--	--	--	--	--	--	--	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

ARCADIS

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**										
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-02R	10/14/21	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.04	--	--	--	--	--	--	--	
SH-02R	09/22/22	<0.100	--	0.271	--	<0.250	<0.00500	<0.00500	<0.00500	<0.0150	<0.00200	<0.00200	0.40	--	--	--	--	--	--	--	
SH-02R	09/22/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.11	--	--	--	--	--	--	--	
SH-05	12/20/00	<0.05	1.0	--	<0.5	--	<0.001	<0.001	<0.003	<0.001	**0.017****	--	--	0.010	--	--	1.80	0.14	6.00	<0.01	
SH-05R	05/21/02	0.71	**11**	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	<0.005*	--	--	--	--	--	--	--	--	--	
SH-05R	08/28/02	0.77	**10**	--	<0.5	--	<0.0005	0.0015	<0.0005	<0.0005	**0.006***	--	1.40	1.00	--	--	11.00	<0.25	1.40	0.50	
SH-05R	11/05/02	**1.4**	7.1	--	<0.5	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.008***	--	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	**1.1**	**45**	--	<0.25	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.04***	--	1.40	1.50	--	--	33.00	<0.25	2.80	0.60	
SH-05R	09/16/03	<0.25	**23**	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.074***	--	1.20	1.60	--	--	41.00	<0.25 b	0.46	0.90	
SH-05R	11/19/03	0.62	**19**	--	<0.50	--	<0.0005	<0.0005	<0.0005	<0.0005	**0.075***	--	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	
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	--	--	--	--	--	--	--	

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**										
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	--	--	--	--	--	--	--	
SH-05R	10/14/21	<0.100	--	0.413	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.06	--	--	--	--	--	--	--	
SH-05R	09/22/22	<0.100	--	0.455	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.26	--	--	--	--	--	--	--	
SH-05R	09/22/23	<0.100	--	0.247	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.23	--	--	--	--	--	--	--	
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	
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	**0.0065**	--	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	--	--	--	--	--	--	--	

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-07R	10/14/21	<0.100		<0.200		<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.06	--	--	--	--	--	--	--	
MW-07R	09/22/22	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.16	--	--	--	--	--	--	--	
MW-07R	09/22/23	<0.100	--	<0.200	--	<0.250	<0.00100	<0.00100	<0.00100	<0.00300	<0.00200	<0.00200	0.10	--	--	--	--	--	--	--	
TMW-B1	10/29/09	**5.7**	<0.25	--	<0.50	--	**0.12**	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	**9.1**	--	--	--	--	0.024	<0.0050	0.24	0.56	--	--	1.51	--	--	--	--	--	--	--	
TMW-B1	12/02/11	**6.6**	--	--	--	--	**0.091**	<0.0050	0.15	0.26	--	--	0.33	--	--	--	--	--	--	--	
TMW-B1	03/01/12	**8.0**	--	--	--	--	**0.079**	<0.0025	0.28	0.55	--	--	0.30	--	--	--	--	--	--	--	
TMW-B1	11/08/12	**3.7**	--	--	--	--	**0.16**	0.010	0.019	0.036	--	--	--	--	--	--	--	--	--	--	
TMW-B1	02/28/13	**14**	--	--	--	--	0.026	<0.01	0.50	0.87	--	--	--	--	--	--	--	--	--	--	
TMW-B1	10/02/13	**5.8**	--	--	--	--	0.039	<0.005	0.16	0.24	--	--	0.00	--	--	--	--	--	--	--	
TMW-B1	09/29/15	**7.22**	--	--	--	--	0.0355	<0.01	0.213	0.106	--	--	0.33	--	--	--	--	--	--	--	
TMW-B1	10/14/16	**7.03**	--	--	--	--	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	**6.71**	--	--	--	--	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	**6.36**	--	--	--	--	**0.0827**	0.00427	0.0428	0.01	--	--	0.14	6.6	--	--	8.34 T8	<0.1	<5.0	<0.05	
TMW-B1	10/04/19	**5.68**	--	--	--	--	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	**6.00**	--	--	--	--	**0.0796**	0.00869	0.0293	0.0124	--	--	0.05	10.8	--	--	12.1 T8	<0.100	<5.00	<0.0500	
TMW-B1	10/13/21	**4.72**	--	--	--	--	**0.0751**	0.00697	0.0143	0.00883	--	--	0.01	5.83	--	--	11.7 T8	<0.100	<5.00	<0.0500	
TMW-B1	09/21/22	**5.050**	--	--	--	--	0.0190	0.00242	0.0156	0.00685	--	--	0.15	9.31	--	--	5.7 T8	<0.100	<5.00	0.166	
TMW-B1	09/19/23	**7.120**	--	--	--	--	0.00764	0.00170	0.0756	0.0149	--	--	0.14	12.2	--	--	31.0 T8	0.225	<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	
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	**2.03**	--	--	--	--	<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-1	04/12/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	8.40	--	--	--	--	--	963	--	

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**										
TMW-1	10/11/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.01	--	--	--	--	--	294	--	
TMW-1	04/19/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	8.06	--	--	--	--	--	989	--	
TMW-1	09/20/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.29	--	--	--	--	--	708	--	
TMW-1	03/02/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	11.55	--	--	--	--	--	204	--	
TMW-1	09/19/23	0.112 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.01	--	--	--	--	--	158	--	
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-2	04/12/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	1.03	--	--	--	--	--	1,220	--	
TMW-2	10/11/21	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.65	--	--	--	--	--	1,030	--	
TMW-2	04/19/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.14	--	--	--	--	--	1,330	--	
TMW-2	09/20/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.14	--	--	--	--	--	868	--	
TMW-2	03/02/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	11.14	--	--	--	--	--	901	--	
TMW-2	09/20/23	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.11	--	--	--	--	--	1,030	--	
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	**1.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
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	--	

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**										
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	**1.15**	--	--	--	--	<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-3	04/13/21	0.167	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.46	--	--	--	--	--	1,120	--	
TMW-3	10/12/21	0.559	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.29	--	--	--	--	--	730	--	
TMW-3	04/18/22	0.123 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.09	--	--	--	--	--	1,170	--	
TMW-3	09/20/22	<0.100	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	627	--	
TMW-3	03/03/23	0.146 B	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	--	0.40	--	--	--	--	--	1,830	--	
TMW-3	09/21/23	0.401	--	--	--	--	<0.00100	<0.00100	0.00125	<0.00300	--	--	0.05	--	--	--	--	--	573	--	
TMW-4	06/24/13	**4.9**	2.5 Z	--	--	--	**0.17**	0.084	0.23	0.95	--	--	--	--	--	--	--	<0.25	32	0.11	Baseline monitoring event
TMW-4	07/30/13	**5.1**	--	--	--	--	--	--	--	--	--	--	--	13	24	5.0	--	0.48	1.4	0.11	
TMW-4	08/26/13	**9.2**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Two-month monitoring event
TMW-4	10/03/13	**4.7**	--	--	--	--	**0.13**	0.12	0.29	1.3	--	--	0.00	16	410	17	--	0.36 J*	2,800	<0.10	
TMW-4	01/22/14	**6.0**	--	--	--	--	**0.21**	0.070	0.40	0.99	--	--	0.00	--	--	--	--	--	2,800	<0.10	
TMW-4	04/24/14	**4.0**	--	--	--	--	**0.16**	0.044	0.39	0.84	--	--	--	--	--	--	--	<0.25	1,400	<0.10	
TMW-4	07/14/14	**5.6**	--	--	--	--	**0.19**	0.016	0.38	0.35	--	--	0.12	7.9	130	130	--	--	940	<0.10	
TMW-4	03/18/15	**7.5**	--	--	--	--	**0.21**	0.019	0.53	0.38	--	--	0.08	7.5	--	--	30	<0.25	410	<0.10	
TMW-4	09/30/15	**3.49**	--	--	--	--	**0.107**	<0.125	0.455	<0.075	--	--	0.12	1.12	--	--	43.4 T8	<0.10	374	<0.05	
TMW-4	03/30/16	**2.23**	--	--	--	--	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	**3.13**	--	--	--	--	0.0250	<0.025	0.211	<0.015	--	--	0.67	--	--	--	--	--	936	--	

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**										
TMW-4	03/29/17	**3.48**	--	--	--	--	0.0139	0.00301	0.194	0.00977	--	--	0.18	--	--	--	--	--	1,880	--	
TMW-4	10/12/17	**3.52**	--	--	--	--	0.0345	0.0430	0.308	0.117	--	--	0.39	--	--	--	--	--	494	--	
TMW-4	03/29/18	**3.85**	--	--	--	--	0.00497	0.00913	**0.282**	0.0439	--	--	0.05	--	--	--	--	--	741	--	
TMW-4	10/04/18	**6.35**	--	--	--	--	0.0103	0.0451	**0.435**	0.341	--	--	0.13	--	--	--	--	--	1,360	--	
TMW-4	04/03/19	**3.07**	--	--	--	--	<0.0100	<0.0100	0.257	<0.0300	--	--	0.07	--	--	--	--	--	696	--	
TMW-4	10/03/19	**6.02**	--	--	--	--	0.00347	0.0532	0.263	0.337	--	--	0.10	--	--	--	--	--	446	--	
TMW-4	03/26/20	**1.35**	--	--	--	--	0.00132	0.00324	0.275	0.00576	--	--	3.36	--	--	--	--	--	1,520	--	
TMW-4	10/20/20	**2.49 B**	--	--	--	--	<0.00500	<0.00500	0.00512	<0.0150	--	--	0.15	--	--	--	--	--	1,680	--	
TMW-4	04/13/21	**2.51**	--	--	--	--	0.00434	0.00224	0.0461	0.00398	--	--	0.19	--	--	--	--	--	1,180	--	
TMW-4	10/12/21	**4.54**	--	--	--	--	0.00122	0.0318	0.335	0.179	--	--	0.15	--	--	--	--	--	805	--	
TMW-4	04/19/22	**1.870**	--	--	--	--	0.00135	0.00156	0.00124	<0.00300	--	--	0.12	--	--	--	--	--	638	--	
TMW-4	09/20/22	**2.060**	--	--	--	--	<0.00100	0.0158	0.193	0.192	--	--	0.21	--	--	--	--	--	382	--	
TMW-4	03/02/23	**2.090**	--	--	--	--	<0.00500	<0.00500	0.00691	<0.0150	--	--	0.35	--	--	--	--	--	1,550	--	
TMW-4	09/21/23	**3.080**	--	--	--	--	<0.00500	0.0136	0.101	0.0349	--	--	0.02	--	--	--	--	--	175	--	
TMW-5	06/21/13	**1.3**	0.65 K	--	--	--	**0.10**	0.0097	0.022	0.02	--	--	--	--	--	--	--	<0.25 *c	4.3	<0.10	Baseline monitoring event
TMW-5	07/30/13	**4.3**	--	--	--	--	--	--	--	--	--	--	--	7.6	11	<0.30	--	<0.25	0.67	0.25	
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-5	04/12/21	**1.100**	--	--	--	--	0.00158	<0.00100	0.00355	<0.00300	--	--	0.27	--	--	--	--	--	763	--	
TMW-5	10/11/21	**1.030**	--	--	--	--	0.00916	0.00238	<0.00100	<0.00300	--	--	0.10	--	--	--	--	--	495	--	
TMW-5	04/18/22	0.896	--	--	--	--	0.00308	<0.00100	<0.00100	<0.00300	--	--	0.03	--	--	--	--	--	958	--	
TMW-5	09/20/22	0.439	--	--	--	--	0.00585	0.00309	<0.00100	<0.00300	--	--	0.09	--	--	--	--	--	417	--	
TMW-5	03/02/23	0.986	--	--	--	--	<0.00100	<0.00100	0.00776	<0.00300	--	--	1.08	--	--	--	--	--	2,010	--	
TMW-5	09/20/23	0.840	--	--	--	--	0.00668	0.00165	<0.00100	0.00455	--	--	0.00	--	--	--	--	--	636	--	
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	

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**										
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	
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	--	

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**										
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	--	
TMW-6	04/13/21	**2.16**	--	--	--	--	<0.00100	<0.00100	0.290	0.473	--	--	0.30	--	--	--	--	--	411	--	
TMW-6	10/13/21	**10.3**	--	--	--	--	<0.0100	<0.0100	0.691	0.977	--	--	0.17	--	--	--	--	--	622	--	
TMW-6	04/19/22	**6.950**	--	--	--	--	<0.0100	<0.0100	0.357	0.604	--	--	0.47	--	--	--	--	--	269	--	
TMW-6	09/22/22	**8.370**	--	--	--	--	<0.0100	0.0174	0.528	0.811	--	--	0.13	--	--	--	--	--	326	--	
TMW-6	09/28/22	<0.100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TMW-6	03/02/23	**5.690 B**	--	--	--	--	<0.0100	<0.0100	0.224	0.279	--	--	0.20	--	--	--	--	--	2,800	--	
TMW-6	09/20/23	**5.620 B**	--	--	--	--	<0.0100	<0.0100	0.522	0.618	--	--	0.03	--	--	--	--	--	415	--	

Appendix E
Historical Groundwater Analytical Results
Kinder Morgan Liquids Terminals, LLC
Harbor Island Terminal
2720 13th Avenue Southwest, Seattle, Washington

Notes:

*: MW-2 total and dissolved lead samples were taken on 9/22/22.

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 Limts 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.

Appendix F

Sulfate Application Field Memo, October 2023

Memo

To:
Vance Atkins (Washington Department of Ecology)

Copies:
Scott Martin (Kinder Morgan)
Mark Ullery (Arcadis)
Joe Sepiol (Arcadis)

Arcadis U.S., Inc.
1420 5th Ave, Suite 2400
Seattle
Washington 98101
Tel 206 325 5254
Fax 206 325 8218

From:
Matt Annis (Arcadis)

Date:
October 6, 2023

Arcadis Project No.:
30157380

Subject:
Sulfate Application Field Implementation Plan, Kinder Morgan Liquid Terminals, Harbor Island Terminal

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This Sulfate Application Field Implementation Plan describes the procedures for field activities related to the reapplication of sulfate at the Kinder Morgan Liquid Terminals' Harbor Island Terminal located at 2720 13th Avenue SW, Seattle, Washington (site). Arcadis U.S., Inc. (Arcadis) will perform the reapplication of sulfate at the site.

OBJECTIVE

The objective of the field event is to reapply sulfate (in the form of magnesium sulfate [Epsom salt]) to the ground surface within the B, C and D yards to supplement the initial remedial sulfate application completed in June 2013 and the supplemental sulfate applications completed in September 2015, October 2016, April 2018, November 2018, December 2019, July 2021, and September 2022. This supplemental sulfate application will provide additional electron acceptors for continued anaerobic biological oxidation (ABOx) of petroleum impacts within site groundwater.

REMEDIAL DESIGN

Epsom salt, a highly soluble form of sulfate, will be applied to the ground surface in select areas within the B, C and D yards (**Figure 1**). Precipitation will act as the primary mechanism to dissolve the Epsom and residual gypsum from the initial sulfate application and allow infiltration through the unsaturated soils and into groundwater, delivering sulfate to support ABOx of petroleum compounds in groundwater. Approximately 900 milligrams per liter (mg/L) of dissolved sulfate is targeted to maintain ABOx in the application area. During dry periods of the year (typically May through September), precipitation is supplemented with surface irrigation supplied from the irrigation system installed in the B, C, and D yards.

The initial sulfate application, completed in June 2013, consisted of 264,000 pounds of gypsum and 42,000 pounds of Epsom salt dispersed across 30,000 square feet (ft^2). Following the initial application, performance monitoring indicated the dissolved sulfate concentration trend in groundwater was decreasing toward an asymptotic concentration above background levels but below the target level of 900 mg/L. The asymptotic trend is attributed to the dissolution of Epsom and apparent residual gypsum. In response, supplemental sulfate applications have been implemented as follows:

- During September 2015, 16,000 pounds of Epsom salt were dispersed across 19,650 ft^2 (approximately 0.8 pounds per square foot [lbs/ft^2]).
- During October 2016, 15,000 pounds of Epsom salt were dispersed across the B, C, and D yards. The application density in 2016 was 1.0 lbs/ft^2 over a 5,000 ft^2 area in the C and D yards and 0.85 lbs/ft^2 over a 12,500 ft^2 area in the B yard.
- During April 2018, 10,000 pounds of Epsom salt were dispersed across the B, C and D yards. The application density in April 2018 was 1.0 lbs/ft^2 over a 5,000 ft^2 area in the C and D yards and 0.5 lbs/ft^2 over a 10,000 ft^2 area in the B yard.
- During November 2018, 5,000 pounds of Epsom salt were dispersed across the C and D yards at an application density of 1.0 lbs/ft^2 over a 5,000 ft^2 area.
- During December 2019, 15,000 pounds of Epsom salt were dispersed across the B, C and D yards at an application density of 1.0 lbs/ft^2 over a 15,000 ft^2 area.
- During July 2021, 10,000 pounds of Epsom salt were dispersed across the B, C, and D yards at an application density of 1.0 lbs/ft^2 over a 10,000 ft^2 area.
- During September 2022, 15,000 pounds of Epsom salt were dispersed across the B, C, and D yards at an application density of 0.8 lbs/ft^2 over a 18,000 ft^2 area.

Sulfate concentrations in the application areas are assessed semi-annually via groundwater laboratory analysis to determine if an additional sulfate application is required to support ABOx. ABOx performance is also monitored by analyzing groundwater hydrocarbon data for biodegradation trends, which indicate that hydrocarbon concentrations within the remedial footprint are generally decreasing due to the remedial action. Additional sulfate concentration monitoring is completed monthly through the collection of in-situ conductivity readings from each of the performance monitoring wells.

Recent ABOx performance monitoring indicates sulfate concentrations are generally less than the target level of 900 mg/L. To maintain the target sulfate concentration in groundwater, a supplemental application of Epsom salt will be applied during the fourth quarter of 2023. Approximately 15,000 pounds of Epsom salt will be applied to the ground surface across approximately 13,000 ft^2 in the B yard and 5,000 ft^2 in the C and D yards. The application will deliver approximately 0.8 lbs/ft^2 of Epsom salt to the application area to increase sulfate concentrations above the target level.

FIELD IMPLEMENTATION

Mobilization

Epsom salt is scheduled for delivery by Univar, Inc. by October 23, 2023. The total delivery will consist of 7 pallets of Epsom salt packaged in 50-pound bags for a total of 300 bags. Pallets will be unloaded by the carrier. The pallets will be staged on the asphalt area in the southwest portion of the D yard prior to the application event. The pallets will be covered with water-proof tarpaulin and will be staged so as not to

inhibit ingress/egress of any doors, gates, ramps, or emergency equipment. Arcadis field personnel, materials, and equipment will mobilize to the site during during the week of October 23, 2023 to initiate the supplemental sulfate application field event.

Site Preparation

The density of Epsom distribution will be regulated by generating a grid layout within the application area. Three 50-pound bags will be applied to 150 square foot application cells in the B, C and D yard application areas, approximately 0.8 lb/ft^2 of Epsom salt. Based on this ratio, a grid will be developed and laid out in the B, C, and D yards using white ground-marking spray paint. The appropriate grid shape will be determined by field staff to adapt to infrastructure within the application area and maintain the respective application cell area density. Grids will be developed and laid out immediately prior to field application to minimize distortion of the grid layout from rain and weathering.

Surface Application

A small four-wheel utility vehicle (UTV) will be used to transport bags of Epsom from the staging location to the application areas within the B and D yards to facilitate safer navigation around the pipe racks. A truck will be utilized to transport the required Epsom to the application area within the C yard. Arcadis will place the established number of bags in each grid space prior to application. The Epsom bags shall be distributed by the field team utilizing hand tools, including some or all of the following pieces of equipment, to apply the sulfate to the ground surface:

- Wheeled broadcast spreader, filled with Epsom and walked over each grid square;
- Wheelbarrow, filled with Epsom and roughly spread out across grid square and finely spread using a rake or broom; and
- Manual spreading by cutting the bag and pouring in each grid square followed by spreading with a rake or broom.

The application method used in the field will be determined by the field team based on efficiency and facility operations and equipment with consideration to health and safety.

HEALTH AND SAFETY

Given the repetitive nature of carrying out these tasks sequentially, the field team may phase the tasks at their discretion. Carrying out the tasks of marking the grid, distributing Epsom salt sacks, and spreading in a phased manner to provide variations in job task limits the potential for injury from repetitive lifting, bending, and spreading. Since the Epsom salt will be delivered on approximately 7 pallets, work will be segmented into areas that roughly correspond to the coverage area of each pallet. Grid marking, Epsom salt staging, and spreading will be conducted sequentially in each area. This will ensure that repetitive tasks are varied frequently enough to reduce the potential for injury.

Refer to the Site-Specific Health and Safety Plan for general personal protective equipment requirements for the site and other health and safety considerations. Epsom salt is generally considered to be non-hazardous, but care should still be taken to ensure that dust is minimized during handling and spreading. Additionally, back braces may be used while loading and unloading Epsom salt bags, but they do not protect the wearer from potential back injuries sustained from poor lifting technique. Maintaining good

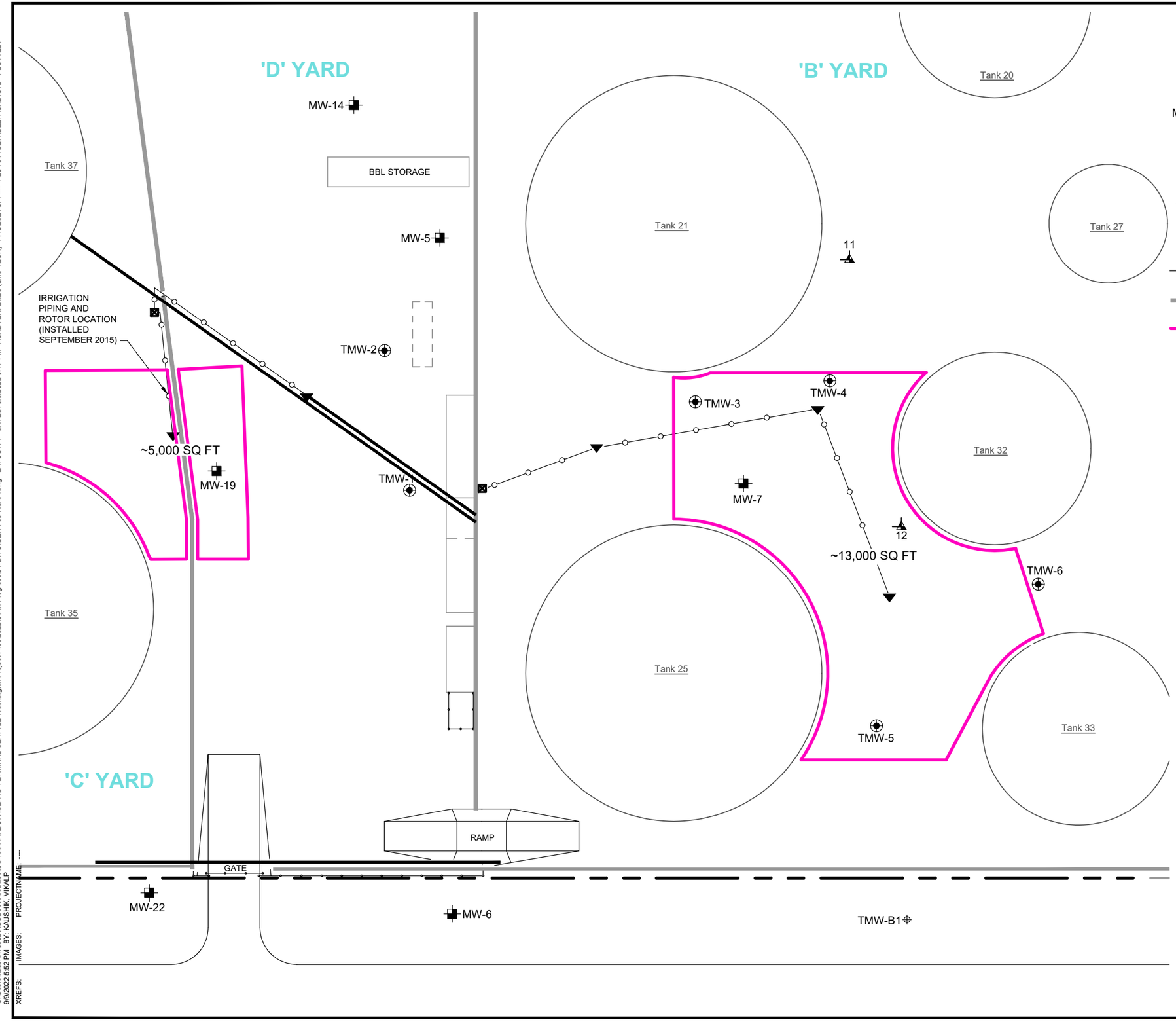
body positioning, both with and without back braces, and taking adequate breaks are crucial to ensuring that the potential for back injuries is minimized.

SCHEDULE

October 23 – 25, 2023 – Apply Epsom in B, C, and D yards.

FIGURES

Figure 1 – Remedial Sulfate Application Area



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)
- WATER SOURCE LOCATION
- TMW-2 — PERFORMANCE MONITORING WELL LOCATION (INSTALLED JUNE 2013)
- TMW-B1 — GROUNDWATER MONITORING WELL INSTALLED ON OCTOBER 21, 2009
- IRRIGATION ROTOR LOCATION
- IRRIGATION PIPING
- CONCRETE WALL
- APPROXIMATE BOUNDARY OF THE SUPPLEMENTAL SULFATE APPLICATION AREA

DESIGN SPECIFICATION :

APPROXIMATELY 0.8 POUNDS PER SQUARE FOOT OF EPSOM SALT SHALL BE APPLIED TO THE APPLICATION AREA.

0 40' 80'

Approximate Scale: 1 in. = 40 ft.

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

REMEDIAL SULFATE APPLICATION AREA

ARCADIS

FIGURE 1

Arcadis U.S., Inc.
1420 5th Avenue, Suite 2400
Seattle
Washington 98101
Phone: 206 325 5254
Fax: 206 325 8218
www.arcadis.com