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Infrastructure Water Environment Buildings

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Mr. Glenn von Gonten
New Mexico Oil Conservation District
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Subject:
2014 Annual Groundwater Report
Former Brickland Refinery Site
Sunland Park, New Mexico
Huntsman Corporation
Case No. AP-01

ENVIRONMENT

Date:
March 27, 2015

Contact:
Timothy D. Ratchford

Extension:
242

Email:
tim.ratchford@arcadis-us.com

Our ref:
LA003185.0001.00004
Huntsman/3185.1/C/2/lf

Dear Mr. von Gonten:

On behalf of Huntsman International LLC, ARCADIS U.S., Inc., is submitting one copy of the above-referenced report. As agreed upon on February 11, 2003, this report is being submitted on or before April 1 for the previous year. An additional copy is being provided to the District 2 office in Artesia.

If you have any questions regarding the enclosed report, please contact the undersigned at (225) 292-1004 or Mr. Edward L. Gunderson with the Huntsman facility at (281) 719-3039.

Sincerely,

ARCADIS U.S., Inc.

Timothy D. Ratchford, P.G.
Associate Vice President/Principal Scientist

Enclosure

Copies:
NMOCD District 2 – Artesia
Lon Tullos – Huntsman EHS Library
Edward L. Gunderson – Huntsman

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2014 Annual Groundwater Monitoring Report

Former Brickland Refinery
Sunland Park, New Mexico

March 27, 2015

ARCADIS

Timothy D. Ratchford, P.G. (LA/TX)
Associate Vice President/Principal Scientist

2014 Annual Groundwater Monitoring Report

Former Brickland Refinery
Sunland Park, New Mexico

Prepared for:
Huntsman International LLC

Prepared by:
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Our Ref.:
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Date:
March 27, 2015

ARCADIS

Table of Contents

Executive Summary

This 2014 Annual Groundwater Monitoring Report documents the results of two semiannual groundwater monitoring events conducted at the former Brickland Refinery site in Sunland Park, New Mexico. The 2014 semiannual groundwater monitoring events were conducted in June (June 9-11) and December (December 9-11). This report contains summaries of groundwater elevation and analytical data from the 2014 groundwater monitoring events as well as historical records.

This monitoring program was conducted in accordance with the Groundwater Monitoring Plan included as Section 3.5 of the Stage 2 Abatement Plan approved by Mr. Bill Olson of the New Mexico Oil Conservation Division in a letter dated December 17, 1998, and revised in 2006. In accordance with the Stage 2 Abatement Plan, June and December sampling events include water level and product thickness measurements in all monitor wells and well points, as well as analysis of benzene, toluene, ethylbenzene, and xylene (BTEX) for all sampled wells. In addition, the June sampling event also includes analyses for polynuclear aromatic hydrocarbons (PAHs) and lead.

In accordance with the Stage 2 Abatement Plan, the following wells are sampled biennially during even numbered years and were sampled in 2014: MW-4, MW-7, MW-14, and MW-15.

During the 2014 monitoring events, the following samples were collected:

- Five off-site well samples (MW-3S, MW-3D, MW-6S, MW-6D, and MW-9S);
- Five on-site well samples (MW-5, MW-8, MW-10, MW-11, and MW-17);
- Six additional well samples (MW-1, MW-4, MW-7, MW-12, MW-14, and MW-15) in June 2014 (biennial sampling); and
- Two surface water river samples (one upstream from the site, north of MW-1, [River Upstream] and one immediately downstream, south of MW-9S [River Downstream]).

In accordance with the Stage 2 Abatement Plan, upon the completion of free-phase product removal, on-site Monitor Wells MW-5, MW-8, MW-10, MW-11, and MW-17 were added to the monitoring plan as of June 2010.

Oxygen-releasing compound socks (EHC-O O-Sox™ or O-Sox) were used during 2011 and the first half of 2012 to enhance natural attenuation. An initial set of O-Sox was placed in Wells MW-5, MW-8, and MW-10 on March 10, 2011, and replaced quarterly. The trial or "pilot test" of this technology was terminated and the O-Sox were removed from MW-10 in December 2011 and from MW-5 and MW-8 in June 2012.

The laboratory-reported benzene concentrations were above the New Mexico Water Quality Control Commission (NMWQCC) standard for samples collected from MW-5 and MW-8 during the June and December 2014 events. No other BTEX constituents were reported above the standards, and no BTEX constituents were reported in River Upstream or Downstream samples for either June or December.

The laboratory-reported total PAHs were below the NMWQCC standard for all samples collected during the June 2014 monitoring event. PAH analysis was not required for the December event.

The laboratory-reported lead concentrations were below the NMWQCC standard for all samples collected during the June 2014 monitoring event. Lead analysis was not required for the December event.

The hydraulic gradient beneath the former Brickland Refinery varies slightly across the site, in response to river stages. The gradient was approximately 0.0006 foot per foot in June and December 2014. The groundwater flow direction is generally to the southeast, parallel to the river.

The presence of light non-aqueous phase liquid (LNAPL) was not measured at any of the locations during June or December 2014. In June 2014, a sheen with the appearance of biofilm was observed in MW-10, WP-1, WP-2, WP-7, WP-25, WP-26S, WP-26D, WP-27D, and WP-33. In December 2014, tar was observed in WP-14. The O-Sox were removed from MW-10 and WP-14 during the June sampling event. Measurable thicknesses of LNAPL were not found in any other wells during the 2014 monitoring events.

On September 30, 2014, Huntsman International, LLC (Huntsman) met with the New Mexico Oil Conservation Division to discuss a proposal to modify the current groundwater sampling program. As a result of the meeting, it was agreed that Huntsman should request modifications of the Groundwater Monitoring Plan.

Huntsman submitted a modification request for the program through correspondence dated November 19, 2014.

Based on the results of ongoing monitoring and as proposed in the modification request dated November 19, 2014, the following actions are recommended:

- Continue LNAPL removal at MW-10, if feasible, by bailing or pumping at quarterly intervals;
- Remove WP-14 because the well is shallow and does not yield groundwater. The tar observed at this location is isolated, and its presence in the well may have occurred at the time of installation or from some other physical or mechanical process not related to site conditions;
- Cease sampling of and plug Monitor Wells MW-4, MW-7, MW-14, and MW-15;
- Cease analysis for PAHs for all monitor wells except MW-8;
- Remove lead as a constituent of concern for the Groundwater Monitoring Plan. Lead has not been detected in groundwater samples at concentrations above the NMWQCC standard since 2005;
- Cease sampling of the Rio Grande;
- Perform analyses for benzene only for Monitor Wells MW-3S, MW-3D, MW-5, MW-6S, MW-6D, MW-8, MW-9S, MW-10, MW-11, and MW-17; and
- Remove remaining well points.

1. Introduction

1.1 Background

The former Brickland Refinery site is located in Sunland Park, New Mexico, and consists of approximately 33 acres situated along the west bank of the Rio Grande (Figure 1). Huntsman International, LLC (Huntsman) currently owns the site. From 1933 to 1958, the site was operated as a petroleum refinery, producing both gasoline and jet fuel. The site was closed and the plant dismantled in 1958. Between 1964 and 1989, the site was leased to various parties to service trucks, conduct automobile salvage operations, graze livestock, and store used bricks.

Petroleum hydrocarbons have been reported in soil and groundwater at the site since the sampling program was initiated in December 1993. The distribution of petroleum hydrocarbons was investigated and these investigations provided the basis for the December 1998 Stage 2 Abatement Plan. The Stage 2 Abatement Plan provides the methods for abating contamination of groundwater and soil in compliance with New Mexico Water Quality Control Commission (NMWQCC) regulations on prevention and abatement of water pollution (20 New Mexico Administrative Code 6.2, Subpart IV) and New Mexico Oil Conservation Division (NMOCD) requirements to protect public health and the environment with respect to wastes from the refinement of crude oil (Section 70-2-12.8 (22) New Mexico Statute Annotated 1978). Huntsman maintained a stand-alone light non-aqueous phase liquid (LNAPL) recovery system (at MW-10) on the site as part of the Stage 2 Abatement Plan. The system was installed in December 1998 and was shut down in June 2008 because no free-phase product was removed from MW-10 in 2006, 2007, or 2008. In accordance with the Stage 2 Abatement Plan, upon the completion of free-phase product removal, on-site Monitor Wells MW-5, MW-8, MW-10, MW-11, and MW-17 were added to the monitoring plan as of June 2010.

Oxygen-releasing compound socks (EHC-O O-Sox™ or O-Sox) were used during 2011 and the first half of 2012 to enhance natural attenuation. An initial set of O-Sox was placed in Wells MW-5, MW-8, and MW-10 on March 10, 2011, and replaced quarterly. The trial or "pilot test" of this technology was terminated, and the O-Sox were removed from MW-10 in December 2011 and from MW-5 and MW-8 in June 2012.

The site layout and monitor well and sampling locations are shown on Figure 2.

1.2 Scope of Services

ARCADIS performed semiannual groundwater monitoring at the site in June and December 2014. Table 1 provides a summary of the water sampling methods, purging methods, and laboratory analyses that were performed during the semiannual sampling events. Quarterly gauging of MW-10 and WP-14 was performed in March 2014. The monitoring program was conducted in accordance with the Groundwater Monitoring Plan and Stage 2 Abatement Plan, approved by Mr. Bill Olsen of the NMOCD in his letter dated December 23, 1998. The sampling protocol was modified in 2006 with the modifications implemented during the June 2006 monitoring event. The revised protocol is in general accordance with applicable NMOCD, New Mexico Environment Department, and U.S. Environmental Protection Agency (USEPA) regulations, procedures, and guidelines. The following items were included in the semiannual monitoring as required by the Groundwater Monitoring Plan and Stage 2 Abatement Plan and approved by the NMOCD:

- Depth to groundwater measurements were recorded in 10 on-site monitor wells, 12 on-site well points, and 7 off-site monitor wells. Historical groundwater elevations for the monitor wells are provided in Table 2, and groundwater elevation contour maps for the 2014 monitoring events are depicted on Figures 3 and 4;

- Analytical testing for the samples included benzene, toluene, ethylbenzene, and xylenes (BTEX), polynuclear aromatic hydrocarbons (PAHs), and lead (using USEPA Test Methods 8260C, 8270D, and 6020A, respectively) during the June monitoring event and BTEX only for the December monitoring event. The analytical results for BTEX, PAHs, and lead are shown in Tables 3, 4, and 5, respectively;

- Seventeen monitor wells and 12 well points were monitored for the presence of LNAPL, and a summary of the LNAPL thicknesses is graphed on Figure 5 and also included in Table 6;

- 2014 groundwater sampling was conducted in each of the 5 required off-site monitor wells (MW-3S, MW-3D, MW-6S, MW-6D, and MW-9S) in June and December. In addition, sampling was conducted at 5 on-site wells (MW-5, MW-8, MW-10, MW-11, and MW-17) in June and December 2014. In June 2014, biennial sampling was also conducted at 6 additional wells (MW-1, MW-4, MW-7, MW-12, MW-14, and MW-15);

- Surface water grab samples were collected from the Rio Grande during each semiannual monitoring event for laboratory analytical testing. One sample (River Upstream) was collected from the upstream end of the site, north of MW-1, and the other sample (River Downstream) was collected from the downstream end of the site, south of MW-9S; and

- Extraction system operations and maintenance reports were not prepared because the extraction system was shut down in June 2008 due to an absence of LNAPL in Recovery Well MW-10.

2. Groundwater Elevation, Hydraulic Gradient, and Flow Direction

The hydraulic gradient beneath the former Brickland Refinery varies slightly across the site. This variability is in part a response to river stage fluctuations. In June and December 2014 the gradient was approximately 0.0006 foot per foot. The groundwater flow direction is generally to the southeast, parallel to the river during both sampling events.

Historical groundwater elevations for the monitor wells are provided in Table 2. Water levels are not listed for the well points because the well points were specifically designed to detect LNAPL at a discrete depth and the screened intervals do not correlate with the monitor well screens. Groundwater elevation contour maps for the June and December 2014 monitoring events are depicted on Figures 3 and 4, respectively.

Groundwater levels in the monitor wells are influenced by the stage of the Rio Grande bordering the site. Due to observed seasonal fluctuations in the river, water levels in the monitor wells may vary as much as 2 feet over the course of a year. Monitoring of groundwater elevation since June 2003 indicates a consistent pattern of higher water elevations in the wells and the river during summer sampling events and lower water elevations during the winter sampling events.

3. LNAPL Removal

3.1 LNAPL Product Thickness

The occurrence of LNAPL in each well point and in MW-10 was tested with an oil/water interface meter; the potential occurrence of LNAPL in other monitor wells was evaluated visually during gauging of water levels with an electronic water level

meter. In June 2014, a sheen with the appearance of biofilm was observed in MW-10, WP-1, WP-2, WP-7, WP-25, WP-26S, WP-26D, WP-27D, and WP-33. In December 2014, tar was observed in WP-14. The O-Sox were removed from MW-10 and WP-14 during the June sampling event. Measureable thicknesses of LNAPL were not found in any other wells during the 2014 monitoring events. Recent and historical measurements dating back to June 2003 are graphed on Figure 5 and listed in Table 6.

LNAPL thickness maps were not prepared for this report because no wells contained measurable amounts of LNAPL.

During the December 2014 sampling event, tar was observed in WP-14. As shown in Table 6, tar has been observed intermittently at WP-14. Well WP-14 was installed to a depth of 6.17 feet below land surface using direct-push technology. This is the shallowest well on site, and the well does not currently yield water. In December 2014, a sample of the material was removed from the well for visual observations. The tar appeared to be thick and highly weathered. Attempts were also made to clear the well of this tar using sorbent material. The tar has not been observed at any other well locations at the site.

The following conclusions are being made regarding the tar at WP-14:

- The tar is isolated to this one location at the site;
- WP-14 was installed using direct-push technology and does not yield water;
- The tar is thick and weathered, is not related to any previous LNAPL conditions, and likely would not have entered or seeped into the well through the well screens from soil via gravity; and
- The presence of tar at this location may have occurred at the time of installation or through some other physical or mechanical means following installation.

Due to the uncertainty of the presence of the tar, Huntsman proposes to remove WP-14 and excavate soil isolated to this location as a precautionary remedy in response to the presence of tar.

3.2 Removal and Disposal of LNAPL

Historically, approximately 235 gallons of LNAPL have been removed from MW-10 since December 1998, when the product recovery system was installed. LNAPL yields were no longer recovered in measurable amounts during 2006 and 2007, and the recovery system was shut down/disconnected in June 2008. Subsequently, no LNAPL was removed from MW-10 in 2008, 2009, 2010, or 2011. In 2012, manual LNAPL removal was initiated for MW-10 in response to a measurable thickness present in MW-10 as of December 2011.

During the March 2014 LNAPL gauging and removal event, a sheen that had the appearance of biofilm was observed in MW-10.

During the June 2014 sampling event, no measureable amount of LNAPL was observed in MW-10 or WP-14. During the December 2014 sampling event, no measureable amount of LNAPL was observed in MW-10 but tar was present in WP-14. No LNAPL was removed from the wells; however, the O-Sox were removed in June 2014. A sample of the material was removed from WP-14 for visual observations. The tar appeared to be thick and highly weathered.

4. Sample Collection and Laboratory Analytical Testing Procedures

4.1 Fluid Level Measurements and Decontamination

The interface probe was decontaminated prior to each use and between each well to prevent the introduction of external contamination or artifacts into a well. A wash and double-rinse decontamination procedure was used. The procedure consisted of washing the probe with Liquinox, a mild, non-phosphate detergent, then twice rinsing with water.

4.2 Calibration of the Multi-Probe Water Analyzer

The multi-probe analyzer was calibrated by Geotech prior to use at the site. Each calibration was carried out in accordance with the equipment manufacturer's procedures and recommendations.

4.3 Well Purging and Field Parameter Measurements

The monitor wells were purged using low-flow/low-stress techniques prior to sampling. Low-flow purging involves removing small volumes of groundwater at very low pumping rates until certain field parameters have stabilized. Field parameter measurements were recorded while each well was purged through the multi-probe flow cell. The groundwater temperature, pH, specific conductance, dissolved oxygen, oxidation reduction (redox) potential, and turbidity were documented on the Water Sampling Logs provided in Appendix A. Purging of each well was continued until three consecutive readings for three field parameters (dissolved oxygen, redox potential, and turbidity) stabilized within 10 percent of one another. When stabilization was achieved, well purging was discontinued and the well was sampled. The total volume of water purged prior to sample collection was recorded on the Water Sampling Logs for each well. The purged water was containerized for disposal.

Approximately 3 to 4 gallons were removed from each well. Field data collected during the purging of each well are provided in Appendix A. Groundwater odor, color, and other physically apparent characteristics were documented. Monitor well integrity was also documented (see the Daily Reports provided in Appendix A).

During the June 2014 event, seven of the wells sampled were equipped with dedicated pumps (Micropurge Bladder Pumps). Wells not equipped with dedicated pumps were purged with peristaltic pumps. The dedicated pump for Monitor Well MW-3S was not operational; therefore, purging and sampling were accomplished with a peristaltic pump. All tubing used with the peristaltic pump was dedicated and/or replaced at each well. The other wells are equipped with dedicated pumps; therefore, no decontamination was required. Approximately 49 gallons of water were purged from the sampled monitor wells during the June 2014 monitoring event. Approximately 30 gallons of water were purged from the sampled wells during the December 2014 monitoring event. The purged water collected during these monitoring events will be collected by Safety-Kleen for subsequent nonhazardous disposal at an approved facility.

4.4 Groundwater Sample Collection

Samples were collected for laboratory analysis in the order of volatility of the analytical parameters (BTEX first, PAH second, and metals third). All samples were

labeled with the sampling location, date, time, and testing requirements on self-adhering labels provided by the laboratory.

4.4.1 Benzene, Toluene, Ethylbenzene, and Xylene

The groundwater samples were analyzed by USEPA Method 8260C for BTEX. Sample containers for volatile organic compounds (VOCs) were three 40-milliliter (mL) glass vials that contained a pre-measured amount of hydrochloric acid (HCl), prepared by the laboratory. HCl is a preservative, and sample containers for VOCs were not rinsed or allowed to overflow during the collection of samples. Water was collected from the well via tubing directly into the glass vial until a convex meniscus formed above the lip of the bottle. Once capped, the vial was checked for air bubbles (headspace) by turning it upside down, tapping the cap of the inverted bottle, and visually inspecting the bottle contents. No bubbles were observed in the vials shipped to the laboratory.

4.4.2 Polynuclear Aromatic Hydrocarbons

Wells sampled in the June 2014 monitoring event were analyzed by USEPA Method 8270D for the presence of PAHs. Sample containers for PAHs were three 40-mL glass vials with no preservative. Water was collected from the well via tubing placed directly into the sample container until filled to the neck.

4.4.3 Metals

Wells sampled in the June 2014 monitoring event were analyzed by USEPA Method 6020A for lead. Sample bottles were 250-mL plastic bottles that contained a pre-measured amount of nitric acid (HNO_3) prepared in the laboratory. HNO_3 is a preservative, and sample containers for metals were not rinsed before or allowed to overflow during sample collection.

4.5 Surface Water Sampling

Surface water samples from the Rio Grande were collected during each semiannual monitoring event for laboratory analytical testing. The samples were subjected to the same group of analytical tests listed previously for the groundwater samples. Surface water grab samples were collected by submerging a decontaminated Teflon® dipper into the river. The dipper was decontaminated between sampling sites with Liquinox, a non-phosphate detergent followed by a double rinse with distilled water.

Sampling protocols outlined in the Monitoring and Sampling Protocol were strictly adhered to during the sampling process.

4.6 Field Quality Assurance/Quality Control (QA/QC)

The Field QA/QC program includes collection of field blanks, equipment blanks, and duplicate samples. The water samples collected during the monitoring events were placed in ice-filled coolers immediately after collection and shipped to ALS Laboratories in Houston, Texas, for analysis. In each event, chain-of-custody forms, documenting sample identification numbers, the required analysis for each sample, collection times, and delivery times to the laboratories, were completed for each set of samples. Copies of chain-of-custody forms are provided in Appendix B. Descriptions of the QA/QC samples and evaluation of QA/QC results for 2014 are presented below.

4.6.1 Field Blanks

Field blanks were used to determine potential absorption of volatile organics from the ambient air into the water samples. The blanks for volatile organics were collected by filling three 40-mL glass vials with distilled water at the time of sampling. Field blanks were also collected and analyzed for BTEX, PAHs, and metals during the June 2014 sampling event.

Lead was detected in two of the field blanks collected during the June 2014 sampling event. The detections of lead in the field blanks may be attributed to ambient conditions unrelated to the site or to conditions at the commercial laboratory used for analyses. The field blanks were analyzed for BTEX only during the December sampling event. None of the constituents were detected in the field blanks collected during this event.

4.6.2 Equipment Blanks

Equipment blanks were collected on non-dedicated or new sampling equipment. During both the June and December sampling events, equipment blanks were collected for the Teflon® dipper and the water level indicator. Immediately following decontamination, the equipment blank was collected by pouring distilled water over the equipment, then filling three 40-mL glass vials with the water from the equipment. The equipment blanks were analyzed for BTEX, PAHs, and metals during the June sampling event.

Naphthalene was the only constituent detected in one of the equipment blanks collected during the June event. The isolated detection in the blank may be attributed to ambient conditions unrelated to the site or to conditions at the commercial laboratory used for analyses.

The equipment blanks were analyzed for BTEX only during the December sampling event. None of the constituents were detected in the equipment blanks collected during this event.

4.6.3 Duplicate Samples

One duplicate sample was collected during each of the semiannual monitoring events. The duplicate samples collected during the June and December monitoring events were collected from Monitor Wells MW-6S and MW-6D, respectively.

Duplicate sample results from June at MW-6S had some variation with the original sample. The duplicate sample result for naphthalene was within an 85 percent difference of the original MW-6S result. Naphthalene detected in MW-6S and the duplicate was reported below the NMWQCC standard. Non-detect analytical results for all other constituents in the duplicate sample were consistent with non-detect original results in MW-6S.

Duplicate sample results from December at MW-6D had no variation with the original sample. Non-detect analytical results for all constituents in the duplicate sample were consistent with non-detect original results in MW-6D.

5. Groundwater Analytical Results

5.1 Benzene, Toluene, Ethylbenzene, and Xylene

According to the Stage 2 Abatement Plan, BTEX concentrations are measured semiannually during the June and December sampling events. Benzene was reported in concentrations above the NMWQCC standard of 10 micrograms per liter (µg/L) in samples collected from Wells MW-5 and MW-8 in June and December 2014. The benzene concentration detected at MW-5 in December 2014 was greater than the concentration at that location in June 2014. The benzene concentration detected at MW-8 in December 2014 was less than concentration reported in June 2014. Benzene was detected below the NMWQCC standard at MW-7 in June 2014.

Toluene, ethylbenzene, and total xylenes were detected in MW-8 during both the June and December sampling events. Only toluene was detected in MW-5 in June 2014. Toluene and total xylenes were detected in MW-5 in December 2014. All detected concentrations of toluene, ethylbenzene and total xylenes were below the NMWQCC standards.

No BTEX constituents were reported in River Upstream or Downstream samples for either June or December. With the exception of the wells listed above, no BTEX constituents were reported in the other wells sampled during June and December 2014. Laboratory results for BTEX analyses are shown in Table 3.

5.2 Polynuclear Aromatic Hydrocarbons

Samples were analyzed for PAHs in June 2014, and concentrations were reported below the NMWQCC standard of 30 µg/L for total PAHs. Laboratory results for PAH analyses are shown in Table 4.

5.3 Metals

On June 19, 2009, NMOCD approved a change to the sampling program, removing all metals, except lead, from the list of analytes. Samples were analyzed for lead in June 2014, and concentrations were reported below the NMWQCC standard of 0.05 milligram per liter.

Laboratory results for lead analyses are shown in Table 5.

6. Remediation Performance

6.1 Bioremediation Pilot Testing

The O-Sox were used during 2011 and the first half of 2012 as a pilot test evaluating bioremediation by enhancing natural attenuation. The EHC-O O-Sox™ uses a patented calcium peroxide (45-70 percent composition) and calcium hydroxide (10-20 percent composition) solid granular material to react with water to release oxygen slowly, which stimulates aerobic biodegradation of groundwater contaminants.

An initial set of O-Sox was placed in Wells MW-5, MW-8, and MW-10 on March 10, 2011. O-Sox replacement occurred in June 2011, September 2011, and

December 2011. Due to a measurement of 0.20 foot of LNAPL in MW-10 in December 2011, the O-Sox sleeve at this well was removed and not replaced; however, O-Sox replacement did occur as planned at MW-5 and MW-8. During the June 2012 sampling event, the O-Sox were removed from MW-5 and MW-8 and have not been replaced.

Following removal of the O-Sox, the benzene concentrations in Wells MW-5 and MW-8 increased with respect to the previous sampling event, but were below the highest concentrations reported for these wells. Since the December 2012 event, the overall trend of concentrations has decreased in Monitor Wells MW-5 and MW-8.

6.2 Product Recovery

The LNAPL product recovery system was shut down and disconnected in 2008. No measureable LNAPL was found in MW-10 during 2009 and 2010. Due to the new measurement of LNAPL in MW-10 (0.20 foot thickness) from December 2011, LNAPL removal was re-initiated during 2012 with quarterly bailing or pumping activities at MW-10. While only two removal events took place in 2012, a quarterly visit for LNAPL removal took place in September 2013 in addition to the June and December 2013 events. During the June 2014 event, no measureable LNAPL was observed in Well WP-14, and a sheen with the appearance of biofilm was observed in Well MW-10.

The O-Sox were removed from MW-10 and WP-14 during the June 2014 sampling event. During the December 2014 event, traces of tar were observed in WP-14 and no measurable LNAPL was observed in MW-10. A sample of the tar was removed from WP-14 for visual observations. The tar appeared to be thick and highly weathered. Attempts were also made to clear the well of this tar using sorbent material. The tar has not been observed at any other well locations at the site.

7. Request to Modify Groundwater Monitoring Plan

On September 30, 2014, Huntsman met with NMOCD to discuss a proposal to modify the current groundwater sampling performed at the site. During the meeting, Huntsman provided supporting data for groundwater conditions that included the following:

- **Monitor Wells MW-3S, -3D, -6D, -7, -9S:** No exceedances of NMWQCC standards from 2003 through 2013;

- **Monitor Wells MW-4, -14, and -15:** No exceedances of NMWQCC standards since 2004;

- **Monitor Wells MW-11 and -17:** No exceedances of NMWQCC standards since these wells were added back into the Groundwater Monitoring Plan in 2010;

- **Monitor Well MW-10:** As of 2005, approximately 235 gallons of free-phase organics have been removed. In 2010, collection of groundwater data from this well was initiated due to the absence of free-phase organics; and

- **Monitor Wells MW-5 and -8:** Of all the parameters analyzed at these locations, benzene is the only parameter detected above NMWQCC standards. No free-phase organics have been detected at these locations since 2010. PAH concentrations have only been detected above NMWQCC standards during one event. No other analytes have been detected above NMWQCC standards at these two locations.

As a result of the meeting, it was agreed that Huntsman should request the following modifications of the Groundwater Monitoring Plan:

- Cease sampling of and plug Monitor Wells MW-4, MW-7, MW-14, and MW-15;

- Cease analysis for PAHs for all monitor wells except MW-8;

- Cease analysis for lead;

- Cease sampling of the Rio Grande;

- Perform analyses for benzene only for Monitor Wells MW-3S, MW-3D, MW-5, MW-6S, MW-6D, MW-8, MW-9S, MW-10, MW-11, and MW-17; and

- Remove remaining well points.

Huntsman submitted a modification request for the sampling program through correspondence dated November 19, 2014. A copy of the modification request is provided as Appendix C.

8. Conclusions

Overall, the reported concentrations in groundwater appear to be stable or decreasing. During the 2014 reporting period, only benzene concentrations from two wells exceeded NMWQCC standards; PAHs and lead were reported below NMWQCC standards. Benzene concentrations exceeded NMWQCC standards at MW-5 and MW-8. A bioremediation stimulant (O-Sox) was utilized during the first half of 2012 as a pilot study to enhance degradation of dissolved-phase benzene at these two wells and in MW-10. Review of laboratory results shows a general decrease in benzene concentrations in MW-5, MW-8, and MW-10. This decreasing trend will be verified with future sampling events.

The 2014 sampling events confirmed that residual LNAPL is present at the site. Tar was observed in Well WP-14 during the December 2014 sampling event.

9. Recommendations

Based upon the data collected during the 2014 sampling program and the meeting with NMOCD on September 30, 2014, the following recommendations are proposed for the remediation system and monitoring operations at the former Brickland Refinery.

- Continue LNAPL removal at MW-10, if feasible, by bailing or pumping at quarterly intervals;
- Remove WP-14 because the well is shallow and does not yield groundwater. The tar observed at this location is isolated and its presence in the well may have occurred at the time of installation or from some other physical or mechanical process not related to site conditions;
- Cease sampling of and plug Monitor Wells MW-4, MW-7, MW-14, and MW-15;
- Cease analysis for PAHs for all monitor wells except MW-8;
- Remove lead as a constituent of concern for the Groundwater Monitoring Plan. Lead has not been detected in groundwater samples at concentrations above the NMWQCC standard since 2005;
- Cease sampling of the Rio Grande;

- Perform analyses for benzene only for Monitor Wells MW-3S, MW-3D, MW-5, MW-6S, MW-6D, MW-8, MW-9S, MW-10, MW-11, and MW-17; and

- Remove remaining well points.

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Table 1. Water Sampling and Purging Methods, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well No.	Sample Date	Purge Method	Sampling Method	Purge Volume	Laboratory Analytes
MW-1	6/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
MW-3S	6/9/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX
MW-3D	6/9/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/10/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX
MW-4	6/11/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
MW-5	6/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX
MW-6S	6/10/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/9/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX
MW-6D	6/10/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/9/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX
MW-7	6/11/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAH, Lead
MW-8	6/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX
MW-9S	6/9/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/9/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX
MW-10	6/11/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/11/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX
MW-11	6/9/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/11/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX
MW-12	6/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 4 gallons	BTEX, PAH, Lead
MW-14	6/11/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAH, Lead
MW-15	6/11/2014	Low-Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAH, Lead
MW-16	6/11/2014	(1)	(1)	(1)	(1)
MW-17	6/9/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAH, Lead
	12/10/2014	Low-Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX
River Upstream	6/11/2014	NA	Teflon Dipper	NA	BTEX, PAH, Lead
	12/11/2014	NA	Teflon Dipper	NA	BTEX
River Downstream	6/11/2014	NA	Teflon Dipper	NA	BTEX, PAH, Lead
	12/11/2014	NA	Teflon Dipper	NA	BTEX
Total volume purged during semiannual monitoring event in June 2014:					49 gallons
Total volume purged during annual monitoring event in December 2014:					30 gallons
Total volume purged during semiannual and annual monitoring events:					79 gallons

Notes:
(1) = Well is root bound; unable to get tubing in well.
BTEX = Benzene, toluene, ethylbenzene, and xylenes.
NA = Not applicable.
PAH = Polynuclear aromatic hydrocarbon.

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Table 2. Monitor Well Groundwater Elevations, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well ID	TOC	6/18/2003	12/16/2003	6/16/2004	12/16/2004	6/15/2005	12/14/2005	6/13/2006	12/14/2006	6/13/2007	12/11/2007	6/25/2008	1/7/2009	6/30/2009	12/9/2009	6/21/2010	12/7/2010	6/28/2011	12/13/2011	6/19/2012	12/11/2012	6/11/2013	12/3/2013	6/9/2014	12/9/2014
MW-1	3730.57	3725.55	3723.69	3725.56	3723.6	3726.5	3724.01	3725.89	3724.29	3726.74	3724.57	3726.88	3724.4	3726.94	3724.20	3726.79	3724.08	3726.27	3723.93	3725.83	3724.01	3725.80	3724.07	3726.26	3723.96
MW-2	Plugged	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 5/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99
MW-3S	3730.00	3724.65	3722.69	3724.61	3722.71	3725.56	3723.1	3725.02	3723.34	3725.82	3723.49	3725.99	3723.53	3725.98	3723.24	3725.88	3723.15	3725.35	3723.05	3724.86	3723.03	3724.68	3723.08	3725.27	3722.84
MW-3D	3730.00	3724.57	3722.61	3724.62	3722.64	3725.49	3723.04	3724.96	3723.29	3725.78	3723.57	3725.96	3723.5	3725.92	3723.68	3725.83	3723.07	3725.37	3722.93	3724.96	3722.91	3724.81	3723.28	3725.37	3722.74
MW-4	3728.86	3724.87	3722.88	3724.76	3722.96	3725.75	3723.37	3725.21	3723.62	3726.06	3723.77	3726.26	3723.82	3726.22	3723.52	3726.41	3723.41	3725.51	3723.26	3725.11	3723.20	3724.73	3723.34	3725.35	3723.05
MW-5	3729.70	3724.91	3722.85	3724.83	3722.98	3725.68	3723.38	3725.15	3723.65	3726.02	3723.84	3726.14	3723.85	3726.21	3723.51	3726.13	3723.54	3725.50*	3722.13*	3724.91*	3723.27	3724.66	3723.37	3725.22	3723.14
MW-6S	3730.65	3724.4	3722.38	3724.4	3722.45	3725.21	3722.9	3724.76	3722.99	3725.53	3723.13	3725.7	3723.29	3725.68	3722.99	3725.70	3722.83	3725.11	3722.69	3724.70	3722.71	3724.50	3722.61	3725.07	3722.50
MW-6D	3730.62	3724.36	3722.33	3724.38	3722.41	3725.22	3722.86	3724.74	3722.98	3725.58	3723.28	3725.76	3723.25	3725.69	3722.95	3725.62	3722.85	3725.06	3722.76	3724.67	3722.70	3724.54	3722.59	3725.19	3722.46
MW-7	3728.96	3724.76	3722.69	3724.75	3722.82	3725.53	3723.24	3725.06	3723.45	3725.92	3723.78	3726.05	3723.64	3726.39	3723.42	3725.99	3723.26	3725.43	3723.04	3724.99	3723.08	3724.73	3723.06	3725.39	3722.93
MW-8	3729.22	3724.67	3722.63	3724.62	3722.84	3725.28	3723.25	3724.91	3723.46	3725.53	3723.67	3725.79	3723.62	3725.78	3723.39	3725.53	3723.22	3725.25*	3721.89*	3724.76*	3723.05	3723.87	3723.04	3724.46	3722.89
MW-9S	3730.01	3724.04	3722.02	3723.97	3722.18	3724.85	3722.65	3724.39	3722.89	3725.4	3723.17	3725.41	3723.17	3725.41	3722.88	3725.35	3723.23	3725.16	3722.32	3724.33	3722.49	3723.98	3722.38	3724.68	3722.32
MW-9D	3730.08	Dry	Dry	Dry	Dry	Dry	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05	Plugged 7/05
MW-10	3732.54	3725.67	3722.31	3724.41	3722.56	3725.24	3723.11	3724.53	3723.29	3725.83	3723.54	3732.54	3723.47	3725.82	3723.22	3725.73	3722.91	3724.87*	3722.21*	3724.34	3722.55	3724.56	3722.79	3724.88	3722.72
MW-11	3731.40	3724.51	3721.17	3724.42	3722.74	3725.24	3723.21	3724.65	3723.43	3725.77	3723.62	3725.74	3723.53	3725.76	3723.30	3725.69	3723.17	3724.95	3722.94	3724.64	3722.98	3723.80	3722.95	3724.48	3722.78
MW-12	3730.35	3725.93	3724.09	3725.9	3723.86	3726.74	3724.4	3726.24	3724.66	3727.1	3724.8	3726.95	3724.79	3727.28	3724.49	3727.08	3724.52	3726.70	3724.79	3726.21	3724.33	3726.00	3724.30	3726.54	3724.14
MW-13	3732.36	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99	Plugged 6/99
MW-14	3730.46	3725.3	3722.79	3724.81	3722.88	3725.67	3723.3	3725.17	3723.55	3726.03	3723.82	3726.13	3723.77	3726.14	3723.45	3726.06	3723.58	3725.49	3723.44	3725.09	3724.84	3724.70	3724.16	3725.31	3723.01
MW-15	3738.62	3724.35	3722.38	3724.28	3722.58	3725.16	3723.04	3724.69	3723.42	3725.75	3723.57	3725.73	3723.58	3725.74	3723.26	3725.62	3723.26	3724.99	3723.15	3724.63	3722.81	3724.19	3722.74	3724.83	3722.60
MW-16	3736.78	3724.17	3722.14	3724.13	3722.34	3725	3722.78	3724.48	3723.05	3725.53	3723.29	3725.51	3723.28	3725.51	3722.99	3725.43	3722.78	3724.87	3724.76	3724.64	3724.71	3724.12	(1)	3724.73	3722.70
MW-17	3731.98	3724.67	3722.61	3724.67	3722.71	3725.53	3723.15	3725.06	3723.33	3725.93	3723.63	3726	3723.63	3726.02	3723.28	3726.02	3723.17	3725.40	3723.02	3724.95	3723.05	3724.80	3722.91	3725.44	3722.77

Notes:
All units are feet mean sea level.
* = Oxygen-releasing compound sleeves/socks (O-Sox) were utilized at these wells to enhance natural attenuation. Water elevations may be artificially lowered due to displacement caused by the O-Sox.
(1) = Roots on probe.
Dry = Monitoring point was dry.
Plugged = Plugged and abandoned as of specified date.
TOC = Top of casing.

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Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well	Date	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	6/10/2014	ND	ND	ND	ND
MW-3S	6/19/2003	ND	ND	ND	ND
	12/17/2003	ND	ND	ND	ND
	6/16/2004	ND	ND	ND	ND
	12/16/2004	ND	ND	ND	ND
	6/15/2005	ND	ND	ND	ND
	12/16/2005	ND	ND	ND	ND
	6/15/2006	ND	ND	ND	ND
	12/14/2006	ND	ND	ND	ND
	6/14/2007	ND	ND	ND	ND
	12/17/2007	ND	ND	ND	ND
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	ND	ND	ND	ND
	12/10/2009	ND	ND	ND	ND
	6/23/2010	ND	ND	ND	ND
	12/7/2010	ND	ND	ND	ND
	6/29/2011	ND	ND	ND	ND
	12/14/2011	ND	ND	ND	ND
	6/19/2012	ND	ND	ND	ND
	12/11/2012	ND	ND	ND	ND
	6/12/2013	ND	ND	ND	ND
	12/4/2013	ND	ND	ND	ND
	6/9/2014	ND	ND	ND	ND
	12/10/2014	ND	ND	ND	ND
MW-3D	6/19/2003	ND	ND	ND	ND
	12/17/2003	ND, ND	ND, ND	ND, ND	ND, ND
	6/16/2004	ND	ND	ND	ND
	12/16/2004	ND	ND	ND	ND
	6/15/2005	ND	ND	ND	ND
	12/16/2005	ND	ND	ND	ND
	6/15/2006	ND	ND	ND	ND
	12/14/2006	ND	ND	ND	ND
	6/14/2007	ND	ND	ND	ND
	12/17/2007	ND	ND	ND	ND
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	ND	ND	ND	ND
	12/10/2009	ND	ND	ND	ND
	6/23/2010	ND	ND	ND	ND
	12/7/2010	ND	ND	ND	ND
	6/29/2011	ND	ND	ND	ND
	12/14/2011	ND	ND	ND	ND
	6/19/2012	ND	ND	ND	ND
	12/11/2012	ND	ND	ND	ND
	6/12/2013	ND	ND	ND	ND
	12/4/2013	ND	ND	ND	ND
	6/9/2014	ND	ND	ND	ND
	12/10/2014	ND	ND	ND	ND
MW-4	6/28/2002	**100, 87**	ND, ND	ND, ND	ND, ND
	12/6/2002	--	--	--	--
	6/19/2003	--[a]	--[a]	--[a]	--[a]
	12/17/2003	--[a]	--[a]	--[a]	--[a]
	6/16/2004	**45**	ND	ND	ND
	12/16/2004	ND	ND	ND	ND
	6/14/2006	ND	ND	ND	ND
	12/14/2006	ND	ND	ND	ND
	6/14/2007	--[a]	--[a]	--[a]	--[a]
	12/17/2007	--[a]	--[a]	--[a]	--[a]
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	--[a]	--[a]	--[a]	--[a]
	12/10/2009	--[a]	--[a]	--[a]	--[a]
	6/22/2010	ND	ND	ND	ND
	6/28/2011	--[a]	--[a]	--[a]	--[a]
	12/15/2011	--[a]	--[a]	--[a]	--[a]
	6/20/2012	2.9	ND	ND	ND
	12/13/2012	ND	ND	ND	ND
	6/12/2013	--[a]	--[a]	--[a]	--[a]
	12/3/2013	--[a]	--[a]	--[a]	--[a]
	6/11/2014	ND	ND	ND	ND
MW-5[b]	6/21/2010	**2200**	6.7	3	21
	6/30/2011	**870**	2.6J	ND	8.5J
	12/13/2011	**2000**	4.4	1.4	14 P
	7/20/2012	**400**	2.3J	1.4JP	26
	12/13/2012	**1100, 910**	ND, 2.7	ND, 0.96JP	18, 16
	6/13/2013	**1200**	9.5	7	32
	12/4/2013	**140**	ND	ND	ND
	6/10/2014	**420**	1.3J	ND	ND
	12/10/2014	**580**	2.5P	ND	27

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Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well	Date	Benzene	Toluene	Ethylbenzene	Xylenes
MW-6S[a]	6/19/2003	ND	ND	ND	8.7
	12/17/2003	ND	ND	ND	ND
	6/16/2004	ND, ND	ND, ND	ND, ND	ND, ND
	12/16/2004	ND, ND	ND, ND	ND, ND	ND, ND
	6/15/2005	0.8	ND	ND	0.86
	12/16/2005	ND	ND	ND	ND
	6/15/2006	ND, ND	ND, ND	ND, ND	ND, ND
	12/14/2006	11, 6.1	ND, ND	7.3, ND	1.6, ND
	6/14/2007	ND, ND	ND, ND	8.0 , 9.2	1.5, ND
	12/17/2007	ND, ND	ND, ND	2.2 , ND	ND, ND
	6/25/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	1.7, 1.8	ND, ND	4.6, 4.2	ND, ND
	12/11/2009	ND, ND	ND, ND	ND, ND	ND, ND
	6/24/2010	ND, ND	ND, ND	ND, ND	ND, ND
	6/29/2011	0.61J, ND	ND, ND	ND, ND	ND, ND
	12/16/2011	ND, ND	ND, ND	ND, ND	ND, ND
	6/21/2012	ND, ND	ND, ND	ND, ND	ND, ND
	12/12/2012	ND	ND	ND	1.4J
	6/12/2013	ND, ND	ND, ND	ND, ND	ND, ND
	12/4/2013	ND, ND	ND, ND	ND, ND	ND, ND
	6/10/2014	ND, ND	ND, ND	ND, ND	ND, ND
	12/9/2014	ND	ND	ND	ND
MW-6D	6/19/2003	ND	ND	ND	ND
	12/17/2003	ND	ND	ND	ND
	6/16/2004	ND	ND	ND	ND
	12/16/2004	ND	ND	ND	ND
	6/15/2005	ND	ND	ND	ND
	12/16/2005	ND	ND	ND	ND
	6/15/2006	ND	ND	ND	ND
	12/14/2006	ND	ND	ND	ND
	6/14/2007	ND	ND	ND	ND
	12/17/2007	ND	ND	ND	ND
	6/25/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	ND	ND	ND	ND
	12/11/2009	ND	ND	ND	ND
	6/24/2010	ND	ND	ND	ND
	12/8/2010	ND	ND	ND	ND
	6/29/2011	ND	ND	ND	ND
	12/16/2011	ND	ND	ND	ND
	6/21/2012	ND	ND	ND	ND
	12/12/2012	ND	ND	ND	ND
	6/12/2013	ND	ND	ND	ND
	12/4/2013	ND	ND	ND	ND
	6/10/2014	ND	ND	ND	ND
	12/9/2014	ND, ND	ND, ND	ND, ND	ND, ND
MW-7	6/28/2002	ND	ND	ND	ND
	12/6/2002	--	--	--	--
	6/19/2003	--*	--*	--*	--*
	12/17/2003	--*	--*	--*	--*
	6/16/2004	ND	ND	ND	ND
	12/16/2004	--	--	--	--
	6/14/2006	ND	ND	ND	ND
	12/14/2006	--	--	--	--
	6/14/2007	ND	ND	ND	ND
	12/17/2007	--*	--*	--*	--*
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	--*	--*	--*	--*
	12/10/2009	--*	--*	--*	--*
	6/22/2010	ND	ND	ND	ND
	6/28/2011	--*	--*	--*	--*
	12/15/2011	--*	--*	--*	--*
	6/20/2012	ND	ND	ND	ND
	12/12/2012	ND	ND	ND	0.62J
	6/12/2013	--*	--*	--*	--*
	12/3/2013	--*	--*	--*	--*
	6/11/2014	1.4J	ND	ND	ND
MW-8	6/22/2010	**6800**	27	23	32
	6/30/2011	**460**	ND	ND	ND
	12/14/2011	**9900**	7.7	15	12 P
	7/20/2012	**2700**	6.1J	7.2J	ND
	12/13/2012	**5500**	ND	ND	ND
	6/13/2013	**4700**	7.6	8.7	13
	12/4/2013	**270**	ND	ND	ND
	6/10/2014	**3300**	10	4.3J	5.5J
	12/10/2014	**1600**	4.1P	4.1	3.4

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Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well	Date	Benzene	Toluene	Ethylbenzene	Xylenes
MW-9S	6/19/2003	ND, ND	ND, ND	ND, ND	ND, ND
	12/17/2003	ND	ND	ND	ND
	6/16/2004	ND	ND	ND	ND
	12/16/2004	ND	ND	ND	ND
	6/15/2005	ND	0.60	ND	1.4
	12/16/2005	ND	ND	ND	ND
	6/15/2006	ND	ND	ND	ND
	12/14/2006	ND	ND	ND	ND
	6/14/2007	ND	ND	ND	ND
	12/17/2007	ND	ND	ND	ND
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/2/2009	ND	ND	ND	ND
	12/10/2009	ND	ND	ND	ND
	6/23/2010	ND	ND	ND	ND
	12/8/2010	ND	ND	ND	ND
	6/29/2011	ND	ND	ND	ND
	12/15/2011	ND	ND	ND	ND
	6/21/2012	ND	ND	ND	ND
	12/12/2012	ND	ND	ND	ND
	6/12/2013	ND	ND	ND	ND
	12/4/2013	ND	ND	ND	ND
	6/9/2014	ND	ND	ND	ND
	12/9/2014	ND	ND	ND	ND
MW-10	6/24/2010	ND	ND	ND	3.9
	6/30/2011	ND	ND	ND	3.2
	12/14/2011	**30**	2.1	ND	50
	7/20/2012	**12**	1.3	0.39JP	19
	12/13/2012	**15**	0.88J	ND	6.0P
	6/13/2013	2.8	ND	ND	ND
	12/5/2013	ND	ND	ND	ND
	6/11/2014	ND	ND	ND	ND
	12/11/2014	ND	ND	ND	ND
MW-11	6/22/2010	ND	ND	ND	ND
	6/28/2011	4.7	ND	ND	ND
	12/15/2011	--	--	--	--
	6/19/2012	--	--	--	--
	12/12/2012	--	--	--	--
	6/11/2013	ND	ND	ND	ND
	12/3/2013	ND	ND	ND	ND
	6/9/2014	ND	ND	ND	ND
	12/11/2014	ND	ND	ND	ND
MW-12	6/10/2014	ND	ND	ND	ND
MW-14	6/28/2002	**11**	ND	ND	ND
	12/6/2002	--	--	--	--
	6/19/2003	--*	--*	--*	--*
	12/17/2003	--*	--*	--*	--*
	6/16/2004	**230**	ND	ND	ND
	12/16/2004	--*	--*	--*	--*
	6/14/2006	ND	ND	ND	ND
	12/14/2006	--	--	--	--
	6/14/2007	--*	--*	--*	--*
	12/17/2007	--*	--*	--*	--*
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	--*	--*	--*	--*
	12/10/2009	--*	--*	--*	--*
	6/22/2010	ND	ND	ND	ND
	6/28/2011	--*	--*	--*	--*
	12/15/2011	--*	--*	--*	--*
	6/20/2012	ND	ND	ND	ND
	6/11/2013	--*	--*	--*	--*
	12/3/2013	--*	--*	--*	--*
	6/11/2014	ND	ND	ND	ND
MW-15	6/28/2002	ND	ND	ND	ND
	12/6/2002	--	--	--	--
	6/19/2003	--*	--*	--*	--*
	12/17/2003	--*	--*	--*	--*
	6/16/2004	ND	ND	ND	ND
	12/16/2004	--	--	--	--
	6/14/2006	ND	ND	ND	ND
	12/14/2006	--	--	--	--
	6/14/2007	--*	--*	--*	--*
	12/17/2007	--*	--*	--*	--*
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	--*	--*	--*	--*
	12/10/2009	--*	--*	--*	--*
	6/23/2010	ND	ND	ND	ND
	6/28/2011	--*	--*	--*	--*
	12/15/2011	--*	--*	--*	--*
	6/21/2012	ND	ND	ND	ND
	12/12/2012	ND	ND	ND	ND
	6/11/2013	--*	--*	--*	--*
	12/3/2013	--*	--*	--*	--*
	6/11/2014	ND	ND	ND	ND

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Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well	Date	Benzene	Toluene	Ethylbenzene	Xylenes
MW-17	6/22/2010	ND	ND	ND	ND
	6/28/2011	ND	ND	ND	ND
	12/15/2011	--	--	--	--
	6/19/2012	--	--	--	--
	12/12/2012	--	--	--	--
	6/11/2013	6.8	ND	ND	ND
	12/4/2013	ND	ND	ND	ND
	6/9/2014	ND	ND	ND	ND
	12/10/2014	ND	ND	ND	ND
River Upstream	6/19/2003	ND	ND	ND	ND
	12/17/2003	ND	ND	ND	ND
	6/16/2004	ND	ND	ND	ND
	12/16/2004	ND	ND	ND	ND
	6/15/2005	ND	ND	ND	ND
	12/16/2005	ND	ND	ND	ND
	6/15/2006	ND	ND	ND	ND
	12/14/2006	ND	ND	ND	ND
	6/14/2007	ND	ND	ND	ND
	12/17/2007	ND	ND	ND	ND
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	ND	ND	ND	ND
	12/10/2009	ND	ND	ND	ND
	6/23/2010	ND	ND	ND	ND
	12/7/2010	ND	ND	ND	ND
	6/30/2011	ND	ND	ND	ND
	12/13/2011	ND	ND	ND	ND
	6/19/2012	ND	ND	ND	ND
	12/11/2012	ND	ND	ND	ND
	6/13/2013	ND	ND	ND	ND
	12/5/2013	ND	ND	ND	ND
	6/11/2014	ND	ND	ND	ND
	12/11/2014	ND	ND	ND	ND
River Downstream	6/19/2003	ND	ND	ND	ND
	12/17/2003	ND	ND	ND	ND
	6/16/2004	ND	ND	ND	ND
	12/16/2004	ND	ND	ND	ND
	6/15/2005	ND	ND	ND	ND
	12/16/2005	ND	ND	ND	ND
	6/15/2006	ND	ND	ND	ND
	12/14/2006	ND	ND	ND	ND
	6/14/2007	ND	ND	ND	ND
	12/17/2007	ND	ND	ND	ND
	6/24/2008	ND	ND	ND	ND
	1/8/2009	ND	ND	ND	ND
	7/1/2009	ND	ND	ND	ND
	12/10/2009	ND	ND	ND	ND
	6/23/2010	ND	ND	ND	ND
	12/7/2009	ND	ND	ND	ND
	6/30/2011	ND	ND	ND	ND
	12/13/2011	ND	ND	ND	ND
	6/19/2012	ND	ND	ND	ND
	12/11/2012	ND	ND	ND	ND
	6/13/2013	ND	ND	ND	ND
	12/5/2013	ND	ND	ND	ND
	6/11/2014	ND	ND	ND	ND
	12/11/2014	ND	ND	ND	ND
NMWQCC Standard (µg/L)		**10**	**750**	**750**	**620**

Notes:
All units are micrograms per liter (µg/L).
[a] = MW-5, MW-6S, and MW-6D and respective duplicate samples are reported in the same cell and separated by a comma.
-- = Sample not collected/analyzed for this constituent.
--* = Sample not collected/analyzed for this constituent in odd-numbered years.
BOLD = Concentrations in bold type indicate levels exceed NMWQCC standards.
J = The value is considered estimated by the laboratory as the analyte was detected below the laboratory's quantitation limit but above the laboratory's reporting limit.
ND = Not detected.
NMWQCC = New Mexico Water Quality Control Commission.
P = Dual column results percentage difference is > 40%.

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Table 4. Total Polynuclear Aromatic Hydrocarbon Concentrations in Monitor Wells and River Surface Water Samples, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well ID	12/8/1993	3/25/1994	7/12/1994	9/28/1994	12/13/1994	3/28/1995	6/21/1995	9/1/1995	6/21/1996	6/26/1997	6/25/1998	6/3/1999	6/14/2000	7/27/2001	6/27/2002	6/19/2003	6/16/2004	6/15/2005	6/14/2006	6/14/2007	6/25/2008	7/2/2009	7/21/2010	6/28/2011	6/19/2012	6/11/2013	6/9/2014
MW-1	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND
MW-2	--	ND	ND	ND	ND	--	--	--	--	--	--	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A
MW-3S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND,ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	--	ND, ND	ND	ND	ND	--	--	--	--	--	--	--	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--	0.0962
MW-5	--	**107**	**117**	**191**	**139**	**117**	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.67	0.42	--	1.73	0.837
MW-6S	ND	ND	ND	ND	ND	ND	15, 10	ND	ND	ND	ND	22, **32**	ND	ND	ND,ND	ND	ND,ND	ND	ND,ND	ND,ND	ND, ND	ND, ND	ND	ND, ND	ND, ND	0.21, 0.70	0.0757, 0.187
MW-6D	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	--	ND	ND	ND	ND	--	--	--	--	--	--	ND,ND	ND,ND	ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--	0.0462
MW-8	--	**250**	**93**	**366**	**236**	**180**	--	**140**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.21	ND	--	**43.33**	3.279
MW-9S	ND	ND	ND	ND	ND	ND	ND	ND	ND,ND	ND	ND,ND	ND	ND	ND	ND	ND,ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.13	1.66	--	4.42	2.563
MW-11	--	29	ND	**233**	**148**	ND	--	**140**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	0.06	--	0.50	0.4822
MW-12	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND
MW-13	--	--	--	--	--	--	--	--	--	--	--	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A
MW-14	--	--	**570**	**40**	ND	ND	12	ND	--	--	--	ND	ND	ND,ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--	0.0417
MW-15	--	--	**117**	**126**	**84**	ND	ND	ND	--	--	--	ND	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--	0.0584
MW-16	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-17	--	--	--	**58, 37**	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.03	--	ND	ND
River-Upstream	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0224
River-Downstream	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0202

June 2014 Data Detail							
Well	Acenaphthene	Acenaphthylene	Anthracene	Fluorene	Naphthalene [1]	Phenanthrene	Pyrene
MW-1	ND	ND	ND	ND	ND	ND	ND
MW-3S	ND	ND	ND	ND	ND	ND	ND
MW-3D	ND	ND	ND	ND	ND	ND	ND
MW-4	ND	ND	ND	0.0224J	0.0738J	ND	ND
MW-5	0.202	0.0650J	ND	0.323	0.247	ND	ND
MW-6S	ND	ND	ND	ND	0.0757J, 0.187	ND	ND
MW-6D	ND	ND	ND	ND	ND	ND	ND
MW-7	ND	ND	ND	ND	0.0462J	ND	ND
MW-8	0.146	ND	ND	0.176	2.64	0.317	ND
MW-9S	ND	ND	ND	ND	ND	ND	ND
MW-10	1.06	0.231	0.3	ND	0.517	ND	0.455
MW-11	0.242	ND	ND	ND	0.0612J	ND	0.179
MW-12	ND	ND	ND	ND	ND	ND	ND
MW-14	ND	ND	ND	ND	0.0417J	ND	ND
MW-15	ND	ND	ND	ND	0.0584J	ND	ND
MW-17	ND	ND	ND	ND	ND	ND	ND
River-Upstream	ND	ND	ND	ND	0.0224J	ND	ND
River-Downstream	ND	ND	ND	ND	0.0202J	ND	ND

Notes:
All units are micrograms per liter (µg/L).
Total PAH concentration is the sum of the low-level PAHs listed in the data detail section.
Duplicate result reported with MW-6S line, following the comma.
[1] = Naphthalene was reported in one Equipment Blank sample at 0.0269J µg/L
-- = Not sampled.
BOLD = Concentrations in bold type indicate levels exceed the New Mexico Water Quality Control Commission standard for PAH concentrations (30 µg/L).
J = The value is considered estimated by the laboratory as the analyte was detected below the laboratory's quantitation limit but above the laboratory's reporting limit.
ND = Not detected.
P&A = Plugged and abandoned.
PAH = Polynuclear aromatic hydrocarbon.

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Table 5. Lead Concentrations in Monitor Wells and River Surface Water Samples, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well	6/28/2002	6/19/2003	6/17/2004	6/15/2005	6/14/2006	6/14/2007	6/25/2008	7/1/2009	6/21/2010	6/28/2011	6/19/2012	6/11/2013	6/9/2014
MW-1	--	--	--	--	--	--	--	--	--	--	--	--	ND
MW-3S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	0.018	ND, ND	--	ND	ND	--	ND	--*	ND	--*	ND	--*	ND
MW-5	--	--*	--	--*	--	--*	--	--*	ND	0.00117J	--	ND	ND
MW-6S	ND	ND	ND, ND	ND	ND, ND	ND, ND	ND	ND	ND	ND, 0.00274J	0.00152J, 0.00155J	ND	ND, ND
MW-6D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	0.022	ND	--	**0.19**	ND	--*	ND	--*	ND	--*	ND	--*	0.000699J
MW-8	--	--*	--	--*	--	--*	--	--*	ND	0.00841	--	ND	0.00385J
MW-9S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	--	--*	--	--*	--	--*	--	--*	ND	ND	--	ND	ND
MW-11	--	--*	--	--*	--	--*	--	--*	ND	ND	--	ND	ND
MW-12	--	--	--	--	--	--	--	--	--	--	--	--	ND
MW-14	0.015	ND	--	ND	ND	--*	ND	--*	ND	--*	ND	--*	ND
MW-15	0.012	ND	--	ND	ND	--*	ND	--*	ND	--*	ND	--*	ND
MW-17	--	--*	--	--*	--	--*	--	--*	ND	ND	--	ND	ND
River Upstream	ND	ND	ND	ND	ND	0.0071	ND	ND	ND	0.00214J	0.00674	0.00546	**0.0211**
River Downstream	ND	ND	ND	ND	ND	0.0057	ND	ND	ND	0.00216J	0.00536	ND	**0.0214**

Notes:

All units are milligrams per liter (mg/L).

Duplicate result reported with MW-6S line, following the comma.

-- = Sample not collected/analyzed for this constituent.

--* = Sample not collected/analyzed for this constituent in odd-numbered years.

BOLD = Concentrations in bold type indicate levels exceed the New Mexico Water Quality Control Commission standard for lead (0.05 mg/L).

J = The value is considered estimated by the laboratory because the analyte was detected below the laboratory's quantitation limit but above the laboratory's reporting limit.

ND = Concentration was below laboratory detection limits.

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Table 6. LNAPL Thickness Measurements, 2014 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well ID	Jun-03	Dec-03	Jun-04	Dec-04	Jun-05	Dec-05	Jun-06	Dec-06	Jun-07	Dec-07	Jun-08	Jan-09	Jul-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Dec-13	Jun-14	Dec-14
MW-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-2	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A
MW-3S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-3D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	0.00	0.00
MW-6S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-6D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-9S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-10	0.00	**0.13**	**0.08**	**0.05**	**0.10**	0.00	Trace	Trace	0.00	Trace	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.20**	**0.11**	**0.04**	**0.04**	Sheen	Sheen	0.00
MW-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-13	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A	P&A
MW-14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MW-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	NM[1]	0.00	0.00
MW-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WP-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	Sheen	0.00
WP-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Trace	0.00	0.00	Sheen	0.00
WP-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Dry	0.00	Dry	0.00	Dry	Dry	Dry
WP-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Trace	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	Sheen	0.00
WP-14	Tar	Tar	Tar	Tar	Tar	Tar	Tar	Tar	Tar	Tar	Trace	0.00	0.00	0.00	0.00	0.00	**0.02**	0.00	Tar	Tar	**0.33**	Tar	0.00	Tar/Dry
WP-25	Dry	Dry	Dry	Dry	Dry	Dry	**0.70**	**0.52**	**0.54**	**0.52**	**0.45**	**0.08**	**0.07**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	0.00
WP-26S	**0.35**	**0.80**	**0.63**	**0.86**	**0.66**	**0.52**	**0.58**	**0.47**	**0.48**	**0.35**	**0.73**	**0.38**	**0.25**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	Sheen	0.00
WP-26D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	Sheen	0.00
WP-27S	**0.01**	0.00	0.00	0.00	0.00	0.00	Trace	**0.02**	0.00	Trace	0.00	**0.01**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	0.00	0.00
WP-27D	**0.12**	**0.26**	**0.06**	**0.11**	0.00	**0.04**	0.00	**0.04**	0.00	**0.03**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sheen	Sheen	0.00
WP-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WP-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Dry	0.00	Dry	0.00	0.00	0.00	0.00	NM	NM	NM	NM	NM	0.00	NM[2]	NM[2]	NM[2]
WP-32	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Trace	Dry	Dry	NM	NM	NM	NM	NM	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WP-33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Trace	0.00	0.00	Sheen	0.00

Notes:

[1] = Roots on probe.

[2] = Cap could not be removed.

BOLD = Measurable amount of LNAPL observed.

Dry = Monitoring point was dry.

LNAPL = Light Non-Aqueous Phase Liquid.

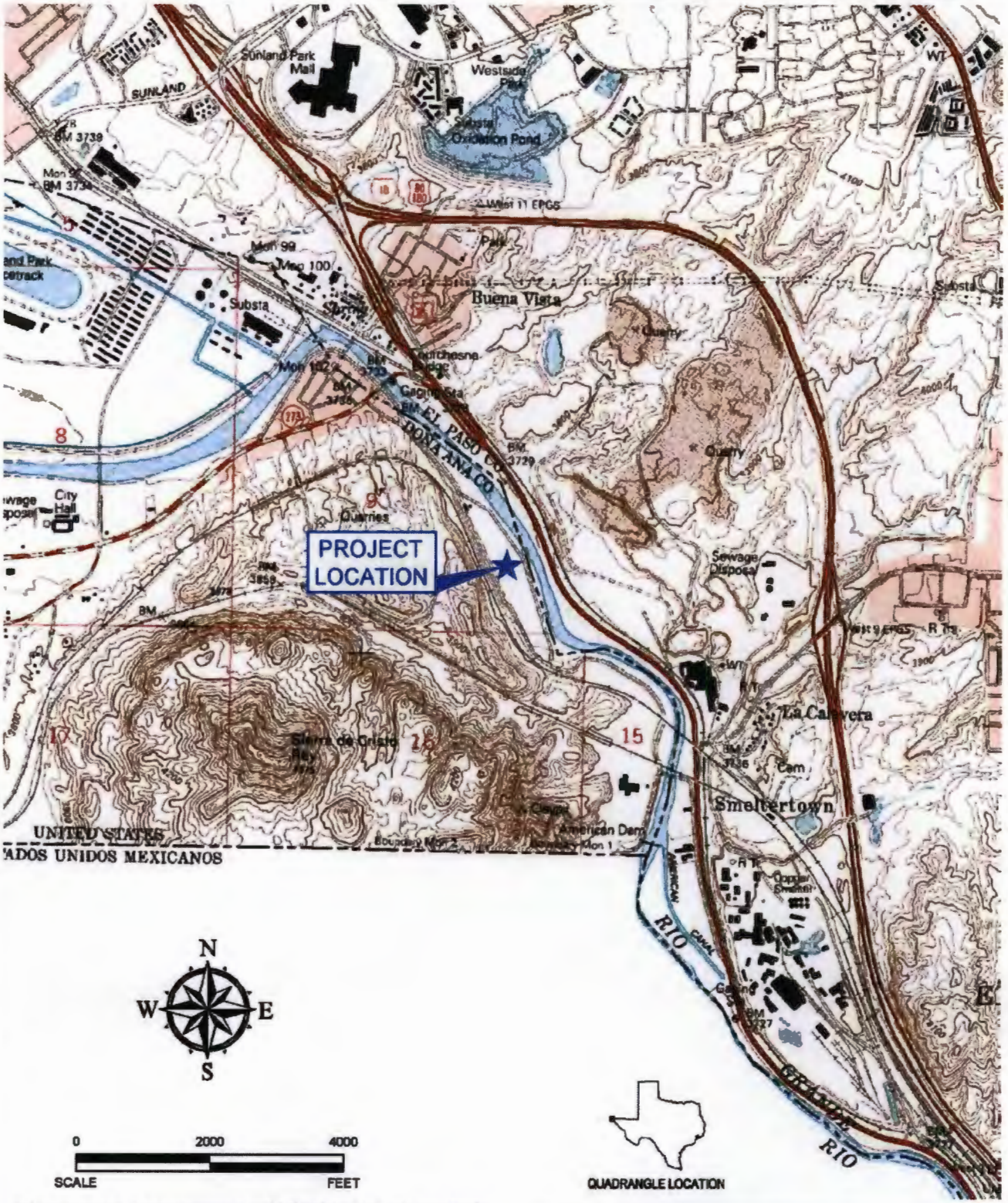
NM = Not measured.

P&A = Plugged and abandoned.

Sheen = Thin layer of LNAPL or oxidation observed; too thin to measure. See field notes for details.

Tar = Thickness measurement not obtainable because of presence of thick, tar-like substance in well point.

Trace = Traces of LNAPL observed; too thin to measure.



SOURCE: U.S.G.S. 7.5' QUADRANGLE, SMELTERTOWN, TX, 1994 (o31106G5).

FORMER BRICKLAND REFINERY
HUNTSMAN CORPORATION
SUNLAND PARK, NEW MEXICO

SITE LOCATION MAP

ARCADIS

FIGURE 1

DRAWN BY: S. MEN CHECKED BY: TDR PROJECT MANAGER: DRE
G:\AP\PROJECT\HUNTSMAN\LA003185.0001\Figures\3185-01-01.dwg PLOTTED: 3/7/2014 1:10 PM BY: MEN, SOTHON

0 200' 400'

DOWNSTREAM

MW-9S

MW-6D

MW-6S

WP-27D

WP-27S

MW-15

WP-2

WP-1

WP-3

WP-32

WP-25

MW-17

MW-10

MW-16

MW-3D

MW-3S

WP-7

WP-31

RIO GRANDE RIVER

WP-30

MW-7

MW-11

WP-33

WP-9

W. PAISANO DR. (HWY. 85)

ACCESS ROAD

MW-14

MW-8

MW-4

FORMER BRICKLAND
REFINERY SITE

WP-14

MW-1

MW-5

BRICKLAND RD.

UPSTREAM

MW-12

NOTES:

1. ONLY ACTIVELY MEASURED WELLS SHOWN, PLUGGED AND ABANDONED EXCLUDED.

3. SOURCE: GCL FIGURE 2, FPRDCT2. DWG (9/13/95).

LEGEND

- MW-1 — MONITOR WELL LOCATION AND DESIGNATION
- FENCE
- CULVERT
- APPROXIMATE RIVER SAMPLING LOCATION
- WELL POINT

FORMER BRICKLAND REFINERY
HUNTSMAN CORPORATION
SUNLAND PARK, NEW MEXICO

SITE LAYOUT

ARCADIS

FIGURE 2

DRAWN BY: S. MEN CHECKED BY: TDR PROJECT MANAGER: DRE
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0 200' 400'

DOWNSTREAM

MW-9S
3724.68

MW-6D
3725.19

MW-6S
3725.07

3725.0

WP-27D

WP-27S

MW-15
3724.83

WP-32

WP-3

WP-2

WP-1

WP-25

MW-17
3725.44

MW-10
3724.88

WP-7

MW-16
3724.73

WP-31

3724.5

WP-30

MW-3D
3725.37

MW-3S
3725.27

W. PAISANO DR. (HWY. 85)

RIO GRANDE RIVER

MW-7
3725.39

WP-9

WP-33

MW-11
3724.48

3725.5

ACCESS ROAD

MW-14
3725.31

MW-8
3724.46

MW-4
3725.35

FORMER BRICKLAND
REFINERY SITE

3726.0

WP-14

MW-1
3726.26

UPSTREAM

MW-5
3725.22

BRICKYARD RD.

3725.0

3724.5

3725.5

3726.0

3726.5

MW-12
3726.54

LEGEND

MW-1 / 3726.26	MONITOR WELL LOCATION AND DESIGNATION / WATER LEVEL ELEVATION (FT, MEAN SEA LEVEL)
—3726.0—	POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
	DIRECTION OF GROUNDWATER FLOW
	FENCE
	CULVERT
	APPROXIMATE RIVER SAMPLING LOCATION
	WELL POINT

NOTES:

1. ONLY ACTIVELY MEASURED WELLS SHOWN, PLUGGED AND ABANDONED EXCLUDED.

2. VALUES IN PARENTHESES WERE ANOMALOUS AND NOT USED TO CONTOUR.

3. SOURCE: GCL FIGURE 2, FPRDCT2. DWG (9/13/95).

4. CONTOUR INTERVAL IS 0.5 FOOT.

FORMER BRICKLAND REFINERY
HUNTSMAN CORPORATION
SUNLAND PARK, NEW MEXICO

POTENTIOMETRIC SURFACE MAP JUNE 2014

ARCADIS

FIGURE 3

DRAWN BY: S. MEN CHECKED BY: TDR PROJECT MANAGER: DRE
G:\APROJECT\HUNTSMAN\LA003185.0001\Figures\mxd\ey20153185-01-03.dwg PLOTTED: 3/11/2015 8:58 AM BY: MEN, SOTHON

0 200' 400'

DOWNSTREAM

MW-9S 3722.32

3722.5

MW-6S 3722.50

MW-6D 3722.46

WP-27D

WP-27S

MW-15 3722.60

WP-32

WP-2

WP-1

WP-3

WP-25

MW-17 3722.77

MW-10 3722.72

WP-7

MW-16 3722.70

WP-31

WP-30

MW-3D 3722.74

MW-3S 3722.84

3723.0

W. PAISANO DR. (HWY. 85)

RIO GRANDE RIVER

MW-7 3722.93

WP-9

WP-33

MW-11 3722.78

3723.5

ACCESS ROAD

MW-14 3723.01

MW-8 3722.89

MW-4 3723.05

FORMER BRICKLAND REFINERY SITE

WP-14

3724.0

UPSTREAM

MW-1 3723.96

MW-5 3723.14

BRICKLAND RD.

3723.5

3723.0

3724.0

MW-12 3724.14

NOTES:

1. ONLY ACTIVELY MEASURED WELLS SHOWN, PLUGGED AND ABANDONED EXCLUDED.

2. VALUES IN PARENTHESES WERE ANOMALOUS AND NOT USED TO CONTOUR.

3. SOURCE: GCL FIGURE 2, FPRDCT2. DWG (9/13/95).

4. CONTOUR INTERVAL IS 0.5 FOOT.

LEGEND

- MW-1 / 3723.96 — MONITOR WELL LOCATION AND DESIGNATION; WATER LEVEL ELEVATION (FT, MEAN SEA LEVEL)
- —3723.5— POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- DIRECTION OF GROUNDWATER FLOW
- FENCE
- CULVERT
- APPROXIMATE RIVER SAMPLING LOCATION
- WELL POINT

FORMER BRICKLAND REFINERY
HUNTSMAN CORPORATION
SUNLAND PARK, NEW MEXICO

POTENTIOMETRIC SURFACE MAP DECEMBER 2014

ARCADIS

FIGURE 4

DRAWN BY: S. MEN CHECKED BY: TDR PROJECT MANAGER: DRE
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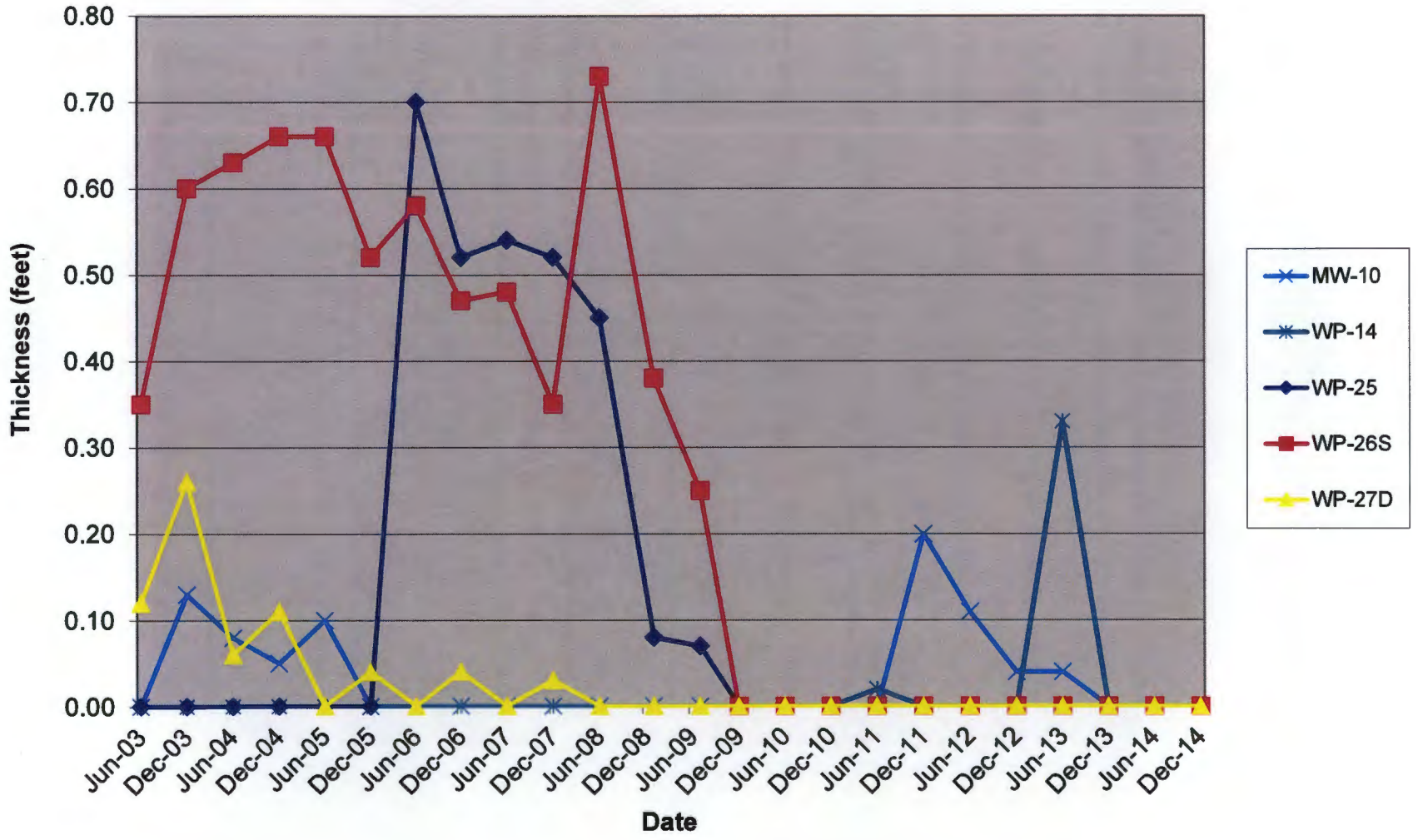
ARCADIS

Figure 5 - Historical LNAPL Thickness



ARCADIS

Appendix A

Field Data

ARCADIS

WELL GAUGING LOG

Site Name: Huntsman Project

Project Number: LACC3185.000

Date & Time: 3/17/2014

Gauging Equations (before purging) LNAPL Only

water column height = (well depth in feet) - (initial depth to water in feet)

product layer thickness = (initial depth to water in feet) - (depth to product in feet)

Well Gauging Information Readings to top of Casing

	Well ID	Total Depth (feet bgs)	Depth to Product (feet bgs)	Depth to Water (feet bgs)	Water Column Height (feet bgs)	Product Layer Thickness (feet bgs)	Product Removed (gallons)	Comments
1017	MW-15			15.92				0.1 ppm PID
1020	MW-32	11.46		Dry				0.2 ppm PID
1024	WP-27D		Sheen	14.41	Oxidation on Probe			[redacted] ppm 5.0 PID
1022	WP-29S		Sheen	14.42	Oxidation on Probe			74.3 ppm PID
1032	MW-16	14.03			Rock Bard			0.1 ppm PID
1035	WP 31				Can't get lid off			
1030	WP-07		Sheen	10.88				0.1 ppm
1045	MW 10		Sheen	9.94	Replacing Pig			11.4 ppm
1044	WP-26S		Color	9.73				4.7 ppm
1037	WP-25		Sheen	8.02				1.6 ppm
1039	WP-01		Sheen	10.68				155.3 ppm
1040	WP-26D			10.53	Oxidation on Probe			141.4 ppm PIG
1055	WP-02		Sheen	8.95	Oxidation on Probe			6.7 ppm
1100	MW-11			8.51				0.1 ppm
1103	WP-33		Sheen	10.01				58.3 ppm
1105	WP 30		Sheen	11.05	Oxidation on Probe			0.3 ppm
1114	MW-05		Color	6.37				134.2 ppm
1122	MW-04			5.55				0.4 ppm
1310	MW-14			7.25				0.6 ppm
1312	MW-17			9.10				0.2 ppm
1315	MW-09			5.97				0.0 ppm
1127	WP-14	5.18	Unable to read, Replacing Pig					0.2 ppm
1330	WP-03	7.03	~~7.05~~	dry				0.1 ppm
1335	MW-01			6.52				0.0 ppm
1342	MW-03D			7.01				0.1 ppm
1343	MW-03S			6.96				0.0 ppm
1110	MW-08			6.15				1.9 ppm
1348	MW-06D			8.10				0.0 ppm
1350	MW-06S			8.08				5.5 ppm
	MW-09S			7.70				0.1 ppm

Equipment and Decon Procedures

Gauging Equipment: Solinst, PID

Decon Procedures: ID H2O

* Changed out 4 pigs

file stamp

WELL GAUGING LOG

Site Name: Huntsman

Project Number: LA003185.000

Date & Time: 3/17/14

Gauging Equations (before purging) LNAPL Only

water column height = (well depth in feet) - (initial depth to water in feet)

product layer thickness = (initial depth to water in feet) - (depth to product in feet)

Well Gauging Information

Well ID	Total Depth (feet bgs)	Depth to Product (feet bgs)	Depth to Water (feet bgs)	Water Column Height (feet bgs)	Product Layer Thickness (feet bgs)	Product Removed (gallons)	Comments
MW-12			6.12				0.2 ppm

Equipment and Decon Procedures

Gauging Equipment _____

Decon Procedures _____

ARCADIS

Document Control Number:TGM - _____
TGM + *project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance, at least daily.

Project Name: Huntsman			Project Location: Sunland Park, NM
Date: 6-9-14	Time:	Conducted by: D. Solon	Signature/Title: D. Solon Field Supervisor
Client:	Client Contact:		Subcontractor companies:

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Well Gauging
2 PID Readings
3
4
5
6

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☒ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JLAs or procedures are available?	☐ Field teams to "dirty" JLAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (**L**ow, **M**edium, **H**igh - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☐ Gravity (i.e., ladder, scaffold, trips) (L M H)	☒ Motion (i.e., traffic, moving water) (L M H) Working close to River Bank	☐ Mechanical (i.e., augers, motors) (L M H)
☐ Electrical (i.e. utilities, lightning) (L M H)	☐ Pressure (i.e. gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) Heat - Fluids
☒ Chemical (i.e., fuel, acid, paint) (L M H) Bottle preservative	☒ Biological (i.e., ticks, poison ivy) (L M H) Spiders / Insects	☒ Radiation (i.e., alpha, sun, laser) (L M H) Sunscreen
☐ Sound (i.e., machinery, generators) (L M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) Off Road

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JLAs, and other control processes. Discuss and document any additional control processes

- [X] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - *(See statements below)*

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[X] Monitoring
[X] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[X] Decon Procedures
[X] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JLA to be developed/used *(specify)*	[ ] LPO conducted *(specify job/JLA)*	[ ] Traffic Control
[ ]	[ ]	[ ] Other *(specify)*
[ ]	[ ]	[ ]

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the
Douglas Myton / Arcadis /	DS 0750		
Ana Gutierrez / Arcadis /	AG 0750		

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will, in turn, notify Corp H&S at 1.720.344.3844

In the event of a motor vehicle accident employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3756.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1.678.373.9556 and Corp H&S at

Visitor Name/Co - not involved in work

In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments

If it is necessary to STOP THE JOB, I will perform TRACK; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things | **WorkCare - 1.800.455.6155**

ARCADIS

Document Control Number: TGM - _____

TGM + project number plus date as follows: xxxxxxx xx.xx.xxxxx - dd/mm/year

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance at least daily.

Project Name: Huntsman			Project Location: Sunland Park, NM
Date: 6-10-14	Time: 0750	Conducted by: D. Solon	Signature/Title: D M Solon / Field Supervisor
Client:		Client Contact:	Subcontractor companies:

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 WELL Sampling 3 _____ 5 _____

2 _____ 4 _____ 6 _____

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☒ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☒ Incicents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JLAs or procedures are available?	☐ Field teams to "dirty" JLAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **Assess** the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e. ladder, scaffold, trips) (L M H)	☒ Motion (i.e., traffic, moving water) (L M H) work close to River Bank	☐ Mechanical (i.e. augers, motors) (L M H)
☐ Electrical (i.e. utilities, lightning) (L M H)	☐ Pressure (i.e. gas cylinders, wells) (L M H)	☒ Environment (i.e. heat cold ice) (L M H) Heat - fluids
☒ Chemical (i.e., fuel, acid, paint) (L M H) Bottle preservative	☒ Biological (i.e. ticks, poison ivy) (L M H) spiders / snakes	☒ Radiation (i.e., alpha, sun, laser) (L M H) Sun screen
☐ Sound (i.e. machinery, generators) (L M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) Company Vehicle / off Road

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JLAs, and other control processes. Discuss and document any additional control processes

- [x] **STOP WORK AUTHORITY** (Must be addressed in every Tailgate meeting - *(See statements below)*

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Admin strative controls	[x] Monitoring
[x] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[x] Decon Procedures
[x] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JLA to be developed/used ***(specify)***	[ ] LPO conducted ***(specify job/JLA)***	[ ] Traffic Control
		[ ] Other *(specify)*

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the
Doug Solon / ARCADIS / Doug Solon	DS 800		DS
Ana Gutierrez / ARCADIS / Ana Gutierrez	AG 800		AG

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns

In the event of an injury, employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will, in turn, notify Corp H&S at 1.720.344.3844

In the event of a motor vehicle accident employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3756.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1.678.373.5656 and Corp H&S at:

Visitor Name/Co - not involved in work

In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments

If it is necessary to STOP THE JOB, I will perform TRACK; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today: _____
- [ ] Incidents that occurred today: _____
- [ ] Any Stop Work interventions today? _____
- [ ] Corrective/Preventive Actions needed for future work: _____
- [ ] Any other H&S issues: _____

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

ARCADIS

Document Control Number:TGM - _____

TGM + *project number plus date as follows: xxxxxxx.xx.xx.xxxxx - dd/mm/year*

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance at least daily.

Project Name: Huntsman			Project Location: Siverland Park, NM
Date: 6-11-14	Time:	Conducted by: D. Solon	Signature/Title: D.M. Solon / Field Supervisor
Client:		Client Contact:	Subcontractor companies:

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1 Well Sampling
2 River Sampling
3
4
5
6

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here: _____

If yes, describe them here: _____

How will they be controlled? _____

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☒ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO)		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☒ Incicents from day before to review?	☐ Lessons learned from the day before?	☐ Topics from Corp H&S to cover?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ Any Stop Work Interventions yesterday?
☐ JLAs or procedures are available?	☐ Field teams to "dirty" JLAs, as needed?	☐ If deviations, notify PM & client
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ All equipment checked & OK?
		☒ Staff knows gathering points?

Comments: _____

Recognize the hazards (check all those that are discussed) (Examples are provided) and **Assess** the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category.

☒ Gravity (i.e., ladder, scaffold, trips) (L M H)	☒ Motion (i.e., traffic, moving water) (L M H) working close to River Bank	☐ Mechanical (i.e. augers, motors) (L M H)
☐ Electrical (i.e. utilities, lightning) (L M H)	☐ Pressure (i.e. gas cylinders, wells) (L M H)	☒ Environment (i.e., heat cold, ice) (L M H) Heat fluids
☒ Chemical (i.e., fuel, acid, paint) (L M H) Bottles w/ preservatives	☒ Biological (i.e. ticks, poison ivy) (L M H) Spiders / Snakes	☒ Radiation (i.e., alpha, sun, laser) (L M H) Sun Screen
☐ Sound (i.e. machinery, generators) (L M H)	☐ Personal (i.e. alone, night, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) Company Vehicle / off Road

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss those methods to control the hazards that will be implemented for the day): Review the HASP, applicable JLAs, and other control processes. Discuss and document any additional control processes

- [X] STOP WORK AUTHORITY (Must be addressed in every Tailgate meeting - *See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Admin strative controls	[X] Monitoring
[X] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[X] Decon Procedures
[X] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JLA to be developed/used ***(specify)***	[ ] LPO conducted ***(specify job/JLA)***	[ ] Traffic Control
		[ ] Other ***(specify)***

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the
Doug Solon / ARCADIS / Dougsolon	DS/0730		
Angi Everett / Arcadis /	AG/0756		AG
Edward Gunderson / Huntsman /	EG/1024		EG

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns

In the event of an injury employees will call WorkCare at 1.800.455.6155 and then notify the field supervisor who will in turn, notify Corp H&S at 1.720.344.3844

In the event of a motor vehicle accident employees will notify the field supervisor who will then notify Corp H&S at 1.720.344.3844 and then Corp Legal at 1.720.344.3758.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1.678.373.5550 and Corp H&S at

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments

If it is necessary to STOP THE JOB, I will perform TRACK; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today:
- [ ] Incidents that occurred today:
- [ ] Any Stop Work interventions today?
- [ ] Corrective/Preventive Actions needed for future work:
- [ ] Any other H&S issues:

Keep H&S 1st in all things

WorkCare - 1.800.455.6155

ARCADIS

DAILY LOG

Project / No. LA003185.0001 Page ____ of ____

Site Location Huntsman - Sunland Park, NM Date 6-9-14

Subject ____ Prepared By D. Solon

Time	Description of Activities
0745	Arrive at site
0750	Tailgate meeting - D. Solon, A. Gutierrez
0800	Began gauging wells on site
0940	Finished gauging all wells
0945	Setup on mw-17 for sampling
1006	Began purging mw-17
1040	Sampled mw-17 for BTEX, PAH + metals (Pb) - Decon equipment
1050	Field Blank - using DI H2O - FB060914
1100	Setup on mw-11 for sampling
1105	Began purging on mw-11
1140	Sampled mw-11 for BTEX, PAH, + metals (Pb) - Decon equipment
1145	Equipment Blank on o/w Probe - DI H2O across ~~probe~~ probe - FB060914
1200	Lunch - Return to office
1305	Setup on mw 95 for sampling
1315	Began pumping on 95
1345	Sampled mw-95 - BTEX, PAH & Metals (Pb) - Decon equipment
1408	Setup on mw-3D
1415	Began pumping on mw-3D
1450	Sampled mw-3D for BTEX, PAH & Metals (Pb) Decon Equipment
1500	SETup & Began pumping on mw-35
1535	Sampled mw-35 for BTEX, PAH & Metals (Pb) - Decon equipment - (1545) - Dumped purge H2O into onsite BBLS (1550) - offsite - Return to office - (1610) packaged & ship samples (1700) Travel to FEDEX

ARCADIS

DAILY LOG

Project / No. LA003185.0001 Page ____ of ____

Site Location Huntsman - Sunland Park Date 6-10-14

Subject ____ Prepared By D. Solon

Time	Description of Activities
0755	Arrive at site
0800	Tailgate meeting
0810	Setup @ MW-6D - Began purging well
0840	Sampled MW-6D - BTEX, PAH & Metals (Pb) - Decon Equipment
0850	Field Blank - FB061014 - DI H2O - BTEX, PAH & Metals (Pb).
0855	Setup & Began pumping MW-6S
0930	Sampled MW-6S - BTEX, PAH & metals (Pb) - Decon Equipment
	Duplicate sample TAKEN @ MW-6S - DUP061014 - BTEX, PAH & Metals (Pb)
0940	Return to office / Restroom break
1005	Setup on MW-12 & began pumping
1100	Sampled MW-12 - BTEX, PAH & metals (Pb) - Decon Equipment
1110	Dumped purge H2O into onsite BBLS
1115	Return to office
1130	Lunch
1255	Setup on MW-01 + began pumping
1335	Sampled MW-01 - BTEX, PAH & metals (Pb) - Decon equipment
1345	Equipment Blank - EB061014 - BTEX, PAH & metals (Pb) - DI across o/w probe
1355	SETUP on MW-05 and began pumping
1440	Sampled MW-05 - BTEX, PAH & Metals (Pb) - Decon Equipment
1450	Setup on MW-08 - Began pumping
1540	Sampled MW-08 - BTEX, PAH & metals (Pb) - Decon Equipment
1550	Dumped purge H2O on-site BBLS
1600	offsite - Returned to office
1610	Packed coolers for shipping
1645	Departed for FEDEX

ARCADIS

DAILY LOG

Project / No. LA 003185.0001 Page ____ of ____

Site Location Huntsman - Sunland Park, NM Date 6-11-14

Subject ____ Prepared By ____

Time	Description of Activities
0730	Calibrated meters
0750	arrived on-site
0755	Tail gate meeting
0800	setup on MW-14 and began pumping
0835	Sampled MW-14 BTEX, PAH & Metals (Pb) - Decon Equipment
0845	Field Blank - FB061114 - DI H2O
0850	Setup on MW-04 - Began pumping
0925	Sampled MW-04 - BTEX, PAH & Metals (Pb) - Decon Equipment
0935	Equipment Blank - EB061114 - DI H2O across o/w probe
0950	Setup on MW-07 - Began pumping
1015	ED Gunderson on-site
1020	Sampled MW-07 BTEX, PAH & Metals (Pb) - Decon Equipment
1040	Setup on MW-10 Began pumping
1125	Sampled MW-10 - BTEX, PAH & Metals (Pb) - Decon Equipment
	PIGS to remain out per Ed Gunderson - see if NAPL Recovers any product
1140	offsite - back to office
1250	Setup on MW-15 Began pumping
1401	Sampled MW-15 - BTEX, PAH & Metals (Pb) - Decon Equipment
1430	Setup on MW-16 - attempted to pump but well is Root Bound -
	unable to get 1/4" tubing w/ weights through roots - Took general Pictures
1450	Pumped purge H2O into BBL / Locked up gated Fence
1515	Setup and sampled UPSTREAM - Rio Grande River - BTEX, PAH &
	Metals (Pb) - decon equipment
1530	Setup & Sampled Downstream - Rio Grande - BTEX, PAH & Metals (Pb) - decon
1545	Drove around perimeter fence to check on any breakage - Good condition
1550	Returned to office - Packaged samples for shipping
1630	Departed to FEDEX

Huntsman Semi - Sampling - June 2014

D. Solon, A. Gutierrez

12 6-9-14

0745 - arrive on site
0750 - TA. Igate meeting
0800 - Began gauging wells
0940 - Finished gauging all wells
0945 - setup on mw 17 for sampling
1006 - Began pumping
1040 - Sampled mw-17 - BTEX, PAH, metals - Decon
1050 - Field Blank - DI FB0609 14 - 1020
1100 - Setup on mw-11 for sample
1105 - Began pumping mw-11
1140 - Sampled mw-11 - BTEX, PAH, METALS - Decon
1145 - Equipment Blank on o/w probe - DI H2O across probe - EB060914 -
1200 - Lunch - Returned to office
1305 - SETup on mw-9S for sampling
1315 - Began pumping mw-9S
1345 - Sampled mw-9S - BTEX, PAH, metals (Pb) - Decon
1408 - SETup on mw-3D
1415 Began pumping mw-3D

D. Solon

Cont: Huntsman Semi - Sampling June '14

1450 - Sampled mw-3D - BTEX, PAH, metals (Pb)
1500 - SETup & Began pumping on mw-3S
1535 - Sampled mw-3S - BTEX, PAH, METALS (Pb) - DECON
1545 - Dumped purged H2O into onsite BBLS
1550 - offsite - Returned to office
1610 - packaged & ship samples
1700 - Travel to FEDEX

6-10-14 Huntsman Semi - 2014

D. Solon
A. Gutierrez

0755 - arrive at site
0800 - Tailgate meeting
0810 - setup 6D - Began purging well
0840 - Sampled mw-6D - BTEX, PAH & METALS (Pb) Decon equipment
0850 - Field Blank - FB060914 - DI H2O - BTEX PAH & metals (Pb)
0855 - Setup & Began pumping mw-6S
930 - Sampled mw-6S - BTEX, PAH & metals (Pb) Decon equipment
Duplicate sample TAKEN - DUP060914 - BTEX, PAH & metals (Pb)
940 - Return to office / Restroom break
1005 - Setup on MW-12 and began pumping

D. Solon

Cont: Huntsman Semi-Annual June 2014

6-10-14 D. Solow / A. Gutierrez

1100 – Sampled MW-12 - BTEX, PAH & Metals (Pb) - Decon

1110 – Dumped purge H2O into onsite BOL

1115 – Return to office

1130 – Lunch

1255 – Setup on MW-01 and began pumping

1335 – Sampled MW-01 - BTEX, PAH, Metals (Pb) Decon Equipment

1345 – Equipment Blank – EB06014 – BTEX, PAH & Metals (Pb) DI poured o/w probe

1355 – Setup on MW-05 and began pumping

1440 – Sampled MW-05 - BTEX, PAH & metals (Pb) - Decon Equipment

1450 – Setup at MW-08 - Began pumping

1540 – Sampled MW-08 - BTEX, PAH & Metals (Pb) Decon equipment

1550 – Dumped purge H2O onsite

1600 – offsite - Returned to office

1610 – Packaged cooled samples for shipping

1645 – Depart for FLEX

D Solow

Cont: Huntsman Semi-Annual - June 2014

6-11-14 D. Solow / A. Gutierrez

0730 – Calibrated meters

0750 – Arrive on site

0755 – Tailgate meeting

0800 – Setup on MW-14 and began pumping

0835 – sampled MW-14 - BTEX, PAH & metals (Pb) Decon Equipment

0845 – Field Blank - EB06114 - DI H2O

0850 – Setup on MW-04 - Began pumping

0925 – sampled MW-04 - BTEX, PAH & metals (Pb) Decon Equipment

0935 – EB Equipment Blank – EB06114 – DI H2O over o/w probe

950 – Setup on MW-07 - Began pump

1015 – ED Gunderson on-site

1020 – Sampled MW-07 - BTEX, PAH & metals (Pb) Decon Equipment

1040 – setup on MW-10 Began pumping

1125 – Sampled MW-10 - BTEX, PAH & metals (Pb) Decon equipment - PIGS TO REMAIN OUT per ED Gunderson - SEE if WELL Recovers on product.

1140 – offsite - back to office

1250 – Setup on MW-15 - Began pumping

1400 – Sampled MW-15 - BTEX, PAH & metals (Pb) Decon Equipment

1430 – Setup MW-16 - attempted to pump but well is Root Bound - unable to get tubing in - Took several pictures

D Solow

Cont: Hontzman Semi Annual June 2014

6-11-14

1450 - Dumped purge H2O into 3 BBLS/Locked up gated Fence

1515 - Setup and sampled UPSTREAM - Rio Grande River - BTEX, PAH & Metals (Pb)

1530 - Setup and sampled Downstream - Rio Grande River - BTEX, PAH & metals (Pb)

1545 - Drove around perimeter fence to Check on break-through. - Fence in good condition

1550 - Returned to office - Package Samples for shipping

1630 - Depart for FEDEX for shipping

ARCADIS

WELL GAUGING LOG

Site Name: Huntsman

Project Number: LA003185.000

Date & Time: 06/09/14 0952

water column height = (well depth in feet) - (initial depth to water in feet) reading from Top of Casing

Well Gauging Information

Well ID	Date/Time	PID (ppm)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness	Comments
MW-1	6/9/14 0930 0956	0.0		4.31		
MW-2						Plugged
MW-3S	0935	0.0		4.73		
MW-3D	0935	0.0	~~4.05~~	4.63		
MW-4	0920	0.0		3.51		
MW-5	0855	162.4		4.48		~~Odor~~ Odor
MW-6S	0940	1.9		5.38		
MW-6D	0940	0.0		5.48		
MW-7	0905	0.0		6.54		
MW-8	0854	78.0		4.76		slight odor
MW-9S	0945	0.0		5.33		
MW-9D						Plugged
MW-10	0830	7.50	~~7.50~~	7.66		odor, slight sheen, PID
MW-11	0840	0.2		6.92		
MW-12	0925	0.0		3.81		
MW-13						Plugged
MW-14	0915	0.0		5.15		
MW-15	0856	0.2		13.79		
MW-16	0815	0.4		12.05		slight oxidation.
MW-17	0910	0.4		6.54		odor
WP-1	0822	50.6		8.90		oxidation. Sheen
WP-2	0831 ~~0822~~	1.9		6.64		Oxidation. Sheen
WP-3	0910	1.6		dry		TD: 9.03
WP-7	0816	0.2		10.85		Sheen
WP-14	0900	0.4		5.32		Odor
WP-25	0820	0.1		8.50		oxidation & sheen
WP-26S	0827	1.1		8.86		oxidation & sheen
WP-26D	0825	27.8		8.13		heavy oxidation, sheen
WP-27S	0810	34.10		13.50		slight oxidation.
WP-27D	0803	11.30		12.93		Oxidation on Probe, heavy shee
WP-30	0848	0.2		11.27		Slight oxidation
WP-31						Can't get lid off
WP-32	0800	0.4		dry		TD: 11.46
WP-33	0842	33.9		9.71		oxidation, slight sheen, slight odor.

Equipment and Decon Procedures

Gauging Equipment: Sounder, PID

Decon Procedures: ID H2O

Rev stamp

ARCADIS (1)

WATER SAMPLING LOG

Page 1 of 1

Date 6/9/14

Project No	LA003185.000	Sample Personnel	Dawson, Nia Gutierrez
Site Name	Huntsman	Sample ID	MW-17
Site Location	Huntsman	~~Duplicate ID~~ Field Blank	FB060914
Site/Well No.	MW-17	Start pump	1000 Stop pump 1045
Weather	78°F	Start sampling	1040 Stop sampling 1045

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	6.54 / 6.59	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	~~300~~ mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Low Flow Purge

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW (FT)	Appearance (Clarity, Color, Odor)
1010		7.11	12.99	22.7	2.84		1.82	15.2	6.59	clear
1015		7.12	13.04	22.7	2.53		1.36	-37.1	6.59	
1020		7.13	13.05	22.6	2.47		1.86	-51.3	6.59	
1025		7.13	13.03	22.6	2.34		1.70	-66.0	6.59	
1030		7.13	13.02	22.6	2.20		1.41	-76.1	6.59	
1035		7.13	13.02	22.6	2.17		1.13	-82.3	6.59	
1040	3.9	7.13	13.00	22.5	~~3.60~~ 2.60		1.32	-87.3	6.59	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	~~HCl~~ Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3
VOA - BTEX	40ml	3	~~HCl~~ Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks: ~300mg/L, Peristaltic Pump / Field Blank Taken @ 1055
VOA (3) - BTEX VOA (3) - PAH, (1) 250ml Metals (Pb)

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (2)

WATER SAMPLING LOG

Page 1 of 1

Date 060914

Project No	LACO3185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-11
Site Location	Huntsman	~~Duplicate ID~~ Equipment Blank	EB060914
Site/Well No.	MW-11	Start pump	1105 Stop pump 1150
Weather	78°F	Start sampling	1140 Stop sampling 1150

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	6.88 / 8.85	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	_____	Pump Intake Depth (ft)	_____
Total Volume in Well [3]	_____	Evacuation Method	Low-flow purge

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C °F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1110		7.50	7.59	23.7	2.12		2.39	-13.4	7.45	yellow tint on H2O
1115		7.50	7.58	23.8	1.98		0.10	-16.7	7.78	
1120		7.50	7.56	23.9	1.87		0.34	-19.0	8.12	
1125		7.51	7.55	24.1	1.79		5.18	-88.6	8.35	
1130		7.51	7.55	24.1	1.71		1.62	-95.3	8.58	
1135		7.50	7.56	24.0	1.88		2.00	-100.4	8.73	
1140	3	7.50	7.57	23.9	1.78		1.36	-105.9	8.85	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3
EB060914 VOA BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks: Equipment Blank @ 1145 - EB060914

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61 0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (3)

WATER SAMPLING LOG

Page 1 of 1

Date 060914

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-9S
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-9S	Start pump	1310
Weather	83°F	Start sampling	1345
		Stop pump	1355
		Stop sampling	1355

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) ____

Depth to Water before/after (ft)	5.32/5.35	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	____	Pump Intake Depth (ft)	____
Total Volume in Well [3]	____	Evacuation Method	Dedicated Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1315		7.17	18.08	21.2	3.58		2.50	-86.5	5.33	
1320		7.16	17.96	21.0	2.50		1.56	-108.3	5.34	
1325		7.17	17.91	21.0	2.26		2.73	-118.4	5.34	
1330		7.17	17.87	21.0	2.16		1.80	-123.7	5.35	
1335		7.18	17.82	21.0	2.07		1.62	-127.7	5.35	
1340		7.19	17.83	21.0	1.99		1.46	-130.5	5.35	
1345	3	7.19	17.76	21.0	~~2.09~~		3.34	-130.0	5.35	
[illegible]					2.21					
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	NaOH
VOA - PAH	40ml	3	NaOH
Metals (Pb)	250ml	1	~~HCl~~ HNO3

Remarks: Controller set @ 13 rpm & 2 Flow

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (4)

WATER SAMPLING LOG

Page 1 of 1

Date 090914

Project No	LA003185.000	Sample Personnel	DS AG		
Site Name	Huntsman	Sample ID	MW-3D		
Site Location	Huntsman	Duplicate ID	1420		
Site/Well No.	MW-3D	Start pump	~~1415~~	Stop pump	1505
Weather	83°F	Start sampling	1450	Stop sampling	1505

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	4.58 / 4.61	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	_____	Pump Intake Depth (ft)	_____
Total Volume in Well [3]	_____	Evacuation Method	Dedicated pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1420		7.14	19.11	20.0	2.84		7.99	-2.9	4.60	
1425		7.15	18.11	19.9	2.25		~~30.2~~ 5.57	-42.9	4.61	
1430		7.15	18.08	20.0	2.25		2.82	-61.5	4.61	
1435		~~7.15~~ 7.15	~~18.07~~ 18.07	19.9	2.04		4.78	-72.3	4.61	
1440		7.16	18.00	19.9	1.94		1.13	-79.8	4.61	
1445		7.16	17.97	20.1	1.87		1.49	-83.6	4.61	
1450	3	7.16	17.96	20.1	1.80		1.24	-87.3	4.61	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250 ml	1	HNO3

Remarks: 11 CPM & 4 FLAN

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (5)

WATER SAMPLING LOG

Page 1 of 1

Date 060914

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-3S
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-3S	Start pump	1501 / Stop pump 1545
Weather	83°F	Start sampling	1535 / Stop sampling 1645

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft) ____

Depth to Water before/after (ft)	4.65 / 5.32	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Peristaltic pump - low flow

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1505		7.42	10.91	19.0	4.74		0.80	-50.0	5.03	
1510		7.42	10.72	19.1	2.68		3.71	-86.1	5.17	
1515		7.41	10.44	19.0	2.33		1.08	-104.3	5.28	
1520		7.42	10.32	19.1	2.16		2.37	-112.5	5.31	
1525		7.43	10.22	19.1	2.20		2.28	-116.2	5.32	
1530		7.44	10.02	18.9	2.03		6.50	-120.3	5.32	
1535	3	7.44	9.91	19.0	1.98		1.85	-122.1	5.32	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	NaOH
VOA - PAH	40ml	3	NaOH
Metals (CPD)	250 ml	1	HNO_3

Remarks: Dedicated pump did not work so we used the peristaltic pump.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (6) **WATER SAMPLING LOG** Page 1 of 1

Date 06/01/14

Project No	LA003185.000	Sample Personnel	Doug Solan, Ana Gutierrez
Site Name	Huntsman	Sample ID	MW-6D
Site Location	Huntsman	Duplicate ID	FB060114
Site/Well No.	MW-6D	Start pump	0804 Stop pump 0850
Weather	69°F	Start sampling	0840 Stop sampling 0850

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	5.70 / 5.68	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Dedicated Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
0810		7.24	22.07	21.7	3.44		1.57	60.6	5.68	
0815		7.24	22.09	21.7	3.66		1.15	64.8	5.68	
0820		7.24	22.11	21.9	4.37		1.28	19.4	5.68	
0825		7.25	22.15	21.9	4.26		1.40	44.8	5.68	
0830		7.25	22.16	21.9	1.88		1.73	74.0	5.68	
0835		7.24	22.14	22.0	4.15		1.92	28.6	5.68	
0840	3	7.24	22.22	22.0	3.97		2.02	28.7	5.68	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40 ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250 ml	1	HNO_3
FB060114 VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250 ml	1	HNO_3

Remarks: 15 cpm & Discharge 7 (flow). / Field Blank FB060114, Time 0850.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (7) **WATER SAMPLING LOG** Page 1 of 1

Date 060114

Project No	LA003185.000	Sample Personnel	DS AG
Site Name	Huntsman	Sample ID	MW-6S
Site Location	Huntsman	Duplicate ID	~~FD~~ DUP060114
Site/Well No.	MW-6S	Start pump	0855 Stop pump 0945
Weather	69°F	Start sampling	0930 Stop sampling 0945

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	5.69 / 6.51	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	_____	Pump Intake Depth (ft)	_____
Total Volume in Well [3]	_____	Evacuation Method	Dedicated Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
0900		7.09	12.54	21.4	0.69	1.01	-50.2	6.22	
0905		7.08	12.46	22.0	0.78	0.93	-60.1	6.30	
0910		7.08	12.41	21.5	0.90	0.86	-58.9	6.42	
0915		7.07	12.38	22.1	1.15	1.13	-61.9	6.44	
0920		7.04	12.28	22.3	3.61	0.82	-68.8	6.52	
0925		7.04	12.28	23.3	2.48	1.15	-63.8	6.51	
0930	3	7.03	12.44	23.8	2.52	1.33	-68.0	6.51	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO3
DUP060114 VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO3

Remarks: DUP060114 - Duplicate

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (8) **WATER SAMPLING LOG** Page 1 of 1

Date 061014

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-12
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-12	Start pump	1018 / Stop pump 1110
Weather	76°F	Start sampling	1100 / Stop sampling 1110

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft) —

Depth to Water before/after (ft)	3.94 / 3.97	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Low Flow

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [3] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other	Appearance (Clarity, Color, Odor)
1025		8.0	32.40	20.8	2.06		5.04	3.0	3.97	
1030		7.7	32.28	20.9	1.39		37.8	-19.6	3.97	
1035		7.6	32.15	20.7	1.08		30.9	-28.2	3.97	
1040		7.6	32.02	20.7	0.79		27.7	-34.6	3.97	
1045		7.5	31.97	20.7	0.64		25.6	-38.3	3.97	
1050		6.65	31.88	20.6	0.53		21.0	-41.5	3.97	
1055		6.65	31.82	20.7	0.45	17.2	20.7	-48.8	3.97	
1100	4 gal	6.65	31.76	20.6	0.44		14.0	-52.6	3.97	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging. use length of tubing [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks: Note: From 1025-1045 wrong pH read, wrong Units (pH mV instad of pH).

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (9) **WATER SAMPLING LOG** Page 1 of 1

Date 040/014

Project No	LA003185.00	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-01
Site Location	Huntsman	Duplicate ID	EB040/014
Site/Well No.	MW-01	Start pump	1303 Stop pump 1345
Weather	80°F	Start sampling	1335 Stop sampling 1345

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) ____

Depth to Water before/after (ft)	4.51 / 5.38	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	____	Pump Intake Depth (ft)	____
Total Volume in Well [3]	____	Evacuation Method	Low Flow

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1305		7.51	4.42	18.5	1.24		5.07	-54.2	4.73	
1310		7.44	3.90	18.5	0.70		5.40	-91.6	4.50	
1315		7.43	3.85	18.5	0.68		2.49	-105.3	5.18	
1320		7.43	3.83	18.4	0.69		2.38	-108.9	5.31	
1325		7.44	3.82	18.4	0.69		1.20	-109.2	5.37	
1330		7.43	3.82	18.6	0.68		1.21	-108.2	5.41	
1335	3	7.45	3.79	18.4	0.70		1.09	-109.7	5.38	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA – BTEX	40ml	3	Neat
VOA – PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO3
EB040/14 VOA – BTEX	40ml	3	Neat
VOA – PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO3

Remarks: Equipment Blank @1345 EB040/014

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (10) **WATER SAMPLING LOG** Page 1 of 1

Date 6/6/2014

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-5
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-5	Start pump	1407 / Stop pump 1450
Weather	86°F	Start sampling	1440 / Stop sampling 1450

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft) —

Depth to Water before/after (ft)	4.38 15.66	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Low Flow

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1410		6.78	20.11	23.4	1.45		36.9	-95.5	4.66	hydrocarbon odor
1415		6.77	20.09	23.6	0.62		27.5	-107.0	4.52	yellowish tint
1420		6.76	20.07	23.4	0.56		18.3	-114.5	5.25	some suspended
1425		6.75	20.06	23.6	0.59		14.0	-121.4	5.32	solids.
1430		6.72	20.00	23.6	0.56		8.50	-129.3	5.43	Slight sheen
1435		6.67	19.93	23.6	0.55		5.22	-169.5	5.56	in the water
1440	3	6.64	19.83	23.4	0.81		3.58	-252.3	5.66	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA – BTEX	40ml	3	Neat
VOA – PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks:

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (11) **WATER SAMPLING LOG** Page 1 of 1

Date 061014

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-8
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-8	Start pump	1505 / Stop pump 1550
Weather	86°F	Start sampling	1540 / Stop sampling 1550

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft) —

Depth to Water before/after (ft)	4.57 / 6.70	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	LOW FLOW

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1510		7.28	8.94	24.3	0.74		2.91	-221.7	5.12	yellowish tint water
1515		7.24	8.58	24.2	0.66		2.76	-246.9	5.58	suspended solids
1520		7.23	8.50	24.0	0.64		2.63	-255.5	5.81	on water
1525		7.22	8.47	24.2	0.66		3.42	-261.3	6.08	hydrocarbon odor
1530		7.22	8.44	24.1	0.66		3.30	-269.4	6.28	
1535		7.22	8.41	24.2	0.65		3.40	-275.3	6.50	
1540	3	7.21	8.38	24.1			3.00	-277.6	6.70	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	NaCl
VOA - PAH	40ml	3	NaCl
Metals (Pb)	250ml	1	HNO_3

Remarks: —

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (12) **WATER SAMPLING LOG** Page 1 of 1

Date 061114

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-14
Site Location	Huntsman	Duplicate ID	FB061114
Site/Well No.	MW-14	Start pump	0800 Stop pump 0845
Weather	76°F	Start sampling	0835 Stop sampling 0845

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	5.32 / 5.37	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	_____	Pump Intake Depth (ft)	_____
Total Volume in Well [3]	_____	Evacuation Method	Dedicated pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C / °F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
0805		6.92	20.38	22.4	0.41		3.87	-59.5	5.36	Root bound
0810		6.93	20.35	22.5	0.29		2.74	-74.1	5.36	Root bound
0815		6.94	20.36	22.8	0.22		2.33	-80.9	5.36	Root bound
0820		6.94	20.33	22.8	0.17		2.17	-85.7	5.36	Root bound
0825		6.95	19.92	22.9	0.15		2.43	-88.7	5.37	Root bound
0830		6.95	19.64	22.9	0.16		1.93	-90.9	5.37	Root bound
0835	3	6.95	19.43	23.0	0.16		2.36	-91.9	5.37	Root bound
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3
FB061114 VOA-BTEX	40ml	3	Neat
VOA-PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks: Field Blank - FB061114 at 0845
Well is Root bound - DTW not accurate.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (13) **WATER SAMPLING LOG** Page 1 of 1

Date 060114

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	huntsman	Sample ID	MW-4
Site Location	huntsman	Duplicate ID	EB060114
Site/Well No.	MW-4	Start pump	0852 Stop pump 0935
Weather	76°F	Start sampling	0925 Stop sampling 0935

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) ____

Depth to Water before/after (ft)	3.59 / 3.76	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	____	Pump Intake Depth (ft)	____
Total Volume in Well [3]	____	Evacuation Method	LOW FLOW

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
0855		7.08	15.66	23.1	0.46		2.29	-72.4	377	
0900		7.08	15.68	22.7	0.28		1.84	-85.8	376	
0905		7.08	15.68	22.7	0.20		1.70	-90.9	376	
0910		7.08	15.69	22.6	0.16		2.16	-93.8	376	
0915		7.08	15.68	22.7	0.16		2.39	-96.3	376	
0920		7.08	15.69	22.7	0.16		2.18	-97.9	376	
0925		7.08	15.66	22.8	0.17		1.87	-98.6	376	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO3
EB060114 VOA-BTEX	40ml	3	Neat
VOA PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO3

Remarks: Peristaltic pump Equipment Blank EB060114 at 0935.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (14)

WATER SAMPLING LOG

Page 1 of 1

Project No LA003185.000
Site Name Huntsman
Site Location Huntsman
Site/Well No. MW-7
Weather 88°F

Sample Personnel DS, AG
Sample ID MW-7
Duplicate ID
Start pump 0948
Start sampling 1020

Date 061114
Stop pump 1030
Stop sampling 1030

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing
MP Elevation (ft)
Depth to Water before/after (ft) 3.75 / 4.38
Water Column in Well [1] (ft)
Volume per foot in Well [2]
Total Volume in Well [3]

Casing Diameter (in) 4"
Evacuation Vol./Rate 300mg/L
Pump Intake Depth (ft)
Evacuation Method Dedicated Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C °F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
0950		7.12	7.72	22.6	0.09	2.47	-92.4	4.04	Yellow tint to H2O
0955		7.11	7.49	23.0	0.20	1.88	-114.8	4.33	
1000		7.10	7.59	25.1	0.15	2.21	-131.3	4.38	
1005		7.10	7.85	25.2	0.13	2.33	-139.7	4.38	
1010		7.10	8.04	25.0	0.14	2.03	-148.9	4.38	
1015		7.10	8.19	25.2	0.14	2.22	-159.9	4.38	
1020	3	7.10	8.29	25.3	0.13	3.85	-171.4	4.38	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCl
VOA - PAH	40ml	3	HCl
Metals (Pb)	250ml	1	HNO_3

Remarks:

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (15) **WATER SAMPLING LOG** Page 1 of 1

Date 06/11/13

Project No	LA003185.000	Sample Personnel	DS, AG		
Site Name	Huntsman	Sample ID	MW-10		
Site Location	Huntsman	Duplicate ID			
Site/Well No.	MW-10	Start pump	1055	Stop pump	1135
Weather	88°F	Start sampling	1125	Stop sampling	1135

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	7.65 18.58	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]	_____	Pump Intake Depth (ft)	_____
Total Volume in Well [3]	_____	Evacuation Method	Low Flow

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C °F)	DO [4] mg/L	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1055		7.19	9.90	24.8	0.29		2.35	-158.4	8.15	Sheen on water
1100		7.18	9.90	25.4	0.18		2.36	-184.2	8.25	Yellow Tint on
1105		7.18	9.90	25.1	0.17		2.29	-200.3	8.35	water.
1110		7.18	9.91	25.2	0.15		2.64	-213.0	8.43	
1115		7.18	9.91	24.9	0.15		2.31	-220.0	8.50	
1120		7.19	9.88	24.9	0.15		4.77	-223.9	8.53	
1125		7.19	9.86	24.9	0.14		2.32	-227.0	8.58	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks: Peristaltic Pump

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (16) **WATER SAMPLING LOG** Page 1 of 1

Date 061114

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-15
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-15	Start pump	1325 1324 Stop pump 1410
Weather	95°F	Start sampling	1400 Stop sampling 1410

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft)

Depth to Water before/after (ft)	13.90, 13.94	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Dedicated Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	(%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
~~1320~~	~~—~~	~~6.95~~	~~12.55~~	~~26.4~~	~~1.74~~		~~2.68~~	~~-121.2~~	~~13.95~~	
~~1325~~	~~—~~									
1330		6.95	12.55	26.4	17.4		2.68	-121.2	13.95	
1335		6.96	12.50	26.3	3.16		2.45	-121.2	13.92	
1340		6.96	12.50	26.3	4.23		2.43	-80.8	13.92	
1345		6.96	12.52	26.2	4.43		2.70	-62.3	13.94	
1350		6.97	12.52	26.4	4.41		2.34	-35.4	13.94	
1355		6.97	12.49	26.3	4.16		2.74	-26.9	13.94	
1400		6.99	12.17	26.2	3.90		2.67	-24.0	13.94	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(-/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40 ml	3	Neat
VOA - PAH	40 ml	3	Neat
Metals (Pb)	250 ml	1	HNO_3

Remarks: Portable Battery died. Used the trucks 12 volt adapter.

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS

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WATER SAMPLING LOG

Page 1 of 1

Date 060114

Project No	LA003185.000	Sample Personnel	DS, AG		
Site Name	Huntsman	Sample ID	MW-16		
Site Location	Huntsman	Duplicate ID			
Site/Well No.	MW-16	Start pump	NA	Stop pump	NA
Weather	95°F	Start sampling	NA	Stop sampling	NA

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	/	Casing Diameter (in)	
Water Column in Well [1] (ft)		Evacuation Vol./Rate	
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other	Appearance (Clarity, Color, Odor)
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative

Remarks: 1430 attempt to pump but well is root bound, unable to get tubing in. Took pictures.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 060114

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	Upstream
Site Location	Rio Grande	Duplicate ID	
Site/Well No.	Upstream	Start pump	NA / Stop pump NA
Weather	95°F	Start sampling	1515 / Stop sampling NA

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	/	Casing Diameter (in)	
Water Column in Well [1] (ft)		Evacuation Vol./Rate	
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C °F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other	Appearance (Clarity, Color, Odor)
1515		8.31	0.92	30.1	4.74	1000+	47.3		Cloudy
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	Neat
VOA - PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks: ~~Plastic sampler~~ taken from Samples taken from plastic river sampler.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 06/11/14

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	Downstream
Site Location	Rio Grande	Duplicate ID	
Site/Well No.	Downstream	Start pump	NA
Weather	95°F	Start sampling	1530
		Stop pump	NA
		Stop sampling	~~NA~~ 13

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	/	Casing Diameter (in)	
Water Column in Well [1] (ft)		Evacuation Vol./Rate	
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C / °F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other	Appearance (Clarity, Color, Odor)
1530		8.32	0.95	29.1	5.10		1000+	58.4		Cloudy
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+ - 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA – BTEX	40ml	3	Neat
VOA – PAH	40ml	3	Neat
Metals (Pb)	250ml	1	HNO_3

Remarks: _____

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65 0.5" = 38.61 0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ALS Environmental

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Chain of Custody Form

Page 1 of 1

COC ID: 09565

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	LA003185.0001	Project Name	Arcadis - El Paso Smelter	A	8260 BTEX (unpreserved)
Work Order		Project Number		B	8270 - PAH (NEAT)
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS U.S., Inc.	C	6020- Lead (Hno3)
Send Report To	Malcom Pirnie	Invoice Attn	Malcom Pirnie	D	
Address	211 N Florence Street, Suite 202	Address	211 N Florence Stree., Suite 202	E	
				F	
City/State/Zip	El Paso,	City/State/Zip	El Paso,	G	
Phone	(915) 533-9025	Phone	(915) 533-9025	H	
Fax	(915) 533-9045	Fax	(915) 533-9045	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-4D	06/10/14	0910	L	Y		X	X	X								
2	[illegible]06/10/14	06/10/14	0850	L	Y	1	X	X	X								
3	MW-6S	06/10/14	0930	L	Y	1	X	X	X								
4	[illegible]PC06/10/14	06/10/14	—	L	Y	1	X	X	X								
5	[illegible]	06/10/14	1100	L	Y	1	X	X	X								
6	[illegible]	06/10/14	1335	W	Y	7	X	X	X								
7	[illegible]	06/10/14	1345	W	Y	7	X	X	X								
8	[illegible]	06/10/14	1440	W	Y	7	X	X	X								
9	[illegible]	06/10/14	1540	W	Y	7	X	X	X								
10																	

Sampler(s) Please Print & Sign: Doug Solon DMSolon

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☒ Std 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
DMSolon	6/10/14	1615	
Relinquished by:	Date:	Time:	Received by (Laboratory):
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☐ Level 2 Std QC ☐ TRRP ChkList
☐ Level 3 Std QC Raw da ☐ TRRP Level 4
☐ Level 4 SW846 CLP
☐ Other DQO

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

FedEx Office

4190 N MESA ST
El Paso, TX 79902

Location: ELPKK
Device ID: ELPKK-POS2
Employee: 2023875
Transaction: 830118531469

PRIORITY OVERNIGHT
899670186167 37.90 lb (S) 92.82

Scheduled Delivery Date 06/10/2014

Shipment subtotal: 92.82

Total Due: 92.82

FedEx Account: 92.82
*****9486

M = Weight entered manually
S = Weight read from scale
T = Taxable item

Subject to additional charges. See FedEx Service Guide at fedex.com for details. All merchandise sales final.

Visit us at: fedex.com
Or call 1.800.GoFedEx
1.800.463.3339

FedEx Express US Airbill

FedEx Tracking Number 8996 7018 6167

Form ID No. 0215

MUR3

Please print and press hard.

Date 6-9-14 Sender's FedEx Account Number 3521-9948-6

Sender's Name D. Solon Phone (915 603 1015

Company ARCADIS

Address 2301 W. Paisano Dr. Dept/Floor/Suite/Room

City El Paso State TX ZIP 79922

Your Internal Billing Reference LA003185.0001
24 characters will appear on invoice.

Recipient's Name CLIENT SERVICES Phone (281) 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210 Dept/Floor/Suite/Room
Cannot deliver to P.O. boxes or P.O. ZIP codes.

Address
Use this line for the HOLD location address or for continuation of your shipping address.

City HOUSTON State TX ZIP 77099-4338

HOLD Weekday
FedEx location address REQUIRED.
FedEx First Overnight.

HOLD Saturday
FedEx location address REQUIRED.
FedEx Priority Overnight and FedEx 2Day to select locations.

0451814788

4 Express Package Service * To most locations.

Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

- [X] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

*Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. ____ Exp. Date ____

Total Packages	Total Weight	Total Declared Value†
1	38 lbs.	$ 0 .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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Cincinnati, OH +1 513 733 5336
Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

ALS Environmental

Chain of Custody Form

Page ___ of ___

COC ID: 099564

ALS Project Manager:	ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	LA003185.0001	Project Name	Arcadis - El Paso Smelter	A	8260 BTEX (unpreserved)
Work Order		Project Number		B	8270 - PAH (NEAT)
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS U.S., Inc.	C	6020- Lead (HNO3)
Send Report To	Malcom Pimle	Invoice Attn	Malcom Pimle	D	
Address	211 N Florence Street, Suite 202	Address	211 N Florence Stree , Suite 202	E	
				F	
City/State/Zip	El Paso,	City/State/Zip	El Paso,	G	
Phone	(915) 533-9025	Phone	(915) 533-9025	H	
Fax	(915) 533-9045	Fax	(915) 533-9045	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-17	6/9/14	1040	W	Y	7	X	X	X								
2	TBLK0914	6/9/14	1050	W	Y	7	X	X	X								
3	MW-11	6/9/14	1140	W	Y	7	X	X	X								
4	LBLK0914	6/9/14	1145	W	Y	7	X	X	X								
5	MW-9S	6/9/14	1245	W	Y	7	X	X	X								
6	MW-3D	6/9/14	1450	W	Y	7	X	X	X								
7	MW-3S	6/9/14	1535	W	Y	7	X	X	X								
8																	
9																	
10																	

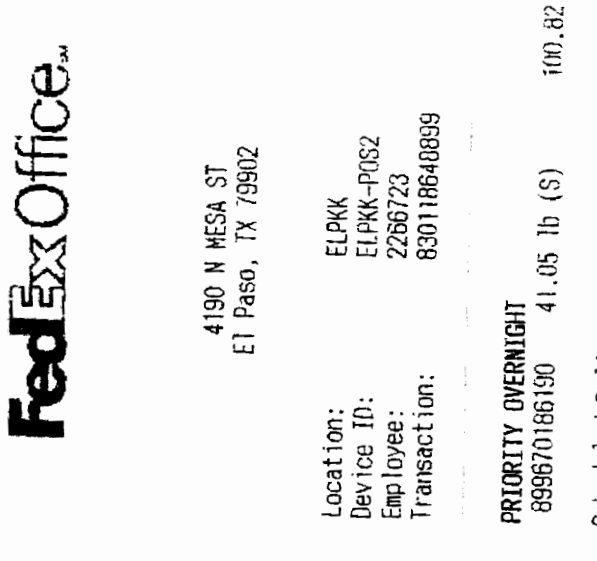
Sampler(s) Please Print & Sign	Shipment Method	Required Turnaround Time: (Check Box)	Results Due Date:
Doug Solon	FedEx	[X] Std 10 WK days [ ] 5 WK Days [ ] 2 WK Days [ ] 24 Hour [ ] Other	

Relinquished by:	Date:	Time:	Received by:	Notes:
DM Solon	6/9/14	1610		
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID / Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	QC Package: (Check One Box Below)

QC Package: (Check One Box Below)
- [ ] Level 2 Std QC
- [ ] Level 3 Std QC/Raw da
- [ ] Level 4 SW846/CLP
- [ ] Other/EDD
- [ ] TRRP ChkList
- [ ] TRRP Level 4

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.



FedEx Office

4190 N MESA ST
El Paso, TX 79902

Location: ELPKK
Device ID: ELPKK-POS2
Employee: 2266723
Transaction: 830118640899

PRIORITY OVERNIGHT
899670186190 41.05 lb (S) 100.82

Scheduled Delivery Date 06/11/2014

Shipment subtotal: 100.82

Total Due: 100.82

FedEx Account: 100.82
*****0486

H = Weight entered manually
S = Weight read from scale
T = Taxable item

Subject to additional charges. See FedEx Service Guide at fedex.com for details. All merchandise sales final

Visit us at: fedex.com
Or call 1.800.GoFedEx
1.800.463.3339

MUR3

FedEx Express US Airbill Package

FedEx Tracking Number 8996 7018 6190

Form ID No. 0215

1 From *Please print and press hard.*

Date 6-10-14 Sender's FedEx Account Number 3521-9948-6

Sender's Name D. Solon Phone (915) 603-1015

Company ARCADIS

Address 2301 W. PAISANO DR. Dept./Floor/Suite/Room

City EL PASO State TX ZIP 79922

2 Your Internal Billing Reference First 24 characters will appear on invoice. LA003185.0001

3 To

Recipient's Name CLIENT SERVICES Phone (281) 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210 Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address
Use this line for the HOLD location address or for continuation of your shipping address.

City HOUSTON State TX ZIP 77099-4338

☐ HOLD Weekday FedEx location address REQUIRED. FedEx First Overnight.

☐ HOLD Saturday FedEx location address REQUIRED. FedEx Priority Overnight and FedEx 2Day to select locations.

0451814788

4 Express Package Service * To most locations.

Packages up to 150 lbs
For packages over 150 lbs., use the term FedEx Express Freight US Airbill

☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.

☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery — FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages 1 Total Weight 41 lbs. Total Declared Value† $ 0 .00

†Your liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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ALS Environmental

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070
Houston, TX +1 281 530 5656
Middletown, PA +1 717 944 5541
Spring City, PA +1 610 948 4903
Salt Lake City, UT +1 801 266 7700
South Charleston, WV +1 304 356 3168
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 1

COC ID: 099566

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	LA003135.0001	Project Name	Arcadis - El Paso Smelter	A	8260 BTEX (unpreserved)
Work Order		Project Number		B	8270 - PAH (HNO3)
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS U.S., Inc.	C	6020- Lead (HNO3)
Send Report To	Malcom Pinnix	Invoice Attn	Malcom Pinnix	D	
Address	211 N Florence Stree , Suite 200	Address	211 N Florence Stree , Suite 200	E	
				F	
City/State/Zip	El Paso,	City/State/Zip	El Paso,	G	
Phone	(915) 533-9025	Phone	(915) 533-9025	H	
Fax	(915) 533-9045	Fax	(915) 533-9045	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-11	[illegible]	[illegible]	L	Y	7	X	X	X								
2	[illegible]	[illegible]	[illegible]	L	Y	7	X	X	X								
3	MW-9	[illegible]	[illegible]	L	Y	7	X	X	X								
4	[illegible]	[illegible]	[illegible]	L	Y	7	X	X	X								
5	MW-7	[illegible]	[illegible]	L	Y	7	X	X	X								
6	MW-10	[illegible]	[illegible]	L	Y	7	X	X	X								
7	MW-12	[illegible]	[illegible]	L	Y	7	X	X	X								
8	[illegible]	[illegible]	[illegible]	L	Y	7	X	X	X								
9	[illegible]	[illegible]	[illegible]	L	Y	7	X	X	X								
10																	

Sampler(s) Please Print & Sign: Doug Sola

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☒ Std 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
Doug Sola	10/11/14	1620	
Relinquished by:	Date:	Time:	Received by (Laboratory):
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)

☐ Level 1 Std QC ☐ TRRP Checklist
☐ Level 1 Std QC/Raw data ☐ TRRP Level 4
☐ Level 1 SW-846 CLP
☐ Other EDD

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

FedEx Office

4190 N MESA ST
El Paso, TX 79902

Location: ELPKK
Device ID: ELPKK-POS2
Employee: 2266723
Transaction: 830118765597

PRIORITY OVERNIGHT
899670186178 40.20 lb (S) 98.67

Scheduled Delivery Date 06/12/2014

Shipment subtotal: 98.67

Total Due: 98.67

FedEx Account: 98.67
*****9486

# = Weight entered manually
S = Weight read from scale
T = Taxable item

Subject to additional charges. See FedEx Service Guide at fedex.com for details. All merchandise sales final.

Visit us at: fedex.com
or call 1.800.GoFedEx
1.800.463.3339

MUR3

Fed Express **US Airbill** Package

FedEx Tracking Number 8996 7018 6178

Form ID No. 0215

1 From *Please print and press hard.*

Date 6-11-14 Sender's FedEx Account Number 3521-9948-6

Sender's Name D. Solon Phone (915) 6031015

Company ARCADIS

Address 2301 W. PAISANO DR. Dept./Floor/Suite/Room

City EL PASO State TX ZIP 79922

2 Your Internal Billing Reference First 24 characters will appear on invoice. LA003185.0001

3 To

Recipient's Name CLIENT SERVICES Phone (281) 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210 Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address
Use this line for the HOLD location address or for continuation of your shipping address

City HOUSTON State TX ZIP 77099-4338

HOLD Weekday ☐ FedEx location address REQUIRED. FedEx First Overnight.

HOLD Saturday ☐ FedEx location address REQUIRED. FedEx Priority Overnight and FedEx 2Day to select locations.

0451814788

4 Express Package Service * To most locations.

Packages up to 150 lb
For packages over 150 lbs., use the FedEx Express Freight US Airbill

- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- ☐ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery — FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required — Package may be left without obtaining a signature for delivery.
☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/C

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages 1 Total Weight 41 lbs. Total Declared Value† $ 0 .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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FedEx Office

4190 N MESA ST
El Paso, TX 79902

Location: ELPKK
Device ID: ELPKK-POS2
Employee: 2266723
Transaction: 830118846363

MORNING 2DAY
804868128788 45.70 lb (S) 70.88
780006489386

Scheduled Delivery Date 06/16/2014

Shipment subtotal: 70.88

Total Due: 70.88

FedEx Account: 70.88
*****9486

M = Weight entered manually
S = Weight read from scale
T = Taxable item

Subject to additional charges. See FedEx Service Guide at fedex.com for details. All merchandise sales final.

Visit us at: fedex.com
Or call 1.800.GoFedEx
1.800.463.3339

FedEx Express NEW Package US Airbill

FedEx Tracking Number 8048 6812 8788

Form ID No. 0200

1 From *Please print and press hard.*

Date 6-12-14 Sender's FedEx Account Number 3521-9948-6

Sender's Name D. Solon Phone (915) 603-1015

Company ARCADIS

Address 2301 W. PAISANO St.

Dept/Floor/Suite/Room

City EL PASO State TX ZIP 79922

2 Your Internal Billing Reference First 24 characters will appear on invoice. LA003185.0001.0002

3 To

Recipient's Name order # 406084 Phone (303) 320-4764

Company GEOTECH

Address 2650 EAST 40th Ave.

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept/Floor/Suite/Room

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Denver State CO ZIP 80205

HOLD Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday
FedEx location address REQUIRED. Available for FedEx Priority Overnight and FedEx 2Day to select locations.

4 Express Package Service * To most locations.

Packages up to 150 lbs.
For packages over 150 lbs., see the FedEx Express Freight US Airbill.

- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☒ FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- ☐ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
** FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver

☐ No Signature Required — Package may be left without obtaining a signature for delivery.
☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.

☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

☐ Sender Acct. No. in Section 1 will be billed ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. or Credit Card No. Exp. Date

Total Packages 2 Total Weight 46 lbs. Total Declared Value† $ 0 .00

†Our liability is limited to US$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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Easy new Peel-and-Stick airbill. No pouch needed.
Apply airbill directly to your package. See directions on back.

Document Control Number TGM -

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance at least daily.

Project Name: Huntsman			Project Location: Sunland Park, NM
Date: 12-9-14	Time: 805	Conducted By: D. Solon	Signature/Title: D. Solon Field Supervisor
Client:		Client Contact:	Subcontractor companies:

TRACKing the Tailgate Meeting

Think through the Tasks list the tasks for the day.

1. Well gauging
2. P.I.D Readings
3. Well Sampling
4.
5.
6.

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here:

If yes, describe them here:

How will they be controlled?

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☒ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes :**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Any Stop Work Interventions yesterday?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ If deviations, notify PM & client
☐ JLAs or procedures are available?	☐ Field teams to "dirty" JLAs, as needed?	☒ All equipment checked & OK?
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ Staff knows gathering points?

Comments:

Recognize the hazards (check all those that are discussed) (Examples are provided) and **A**ssess the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category

☐ Gravity (i.e. falling objects, trips) (L M H)	☒ Motion (i.e. traffic, moving water) (L M H) working close to River Bank	☐ Mechanical (i.e. augers, motors) (L M H)
☐ Electrical (i.e. utilities, grounding) (L M H)	☐ Pressure (i.e. gas cylinders, vessels) (L M H)	☒ Environment (i.e. heat, cold, lightning) (L M H) cold - Floods
☒ Chemical (i.e. liquids, dusts, vapors) (L M H) Bottle Preservatives	☒ Biological (i.e. insects, poisonous plants) (L M H) Spiders / Insects	☐ Radiation (i.e. alpha, beta, gamma) (L M H)
☐ Sound (i.e. machinery, generators) (L M H)	☐ Personal (i.e. allergies, medical conditions) (L M H)	☒ Driving (i.e. personal vehicle, boat, dozer) (L M H) off Road

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss these methods to control the hazards that will be implemented for the day): Review the HASP, applicable JLAs, and other control processes. Discuss and document any additional control processes.

[X] STOP WORK AUTHORITY (Must be addressed in every Tailgate meeting - *See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[X] Monitoring
[X] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[X] Decon Procedures
[X] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JLA to be developed/used *(specify)*	[ ] LPO conducted *(specify job/JLA)*	[ ] Traffic Control
		[ ] Other *(specify)*

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the
Doug Sylon / ARCADIS / Douglas Sylon	DS 810		
Ana Gutierrez / Arcadis /	AG 0810		AG

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call WorkCare at 1 800 455 9155 and then notify the field supervisor who will in turn notify Corp H&S at 1 720 344 3644.

In the event of a motor vehicle accident, employees will notify the field supervisor who will then notify Corp H&S at 1 720 344 3644 and then Corp Legal at 1 720 344 3715.

In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor, who will then immediately notify Corp Legal at 1 678 373 6556 and Corp H&S at

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site project job or task hazard assessment.

I will be alert to any changes in personnel conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to STOP THE JOB, I will perform TRACK, and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today
- [ ] Incidents that occurred today
- [ ] Any Stop Work interventions today?
- [ ] Corrective Preventive Actions needed for future work
- [ ] Any other H&S issues

Keep H&S 1st in all things

WorkCare - 1 800 455 9155

Document Control Number TGM -

TGM = Project Number (e.g. 30049999) + Task Number (e.g. 03) + Activity Number (e.g. 001)

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations on-site during the day are required to attend this meeting and to acknowledge their attendance at least daily.

Project Name: Huntsman			Project Location: Sunland Park, NM
Date: 12-10-14	Time: 0755	Conducted by: D. Solon	Signature/Title: D. Solon Field Supervisor
Client:		Client Contact:	Subcontractor companies:

TRACKing the Tailgate Meeting

Think through the Tasks list the tasks for the day:

1. Well Guaging
2. River Sampling
3.
4.
5.
6.

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none write "None" here

If yes, describe them here:

How will they be controlled?

Prework Authorization - check activities to be conducted that require permit issuance or completion of a checklist or similar before work begins:

	Doc #		Doc #		Doc #
☒ Not applicable		☐ Working at Height		☐ Confined Space	
☐ Energy Isolation (LOTO		☐ Excavation/Trenching		☐ Hot Work	
☐ Mechanical Lifting Ops		☐ Overhead & Buried Utilities		☐ Other permit	

Discuss following questions (for some review previous day's post activities). **Check if yes:**

☐ Incidents from day before to review?	☐ Lessons learned from the day before?	☐ Any Stop Work Interventions yesterday?
☐ Any corrective actions from yesterday?	☐ Will any work deviate from plan?	☐ If deviations, notify PM & client
☐ JLAs or procedures are available?	☐ Field teams to "dirty" JLAs, as needed?	☒ All equipment checked & OK?
☒ Staff has appropriate PPE?	☒ Staff knows Emergency Plan (EAP)?	☒ Staff knows gathering points?

Comments:

Recognize the hazards (check all those that are discussed) (Examples are provided) and **Assess** the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category

☐ Gravity (e.g. falling objects, slips, trips) (L M H)	☒ Motion (e.g. traffic, moving water) Close to River Bank (L M H)	☐ Mechanical (e.g. augers, motors) (L M H)
☐ Electrical (e.g. utilities, lighting) (L M H)	☐ Pressure (e.g. gas cylinders, water) (L M H)	☒ Environmental (e.g. heat, cold, etc.) Cold / Floods (L M H)
☒ Chemical (e.g. acids, caustics) Bottle Preservative (L M H)	☒ Biological (e.g. mold, poisonous plants, animals) Spiders / Insects (L M H)	☐ Radiological (e.g. x-rays, gauges) (L M H)
☐ Sound (e.g. machinery, generators) (L M H)	☐ Personal (e.g. strains, slips, falls) (L M H)	☒ Driving (e.g. car, truck, boat, dozer) off Road (L M H)

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

Control the hazards (Check all and discuss these methods to control the hazards that will be implemented for the day): Review the HASP, applicable JLAs and other control processes. Discuss and document any additional control processes.

[X] STOP WORK AUTHORITY (Must be addressed in every Tailgate meeting - *See statements below*)

[ ] Elimination	[ ] Substitution	[ ] Isolation
[ ] Engineering controls	[ ] Administrative controls	[X] Monitoring
[X] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[X] Decon Procedures
[X] Emergency Action Plan (EAP)	[ ] Fall Protection	[ ] Work Zones/Site Control
[ ] JLA to be developed/used *(specify)*	[ ] LPO conducted *(specify job/JLA)*	[ ] Traffic Control
		[ ] Other *(specify)*

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign in Time	Initial & Sign out Time	I have read and understand the
Dave Solon / ARCADIS / [signature]	DS/0755		
Ana Gutierrez / Arcadis / [signature]	AG/0755		AG

Important Information and Numbers

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury employees will call WorkCare at 1 800 455 9155 and then notify the field supervisor who will in turn notify Corp H&S at 1 720 344 3644.

In the event of a motor vehicle accident employees will notify the field supervisor who will then notify Corp H&S at 1 720 344 3644 and then Corp Legal at 1 720 344 3756.

In the event of a utility strike or other damage to property of a client or 3rd party employees will immediately notify the field supervisor who will then immediately notify Corp Legal at 1 678 379 3556 and Corp H&S at

Visitor Name/Co - not involved in work

In	Out

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site project job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to STOP THE JOB, I will perform TRACK, and then amend the hazard assessments or the HASP as needed.

I will not assist in substandard acts or unsafety with the work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

Post Daily Activities Review - Review at end of day or before next day's work (Check those applicable and explain:)

- [ ] Lessons learned and best practices learned today:
- [ ] Incidents that occurred today:
- [ ] Any Stop Work interventions today?
- [ ] Corrective/Preventive Actions needed for future work
- [ ] Any other H&S issues

Keep H&S 1st in all things | WorkCare - 1 800 455 9155

Document Control Number: TGM -

TGM: * Subject not to be used as form is [illegible]

TAILGATE HEALTH & SAFETY MEETING FORM

This form documents the tailgate meeting conducted in accordance with the Project HASP. Personnel who perform work operations during the day are required to attend this meeting and to acknowledge their attendance at least daily.

Project Name: Huntsman			Project Location: Sunland Park, NM
Date: 12-11-14	Time: 0800	Conducted By: Doug Solon	Signature/Title: Doug Solon Field Supervisor
Client:		Client Contact:	Subcontractor companies:

TRACKing the Tailgate Meeting

Think through the Tasks (list the tasks for the day):

1. Well Sampling
2. River Sampling
3.
4.
5.
6.

Other Hazardous Activities - Check the box if there are any other ARCADIS, Client or other party activities that may pose hazards to ARCADIS operations ☐ If there are none, write "None" here:

If yes, describe them here:

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Comments:

Recognize the hazards (check all those that are discussed) (Examples are provided) and **Assess** the Risks (Low, Medium, High - circle risk level) - Provide an overall assessment of hazards to be encountered today and briefly list them under the hazard category

☐ Gravity (i.e. [illegible]) (L M H)	☒ Motion (i.e. traffic, moving water) River Bank Sampling (L M H)	☐ Mechanical (i.e. augers, motors) (L M H)
☐ Electrical (i.e. utilities, lighting) (L M H)	☐ Pressure (i.e. gas cylinders, [illegible]) (L M H)	☒ Environment (i.e. heat, cold, etc.) Cold / Floods (L M H)
☒ Chemical (i.e. fuels, acids, paints) Bottle Preservative (L M H)	☒ Biological (i.e. bees, plants, [illegible]) Spiders / Insects (L M H)	☐ Radiation (i.e. signs, [illegible]) (L M H)
☐ Sound (i.e. machines, generators) (L M H)	☐ Personal (i.e. [illegible]) (L M H)	☒ Driving (i.e. [illegible]) Off Road (L M H)

Continue TRACK Process on Page 2

TAILGATE HEALTH & SAFETY MEETING FORM - Pg. 2

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[ ] Engineering controls	[ ] Admin strative controls	[x] Monitoring
[x] General PPE Usage	[ ] Hearing Conservation	[ ] Respiratory Protection
[ ] Personal Hygiene	[ ] Exposure Guidelines	[x] Decon Procedures
[x] Emergency Action Plan (EAP)	[ ] Fall Protection	[x] Work Zones/Site Control
[ ] JLA to be developed/used *(specify)*	[ ] LPO conducted *(specify job/JLA)*	[ ] Traffic Control
		[ ] Other *(specify)*

Signature and Certification Section - Site Staff and Visitors

Name/Company/Signature	Initial & Sign In Time	Initial & Sign out Time	I have read and understand the
Doug Solon / ARCADIS /	DS 0800		
Ana Gutierrez / ARCADIS /	AG 0800		AG

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In the event of a utility strike or other damage to property of a client or 3rd party, employees will immediately notify the field supervisor who will then immediately notify Corp Legal at 1 678 373 5556 and Corp H&S at

Visitor Name/Co - not involved in work

In	Out
In	Out
In	Out
In	Out

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- [ ] Any Stop Work interventions today?
- [ ] Corrective/Preventive Actions needed for future work:
- [ ] Any other H&S issues:

Keep H&S 1st in all things

WorkCare - 1 800 455 9155

ARCADIS

DAILY LOG

Project / No. LA 003185.000 Page 1 of 1

Site Location Huntsman project - Sunland Park, NM Date 12-9-14

Subject Semi-Annual GW Sampling Prepared By Doug Solan

Time	Description of Activities
12-9-14/0800	- Arrive on site
0805	Tailgate meeting w/ Ana
0810	Began gauging wells
1010	Completed gauging wells - setup on mw-9S
1020	Began pumping on mw-9S
1055	- Sampled mw-9S - BTEX - Decon equipment
	- Field Blank - DI FB 120914
1110	Setup on mw-6D
1116	Began pumping mw-6D
1150	Sampled mw-6D - BTEX - Duplicate taken - FD 120914 - Decon
1155	Setup on mw-6S
1200	Began pumping mw-6S
1235	Sampled mw-6S - BTEX - Decon equipment
1300	Equipment blank on o/w probe - EB 120914
	- Returned to office

ARCADIS

DAILY LOG

Project / No. LA 00 3185.000 Page 1 of 1

Site Location Huntsman Project - Sunland Park, NM Date 12-10-14

Subject Semi-Annual GW Sampling Prepared By Doug Solon

Time	Description of Activities
0750	Arrive on site
0755	Tailgate meeting
0802	Setup and began pumping on MW-3D
0835	Sampled MW-3D -BTEX - Decon Equipment
	- Field Blank - FB12.10.14
0846	Setup and began pumping on MW-3S
0920	Sampled MW-3S - BTEX - Decon Equipment
0940	Setup and began pumping on MW-05
1015	Sampled MW-05 - BTEX - Decon equipment
1030	Setup and started pumping on MW-08
1105	Sampled MW-08 - BTEX - Decon Equipment
1110	- Returned to Arcadis office
1309	- Back on site - Setup and began pumping on MW-17
1345	Sampled MW-17 - BTEX - Decon equipment
	- Power cord to pump damaged - pulled out of connector - Return to office for repair
1355	Equipment Blank on o/w probe - EB12.10.14
1405	- Returned to office
1430	- unable to repair - ordered new cables from GEOTECH
1440	- worked on Daily Logs

ARCADIS

DAILY LOG

Project / No LA003185.0006 Page 1 of 1

Site Location Huntsman project - Sunland Park, NM Date 12-11-14

Subject Semi-Annual GW Sampling Prepared By Doug Solon

Time	Description of Activities
0800	Arrive on site - Tailgate meeting
0815	- setup on MW-11
0820	Began pumping
0855	Sampled MW-11 - BTEX - Decon Equipment
0900	Field Blank FB121114
0915	Setup on MW-10
0920	Began pumping
0955	Sampled MW-10 - BTEX - Decon Equipment
1020	Sampled UPSTREAM River - BTEX
1040	Sampled Downstream River - BTEX
1050	Equipment blank on River sampler - EB121114 BTEX
1055	Returned to ARCADIS office
1300	Packaged & shipped samples to LAB & Equipment to GEOTECH
1400	worked on Daily Log

Huntsman Semi Annual DEC. 2014

12-9-14 D. Solon / A. Gutierrez

0800 - arrive onsite
0805 - Tailgate meeting
0810 - Began Guaging wells
1010 - Finished guaging all wells - set up on MW-9S
1020 - Began pumping on MW-9S
1055 - Sampled MW-9S - BTEX - Decon
1055 - Field Blank - DI FB120914
1110 - SETup on MW-6D
1116 - Began pumping MW-6D
1150 - Sampled MW-6D - BTEX - Duplicate TAKEN - FD120914 - Decon
1155 - setup on MW-6S
1200 - Began pumping MW-6S
1235 - Sampled MW-6S - BTEX - Decon
1300 - Equipment Blank - EB120914 - RETurned to office

D Solon

Cont: Huntsman Semi-Annual DEC. 2014

12-10-14 D Solon / A. Gutierrez

0750 - Arrive onsite
0755 - Tailgate meeting
0802 - SETup and began pumping on MW-3D
0835 - sampled MW-3D - BTEX - Field Blank - FB121014
0846 - SETup and began pumping on MW-3S
0920 - Sampled MW-3S - BTEX Decon
0940 - SETup and began pumping on MW-05
1015 - sampled MW-05 - BTEX - Decon
1030 - SETup and started pumping on MW-08
1105 - Sampled MW-08 - BTEX - Decon
1110 - left site - Returned to Arcadis offic.
1309 - Setup and began pumping on MW-17
1345 - Sampled MW-17 - BTEX - decon - Power cord to pump damaged - pulled out of connecta - Return to offic for Repair
1355 - Equipment Blank on w/ probe - EB121014

D Solon

Cont: Avalonian Semi Annual DEC 2014

12-10-14 1405 - Return to Arcadis office

12-11-14 0800 - Arrived onsite
- Tailgate meeting
0815 - Setup on MW-11
0820 - Began pumping
0855 - Sampled MW-11 - BTEX - DECON
0900 - Field Blank - FB121114
0915 - setup on MW-10
0920 - Began pumping
0955 - Sampled MW-10 - BTEX - DECON
1020 - Sampled UPSTREAM - River - BTEX
1040 - Sampled Downstream - River - BTEX
1050 - Equipment blank on River Sampler - EB121114 - BTEX
1055 - Returned to Arcadis office
1300 - Packaged & Shipped Samples to LAB & Equipment to GEOTECH
1400 - worked on Daily Logs

DSlon

ARCADIS

WELL GAUGING LOG

Site Name: Huntsman

Project Number: LA003185.000

Date & Time: 12/9/2014

water column height = (well depth in feet) - (initial depth to water in feet) reading from Top of Casing

Well Gauging Information

Well ID	Date/Time 12/9/14	PID (ppm)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness	Comments
MW-1	1000	0.0	—	6.61		
MW-2						Plugged
MW-3S	1005	0.0	—	7.16		
MW-3D	1015	0.0	—	7.26		
MW-4	0900	0.3	—	5.81		
MW-5	0858	42.2	—	6.56		Odor
MW-6S	1025	0.0	—	8.15		
MW-6D	1020	0.0	—	8.16		
MW-7	0910	0.0	—	6.03		
MW-8	0854	1.1	—	6.33		
MW-9S	1030	0.0		7.09		
MW-9D						Plugged
MW-10	0840	6.0	—	9.82		Strong odor. Pig removed in June no product recovery
MW-11	0850	0.0	—	8.62		
MW-12	0940	0.0	—	6.21		
MW-13						Plugged
MW-14	0905	0.1	—	7.45		Root Band
MW-15	0815	0.0	—	16.02		No odor,
MW-16	0820	0.0	—	14.08		Root Band
MW-17	0915	0.0	—	9.21		
WP-1	0830	45.0	—	10.64		Odor
WP-2	0844	3.2	—	9.01		Odor
WP-3	0915	0.3	—	dry		TD: 7.03
WP-7	0822	0.0	—	10.52		
WP-14	0915	0.0		dry		Tar
WP-25	0824	1.2	—	8.32		
WP-26S	0830	0.0	—	9.72		Odor
WP-26D	0832	2.3	—	10.78		Slight odor
WP-27S	0817	35.0	—	14.35		Odor, oxidation on Probe
WP-27D	0818	4.0	—	14.81		odor oxidation on Probe
WP-30	0840	0.0	—	11.16		
WP-31						Can't open
WP-32	0920	0.0	—	dry		
WP-33	0852	0.0	—	9.74		Slight odor

Equipment and Decon Procedures

Gauging Equipment O/W Sounder, PID

Decon Procedures ID H2O

file stamp

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 120914

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-9S
Site Location	Huntsman	Duplicate ID	FB120914
Site/Well No.	MW-9S	Start pump	1020 / Stop pump 1100
Weather		Start sampling	1055 / Stop sampling 1100

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft)

Depth to Water before/after (ft)	7.70/7.75	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Dedicated pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1025		7.07	17,399	21.9	1.85	6.81	76.2	7.75	
1030		7.10	17,328	21.7	1.50	7.24	9.4	7.74	
1035		7.11	17,270	21.8	1.34	6.25	-25.3	7.75	
1040		7.12	17,349	21.8	1.14	6.18	-30.6	7.75	
1045		7.12	17,326	21.7	1.02	6.39	-42.1	7.75	
1050		7.13	17,342	21.8	1.14	6.29	-43.9	7.75	
1055		7.13	17,334	21.8	0.89	6.73	-48.8	7.75	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging. use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	~~X~~ 40ml	3	HCl
~~VOA - TPH~~	~~X 40ml~~	~~3~~	~~HCl~~

Remarks: Field Blank @ 1055

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65	0.5" = 38.61		1.0" = 0.04	2" = 0.16	3" = 0.37	4" = 0.65	6" = 1.46
0.375" = 21.72	0.75" = 86.87	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	5" = 1.04	8" = 2.66	

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

C:\Users\dsolon\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\DKAL3454\gw-smplg-VOCs-2006.doc

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 120914

Project No	LA003185.000	Sample Personnel	DS, AG		
Site Name	Huntsman	Sample ID	MW-6D		
Site Location	Huntsman	Duplicate ID	FD120914		
Site/Well No.	MW-6D	Start pump	1116	Stop pump	1155
Weather		Start sampling	1150	Stop sampling	1155

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	8.16 / 8.19	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Dedicated pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] °C/°F	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1120		7.25	22.009	21.4	0.24		5.59	1.5	8.18	
1125		7.26	22.009	21.5	0.14		4.11	-12.9	8.18	
1130		7.26	22.024	21.5	0.10		4.33	-22.4	8.18	
1135		7.26	22.088	21.5	0.09		5.46	-30.6	8.18	
1140		7.26	22.015	21.5	0.10		4.98	-35.1	8.19	
1145		7.26	21.778	21.5	0.11		5.32	-39.6	8.19	
1150		7.25	21.837	21.6	0.11		5.52	-42.5	8.19	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+ - 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCl

Remarks: Duplicate at 1150

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.6

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ARCADIS

WATER SAMPLING LOG

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Date 120914

Project No	LA003185 000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-65
Site Location	Huntsman	Duplicate ID	EB120914
Site/Well No.	MW-65	Start pump	1200 Stop pump 1245
Weather		Start sampling	1235 Stop sampling 1245

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft)

Depth to Water before/after (ft)	8.16 1998	Casing Diameter (in)	2 4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Dedicated Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	(%)	Turbidity (NTU)	ORP [4] (mV)	Other ORP	Appearance (Clarity, Color, Odor)
1205		7.13	12,827	22.1	0.36		9.07	-56.3	8.60	yellow color
1210		7.25	12,554	21.9	0.17		12.1	-62.2	9.0	hydrocarbon odor
1215		7.29	12,459	21.6	3.96		11.60	-36.8	9.22	
1220		7.29	12,414	21.7	5.40		11.9	-14.2	9.42	
1225		7.29	12,407	21.8	3.47		12.3	-1.3	9.66	
1230		7.29	12,390	21.8	5.06		11.4	9.9	9.80	
1235		7.29	12,392	21.8	2.49		10.8	19.4	9.98	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCl

Remarks: EB (Equipment Blank) EB120914 at 1300

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.5" = [illegible] 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.4[illegible]
2.5" = 0.59 5" = 1.04 8" = 2.6[illegible]

[illegible]

ARCADIS

WATER SAMPLING LOG

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Date 12/10/14

Project No	LA0031850CC	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-3D
Site Location	Huntsman	Duplicate ID	FB121014
Site/Well No.	MW-3D	Start pump	0802 Stop pump 0838
Weather		Start sampling	0835 Stop sampling 0835

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	7.26 / 7.29	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Dedicated Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or µS/cm)	Temp [4] (C/F)	DO [4] (mg/L)	(%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
0805		7.09	18.496	19.2	0.60		6.63	122.9	7.28	
0810		7.21	18.722	19.3	0.21		5.13	65.2	7.29	
0815		7.22	18.733	19.3	0.15		5.44	27.7	7.29	
0820		7.22	18.747	19.3	0.14		5.64	4.0	~~7.64~~ 7.29	
0825		7.22	18.790	19.3	0.14		6.11	-14.6	7.29	
0830		7.22	18.779	19.3	0.12		6.07	-23.2	7.29	
0835		7.21	18.791	19.3	0.10		7.24	-29.7	7.29	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
~~8~~VOA - BTEX	40ml	3	HCl
VOA BTEX	40ml	3	HCl

Remarks: Field Blank (FB121014)

TUBING DIAMETER VOLUMES. (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 [illegible] 5" = 1.01 8" = 2.66

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WATER SAMPLING LOG

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Date 12/10/14

Project No	LAC03185.000	Sample Personnel	DS AG
Site Name	Huntsman	Sample ID	MW-35
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-35	Start pump	0846 Stop pump 0925
Weather		Start sampling	0920 Stop sampling 0925

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft)

Depth to Water before/after (ft)	7.22 / 8.40	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	~~Dedicated~~ Pump Peristaltic

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or µS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other ORN	Appearance (Clarity, Color, Odor)
0850		7.27	10,279	20.2	0.31	98.9	-109.2	7.47	
0855		7.26	9,090	20.2	0.27	15.3	-72.0	7.71	
0900		7.35	8,479	20.0	0.92	12.5	-58.3	7.88	
0905		7.36	8,393	20.1	1.08	16.3	-52.5	8.00	
0910		7.36	8,387	20.1	0.98	15.1	-50.0	8.12	
0915		7.36	8,388	20.1	0.90	12.6	-49.0	8.28	
0920		7.35	8,378	20.1	0.87	10.2	-48.2	8.40	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+ - 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40 ml	3	HCl

Remarks: Dedicated pump didn't work. Used peristaltic pump.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.60

ARCADIS

WATER SAMPLING LOG

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Date 1/9/14

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-5
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-5	Start pump	0940 Stop pump 1020
Weather		Start sampling	1015 Stop sampling 1020

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft)

Depth to Water before/after (ft)	6.50/8.30	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Peristaltic Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or µS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
0945		6.67	19.943	23.2	0.11	22.8	-84.9	7.10	
0950		6.66	19.947	23.2	0.37	13.6	-106.1	7.32	
0955		6.67	19.949	23.2	0.07	10.9	-211.1	7.51	
1000		6.65	19.947	23.2	0.01	9.13	-240.0	7.72	
1005		6.64	19.946	23.1	0.02	8.89	-246.7	7.91	
1010		6.62	19.936	23.2	0.02	9.01	-252.4	8.10	
1015		6.58	19.933	23.2		8.01	-264.4	8.30	
Stabalization Criteria		(+/- 0.1 SU)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] - Low flow purging, use length of tubing. [2] - Low-flow use tubing vol.below. [3] - Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] - Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCl

Remarks:

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.47
2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.6[illegible]

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ARCADIS

WATER SAMPLING LOG

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Date 121014

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-8
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-8	Start pump	1030
Weather		Start sampling	1105
		Stop pump	1110
		Stop sampling	1110

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	6.31 /	Casing Diameter (in)	
Water Column in Well [1] (ft)		Evacuation Vol./Rate	
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1035		~~7.18~~ 7.32	9.978	23.6	0.43	7.30	-201.1	6.71	yellowish tint w/ odor
1040		7.19	9.979	23.6	0.11	6.46	-227.3	7.25	Suspended Solids
1045		7.18	9.962	23.7	0.00	7.17	-231.0	7.63	hydrocarbon odor
1050		7.18	9.954	23.6	0.04	7.14	-236.1	8.01	
1055		7.18	9.945	23.6	0.05	8.96	-237.3	8.38	
1100		7.17	9.927	23.7	0.03	7.98	-238.6	8.66	
1105		7.17	9,922	23.7	0.03	7.55	-239.2	8.91	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+ - 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCl

Remarks: _____

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.24 3.5" = 0.50 5" = 1.04 8" = 2.6e

ARCADIS

WATER SAMPLING LOG

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Date 121014

Project No	LACO3185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-17
Site Location	Huntsman	Duplicate ID	EB121014
Site/Well No.	MW-17	Start pump	1309 / Stop pump 1350
Weather		Start sampling	1345 / Stop sampling 1350

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft)

Depth to Water before/after (ft)	9.25	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW	Appearance (Clarity, Color, Odor)
1315		7.14	12,684	23.4	0.20		6.88	-63.3	9.25	Slight hydro-carbon odor.
1320		7.14	12,622	23.4	0.16		7.58	-78.9	9.25	
1325		7.15	12,539	23.4	0.10		8.34	-84.7	9.25	
1330		7.16	12,505	23.4	0.09		5.99	-91.2	9.25	
1335		7.16	12,500	23.4	0.09		6.55	-93.6	9.25	
1340		7.17	12,488	23.4	0.08		5.82	-97.3	9.25	
1345		7.17	12,493	23.4	0.06		6.59	-99.7	9.25	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCl

Remarks: Equipment Blank at 1355

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65	0.5" = 38.61					
0.375" = 21.72	0.75" = 86.87					

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04	2" = 0.16	3" = 0.37	4" = 0.65	6" = 1.46	
1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	5" = 1.04	8" = 2.66	

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 12-11-14

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-11
Site Location	Huntsman	Duplicate ID	FB121114
Site/Well No.	MW-11	Start pump	0820 / Stop pump 0900
Weather		Start sampling	0855 / Stop sampling 0900

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft)

Depth to Water before/after (ft)	8.58/11.12	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Peristaltic Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec Cond [4] (mS/cm or µS/cm)	Temp [4] (°C / °F)	DO [4] (mg/L) (%)	Turbidity (NTU)	ORP [4] (mV)	Other (TW)	Appearance (Clarity, Color, Odor)
0825		7.35	8.254	24.0	0.60	12.3	-71.1	9.50	Yellowish tint in water
0830		7.78	7.496	23.6	0.14	7.61	-78.7	10.05	
0835		7.87	7.385	23.4	0.12	7.06	-58.0	10.30	
0840		7.87	7.375	23.5	0.12	7.58	-45.0	10.56	
0845		7.86	7.365	23.6	0.11	7.60	-38.4	10.76	
0850		7.83	7.365	23.6	0.08	7.70	-37.0	11.00	
0855		7.80	7.361	23.6	0.08	9.05	-39.0	11.12	
Stabalization Criteria [5]		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)	(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCL
VOA - BTEX	40ml	3	HCL

Remarks: Field Blank at 0900 (FB121114)

TUBING DIAMETER VOLUMES (In Milliliters per Foot)
0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)
1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
2.5" = 0.26 3.5" = 0.50 5" = 1.02

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ARCADIS

WATER SAMPLING LOG

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Date ~~12/11/14~~ 12/11/14

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-10
Site Location	Huntsman	Duplicate ID	~~EB121114~~
Site/Well No.	MW-10	Start pump	0920 Stop pump 1000
Weather		Start sampling	0955 Stop sampling 1000

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	9.78/11.50	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	300mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Peristaltic Pump

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	(%)	Turbidity (NTU)	ORP [4] (mV)	Other ORP	Appearance (Clarity, Color, Odor)
0925		7.11	10,560	23.0	0.39		6.42	-76.6	10.30	Sheen on water
0930		7.11	9,943	23.2	0.11		6.42	-97.1	10.05	yellow Tint
0935		7.11	9,563	23.2	0.06		7.05	-115.4	11.00	
0940		7.10	9,404	23.0	0.05		6.61	-145.9	11.20	
0945		7.10	9,397	22.9	0.03		6.13	-164.9	11.30	
0950		7.10	9,382	23.2	0.03		6.68	-196.0	11.40	
0955		7.10	9,408	23.1	0.03		6.61	-222.8	11.50	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCL

Remarks: ~~Equipment Blank (EB121114) at 1005~~

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65	0.5" = 38.61	
0.375" = 21.72	0.75" = 86.87	

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04	2" = 0.16	3" = 0.37	4" = 0.65	6" = 1.4#	
1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	5" = 1.04	8" = 2.66	

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 12/11/14

Project No	LAC03185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	Upstream
Site Location	Rio Grande	Duplicate ID	
Site/Well No.	Upstream	Start pump	NA — Stop pump NA
Weather		Start sampling	1020 — Stop sampling NA

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing — MP Elevation (ft) ____

Depth to Water before/after (ft)	/	Casing Diameter (in)	
Water Column in Well [1] (ft)		Evacuation Vol./Rate	
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (C/F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other	Appearance (Clarity, Color, Odor)
1020		8.18	4,501	14.87	58		52.0	64.5		Cloudy
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

[1] – Low flow purging, use length of tubing [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings)

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCl

Remarks: Samples taken from plastic liner sampler.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.45
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 121114

Project No	LA003185.000	Sample Personnel	DS, AG		
Site Name	Huntsman	Sample ID	Dawnstream		
Site Location	Rio Grande	Duplicate ID	EB121114		
Site/Well No.	Dawnstream	Start pump	NA	Stop pump	NA
Weather		Start sampling	1040	Stop sampling	NA

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft) _____

Depth to Water before/after (ft)	/	Casing Diameter (in)	
Water Column in Well [1] (ft)		Evacuation Vol./Rate	
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	

Time	Volume (gal or L)	pH [4] (S.U.)	Spec. Cond [4] (mS/cm or uS/cm)	Temp [4] (°C/°F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other	Appearance (Clarity, Color, Odor)
1040		8.13	18,170	12.5	8.71		21.0	98.8		Cloudy

Stabalization Criteria: (+/- 0.1 su) (+/- 3 %) (+/- 3 %) (+/- 10%) (+/- 10% or <1) (+/- 10 mV) (n/a) (n/a)

[1] – Low flow purging, use length of tubing. [2] – Low-flow use tubing vol.below. [3] – Low flow use Tubing Volume (gal/ft) (x) Pump Intake Depth (ft)
[4] – Stabalization criteria must be met for 3 consecutive readings (~3-5 minutes between readings).

CONTAINER DESCRIPTION

Container: Lab ☒ or ARCADIS ☐

Constituents	Container (Type & Size)	No. of bottles	Preservative
VOA - BTEX	40ml	3	HCL

Remarks: Equipment Blank (EB121114) at 1050 On River sampler

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65 0.5" = 38.61
0.375" = 21.72 0.75" = 86.87

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

1.0" = 0.04 2" = 0.16 3" = 0.37 4" = 0.65 6" = 1.46
1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

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Chain of Custody Form

Page 1 of 2

COC ID: 115217

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	LA003185.000	Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.000	B	
Company Name	ARCADIS U.S. Inc	Bill To Company	ARCADIS	C	
Send Report To	Chad D'Gerolamo	Invoice Attn	Accounts Payable	D	
Address	10352 Plaza Americana Drive	Address	630 Plaza Drive, Suite 600	E	
				F	
City/State/Zip	Baton Rouge, LA 70816	City/State/Zip	Highlands Ranch, CO 80129	G	
Phone	(225) 292-1004	Phone	(303) 471-3699	H	
Fax		Fax		I	
e-Mail Address	chad.DGerolamo@arcadis-us.com	e-Mail Address	accountspayable.administration@arca	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-9S	12-09-14	1055	W	HCl	3	X										
2	FB120914	12-09-14	1055	W	HCl	3	X										
3	MW-6D	12-09-14	1150	W	HCl	3	X										
4	FD120914	12-09-14	-	W	HCl	3	X										
5	MW-6S	12-09-14	1235	W	HCl	3	X										
6	EB120914	12-09-14	1300	W	HCl	3	X										
7	MW-3D	12-10-14	0835	W	HCl	3	X										
8	~~Field~~ FB121014	12-10-14	0835	W	HCl	3	X										
9	MW-3S	12-10-14	0920	W	HCl	3	X										
10	MW-05	12-10-14	1015	W	HCl	3	X										

Sampler(s) Please Print & Sign: Doug Sutton DMSutton

Shipment Method:

Required Turnaround Time: (Check Box) ☒ Std. 10 wk. days ☐ 5 Wk. Days ☐ 3 Wk. Days ☐ 24 Hour ☐ Other

Results Due Date:

Relinquished by: DMSutton | Date: 12-11-14 | Time: 1300 | Received by:

Relinquished by: | Date: | Time: | Received by (Laboratory):

Logged by (Laboratory): | Date: | Time: | Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)

☒ Level 2 Std QC ☐ TRRP Checklist
☐ Level 3 Std QC/Raw data ☐ TRRP Level 4
☐ Level 4 SW846/CLP
☐ Other/EDD

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note:
1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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Chain of Custody Form

Page 1 of 2

COC ID: 115220

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order	LA003185.000	Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.000	B	
Company Name	ARCADIS U.S. Inc.	Bill To Company	ARCADIS	C	
Send Report To	Chad D'Gerolamo	Invoice Attn	Accounts Payable	D	
Address	10352 Plaza Americana Drive	Address	630 Plaza Drive, Suite 600	E	
				F	
City/State/Zip	Baton Rouge, LA 70816	City/State/Zip	Highlands Ranch, CO 80129	G	
Phone	(225) 292-1004	Phone	(303) 471-3899	H	
Fax		Fax		I	
e-Mail Address	chad.DGerolamo@arcadis-us.com	e-Mail Address	accountspayable.administration@arcadis	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-08	12-10-14	1125	W	HCl	3	X										
2	MW-17	12-10-14	1345	W	HCl	3	X										
3	EB121014	12-10-14	1355	W	HCl	3	X										
4	MW-11	12-11-14	0855	W	HCl	3	X										
5	FB121114	12-11-14	0900	W	HCl	3	X										
6	MW-10	12-11-14	0955	W	HCl	3	X										
7	UPSTREAM	12-11-14	1020	W	HCl	3	X										
8	DOWNSTREAM	12-11-14	1040	W	HCl	3	X										
9	EB121114	12-11-14	1050	W	HCl	3	X										
10																	

Sampler(s) Please Print & Sign: Doug Solon

Shipment Method:

Required Turnaround Time: (Check Box) ☒ Std 10 Wk days ☐ 5 Wk Days ☐ Other: ☐ 2 Wk Days ☐ 24 Hour

Results Due Date:

Relinquished by: Doug Solon	Date: 12-11-14	Time: 1300	Received by:	Notes:	
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☒ Level 2 Std QC ☐ TRRP Chklist
☐ Level 3 Std QC/Raw da ☐ TRRP Level 4
☐ Level 4 SW846/CLP
☐ Other(C)

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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Appendix B

Laboratory Analytical Reports

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July 14, 2014

Garrett Ferguson
ARCADIS U.S., Inc.
211 N Florence Street, Suite 202
El Paso,, TX 79901

Work Order: **HS14060393**

Laboratory Results for: **Brickland Refinery**

Dear Garrett,

ALS Environmental received 8 sample(s) on Jun 10, 2014 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Bethany McDaniel

Generated By: Ana.Spencer
Bethany McDaniel
Project Manager

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060393

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS14060393-01	MW-17	Water		09-Jun-2014 10:40	10-Jun-2014 09:35	☐
HS14060393-02	FB060914	Water		09-Jun-2014 10:50	10-Jun-2014 09:35	☐
HS14060393-03	MW-11	Water		09-Jun-2014 11:40	10-Jun-2014 09:35	☐
HS14060393-04	EB060914	Water		09-Jun-2014 11:45	10-Jun-2014 09:35	☐
HS14060393-05	MW-9S	Water		09-Jun-2014 13:45	10-Jun-2014 09:35	☐
HS14060393-06	MW-3D	Water		09-Jun-2014 14:50	10-Jun-2014 09:35	☐
HS14060393-07	MW-3S	Water		09-Jun-2014 15:35	10-Jun-2014 09:35	☐
HS14060393-08	TRIP BLANK	Water		09-Jun-2014 00:00	10-Jun-2014 09:35	☑

Client: ARCADIS U.S., Inc. **CASE NARRATIVE**
Project: Brickland Refinery
Work Order: HS14060393

GCMS Semivolatiles by Method SW8270

Batch ID: 82961

Sample ID: **LCSD-82961**
- Insufficient sample received to perform MS/MSD.

GCMS Volatiles by Method SW8260

Batch ID: R235607

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020

Batch ID: 83538

- Sample HS14060422-03: MS/MSD is for an unrelated sample.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-17
Collection Date: 09-Jun-2014 10:40

ANALYTICAL REPORT
WorkOrder:HS14060393
Lab ID:HS14060393-01
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Acenaphthylene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Anthracene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Benz(a)anthracene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Benzo(a)pyrene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Benzo(b)fluoranthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Benzo(g,h,i)perylene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Benzo(k)fluoranthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Chrysene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Dibenz(a,h)anthracene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Fluoranthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Fluorene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Naphthalene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Phenanthrene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Pyrene	U		0.0200	0.100	ug/L	1	12-Jun-2014 16:46
Surr: 2-Fluorobiphenyl	*53.7*			*32-1305*	*%REC*	*1*	*12-Jun-2014 16:46*
Surr: 4-Terphenyl-d14	*106*			*40-135*	*%REC*	*1*	*12-Jun-2014 16:46*
Surr: Nitrobenzene-d5	*132*			*45-142*	*%REC*	*1*	*12-Jun-2014 16:46*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 13:37
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 13:37
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 13:37
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 13:37
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 13:37
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 13:37
Surr: 1,2-Dichloroethane-d4	*90.2*			*70-125*	*%REC*	*1*	*13-Jun-2014 13:37*
Surr: 4-Bromofluorobenzene	*101*			*72-125*	*%REC*	*1*	*13-Jun-2014 13:37*
Surr: Dibromofluoromethane	*95.7*			*71-125*	*%REC*	*1*	*13-Jun-2014 13:37*
Surr: Toluene-d8	*97.9*			*75-125*	*%REC*	*1*	*13-Jun-2014 13:37*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.00100	0.0100	mg/L	2	30-Jun-2014 21:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: FB060914
Collection Date: 09-Jun-2014 10:50

ANALYTICAL REPORT
WorkOrder:HS14060393
Lab ID:HS14060393-02
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Acenaphthylene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Anthracene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Benz(a)anthracene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Benzo(a)pyrene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Benzo(b)fluoranthene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Benzo(g,h,i)perylene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Benzo(k)fluoranthene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Chrysene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Dibenz(a,h)anthracene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Fluoranthene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Fluorene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Naphthalene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Phenanthrene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Pyrene	U		0.0200	0.0998	ug/L	1	12-Jun-2014 17:06
Surr: 2-Fluorobiphenyl	*83.8*			*32-1305*	*%REC*	*1*	*12-Jun-2014 17:06*
Surr: 4-Terphenyl-d14	*108*			*40-135*	*%REC*	*1*	*12-Jun-2014 17:06*
Surr: Nitrobenzene-d5	*112*			*45-142*	*%REC*	*1*	*12-Jun-2014 17:06*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 14:01
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:01
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 14:01
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:01
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:01
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 14:01
Surr: 1,2-Dichloroethane-d4	*89.5*			*70-125*	*%REC*	*1*	*13-Jun-2014 14:01*
Surr: 4-Bromofluorobenzene	*99.4*			*72-125*	*%REC*	*1*	*13-Jun-2014 14:01*
Surr: Dibromofluoromethane	*95.2*			*71-125*	*%REC*	*1*	*13-Jun-2014 14:01*
Surr: Toluene-d8	*97.2*			*75-125*	*%REC*	*1*	*13-Jun-2014 14:01*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.000500	0.00500	mg/L	1	30-Jun-2014 21:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-11
Collection Date: 09-Jun-2014 11:40

ANALYTICAL REPORT
WorkOrder:HS14060393
Lab ID:HS14060393-03
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	**0.242**		**0.0202**	**0.101**	**ug/L**	1	12-Jun-2014 17:25
Acenaphthylene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Benz(a)anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Benzo(a)pyrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Benzo(b)fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Benzo(g,h,i)perylene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Benzo(k)fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Chrysene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Dibenz(a,h)anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Fluorene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Naphthalene	**0.0612**	J	**0.0202**	**0.101**	**ug/L**	1	12-Jun-2014 17:25
Phenanthrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 17:25
Pyrene	**0.179**		**0.0202**	**0.101**	**ug/L**	1	12-Jun-2014 17:25
Surr: 2-Fluorobiphenyl	*87.4*			*32-1305*	*%REC*	*1*	*12-Jun-2014 17:25*
Surr: 4-Terphenyl-d14	*105*			*40-135*	*%REC*	*1*	*12-Jun-2014 17:25*
Surr: Nitrobenzene-d5	*97.2*			*45-142*	*%REC*	*1*	*12-Jun-2014 17:25*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 14:49
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:49
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 14:49
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:49
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:49
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 14:49
Surr: 1,2-Dichloroethane-d4	*88.9*			*70-125*	*%REC*	*1*	*13-Jun-2014 14:49*
Surr: 4-Bromofluorobenzene	*101*			*72-125*	*%REC*	*1*	*13-Jun-2014 14:49*
Surr: Dibromofluoromethane	*93.1*			*71-125*	*%REC*	*1*	*13-Jun-2014 14:49*
Surr: Toluene-d8	*97.2*			*75-125*	*%REC*	*1*	*13-Jun-2014 14:49*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.00100	0.0100	mg/L	2	30-Jun-2014 22:04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: EB060914
Collection Date: 09-Jun-2014 11:45

ANALYTICAL REPORT
WorkOrder:HS14060393
Lab ID:HS14060393-04
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Acenaphthylene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Anthracene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Benz(a)anthracene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Benzo(a)pyrene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Benzo(b)fluoranthene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Benzo(g,h,i)perylene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Benzo(k)fluoranthene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Chrysene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Dibenz(a,h)anthracene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Fluoranthene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Fluorene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Naphthalene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Phenanthrene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Pyrene	U		0.0203	0.102	ug/L	1	12-Jun-2014 17:45
Surr: 2-Fluorobiphenyl	*76.4*			*32-1305*	*%REC*	*1*	*12-Jun-2014 17:45*
Surr: 4-Terphenyl-d14	*109*			*40-135*	*%REC*	*1*	*12-Jun-2014 17:45*
Surr: Nitrobenzene-d5	*80.7*			*45-142*	*%REC*	*1*	*12-Jun-2014 17:45*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 14:25
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:25
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 14:25
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:25
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 14:25
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 14:25
Surr: 1,2-Dichloroethane-d4	*87.9*			*70-125*	*%REC*	*1*	*13-Jun-2014 14:25*
Surr: 4-Bromofluorobenzene	*99.3*			*72-125*	*%REC*	*1*	*13-Jun-2014 14:25*
Surr: Dibromofluoromethane	*93.0*			*71-125*	*%REC*	*1*	*13-Jun-2014 14:25*
Surr: Toluene-d8	*97.8*			*75-125*	*%REC*	*1*	*13-Jun-2014 14:25*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.000500	0.00500	mg/L	1	30-Jun-2014 22:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-9S
Collection Date: 09-Jun-2014 13:45

ANALYTICAL REPORT
WorkOrder:HS14060393
Lab ID:HS14060393-05
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Acenaphthylene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Anthracene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Benz(a)anthracene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Benzo(a)pyrene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Benzo(b)fluoranthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Benzo(g,h,i)perylene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Benzo(k)fluoranthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Chrysene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Dibenz(a,h)anthracene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Fluoranthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Fluorene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Naphthalene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Phenanthrene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Pyrene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 18:04
Surr: 2-Fluorobiphenyl	*60.6*			*32-1305*	*%REC*	*1*	*12-Jun-2014 18:04*
Surr: 4-Terphenyl-d14	*104*			*40-135*	*%REC*	*1*	*12-Jun-2014 18:04*
Surr: Nitrobenzene-d5	*117*			*45-142*	*%REC*	*1*	*12-Jun-2014 18:04*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 15:12
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 15:12
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 15:12
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 15:12
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 15:12
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 15:12
Surr: 1,2-Dichloroethane-d4	*90.2*			*70-125*	*%REC*	*1*	*13-Jun-2014 15:12*
Surr: 4-Bromofluorobenzene	*101*			*72-125*	*%REC*	*1*	*13-Jun-2014 15:12*
Surr: Dibromofluoromethane	*94.6*			*71-125*	*%REC*	*1*	*13-Jun-2014 15:12*
Surr: Toluene-d8	*97.6*			*75-125*	*%REC*	*1*	*13-Jun-2014 15:12*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: DQ
Lead	U		0.00100	0.0100	mg/L	2	01-Jul-2014 19:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-3D
Collection Date: 09-Jun-2014 14:50

ANALYTICAL REPORT
WorkOrder:HS14060393
Lab ID:HS14060393-06
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Acenaphthylene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Anthracene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Benz(a)anthracene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Benzo(a)pyrene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Benzo(b)fluoranthene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Benzo(g,h,i)perylene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Benzo(k)fluoranthene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Chrysene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Dibenz(a,h)anthracene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Fluoranthene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Fluorene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Naphthalene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Phenanthrene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Pyrene	U		0.0207	0.103	ug/L	1	12-Jun-2014 18:24
Surr: 2-Fluorobiphenyl	*74.3*			*32-1305*	*%REC*	*1*	*12-Jun-2014 18:24*
Surr: 4-Terphenyl-d14	*110*			*40-135*	*%REC*	*1*	*12-Jun-2014 18:24*
Surr: Nitrobenzene-d5	*97.7*			*45-142*	*%REC*	*1*	*12-Jun-2014 18:24*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 15:36
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 15:36
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 15:36
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 15:36
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 15:36
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 15:36
Surr: 1,2-Dichloroethane-d4	*87.2*			*70-125*	*%REC*	*1*	*13-Jun-2014 15:36*
Surr: 4-Bromofluorobenzene	*99.1*			*72-125*	*%REC*	*1*	*13-Jun-2014 15:36*
Surr: Dibromofluoromethane	*92.1*			*71-125*	*%REC*	*1*	*13-Jun-2014 15:36*
Surr: Toluene-d8	*97.3*			*75-125*	*%REC*	*1*	*13-Jun-2014 15:36*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: DQ
Lead	U		0.00100	0.0100	mg/L	2	01-Jul-2014 19:26

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-3S
Collection Date: 09-Jun-2014 15:35

ANALYTICAL REPORT
WorkOrder:HS14060393
Lab ID:HS14060393-07
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Acenaphthylene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Benz(a)anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Benzo(a)pyrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Benzo(b)fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Benzo(g,h,i)perylene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Benzo(k)fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Chrysene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Dibenz(a,h)anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Fluorene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Naphthalene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Phenanthrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Pyrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 18:44
Surr: 2-Fluorobiphenyl	*68.6*			*32-1305*	*%REC*	*1*	*12-Jun-2014 18:44*
Surr: 4-Terphenyl-d14	*109*			*40-135*	*%REC*	*1*	*12-Jun-2014 18:44*
Surr: Nitrobenzene-d5	*92.5*			*45-142*	*%REC*	*1*	*12-Jun-2014 18:44*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 16:00
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 16:00
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 16:00
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 16:00
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 16:00
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 16:00
Surr: 1,2-Dichloroethane-d4	*90.6*			*70-125*	*%REC*	*1*	*13-Jun-2014 16:00*
Surr: 4-Bromofluorobenzene	*99.4*			*72-125*	*%REC*	*1*	*13-Jun-2014 16:00*
Surr: Dibromofluoromethane	*95.1*			*71-125*	*%REC*	*1*	*13-Jun-2014 16:00*
Surr: Toluene-d8	*96.8*			*75-125*	*%REC*	*1*	*13-Jun-2014 16:00*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.00100	0.0100	mg/L	2	30-Jun-2014 23:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
WorkOrder: HS14060393

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 82961	**Test Name :** LOW-LEVEL PAHS - 8270D			**Matrix:** Water		
HS14060393-01	MW-17	09 Jun 2014 10:40		12 Jun 2014 13:51	12 Jun 2014 16:46	1
HS14060393-02	FB060914	09 Jun 2014 10:50		12 Jun 2014 13:51	12 Jun 2014 17:06	1
HS14060393-03	MW-11	09 Jun 2014 11:40		12 Jun 2014 13:51	12 Jun 2014 17:25	1
HS14060393-04	EB060914	09 Jun 2014 11:45		12 Jun 2014 13:51	12 Jun 2014 17:45	1
HS14060393-05	MW-9S	09 Jun 2014 13:45		12 Jun 2014 13:51	12 Jun 2014 18:04	1
HS14060393-06	MW-3D	09 Jun 2014 14:50		12 Jun 2014 13:51	12 Jun 2014 18:24	1
HS14060393-07	MW-3S	09 Jun 2014 15:35		12 Jun 2014 13:51	12 Jun 2014 18:44	1
Batch ID 83538	**Test Name :** ICP-MS METALS SW6020A			**Matrix:** Water		
HS14060393-01	MW-17	09 Jun 2014 10:40		26 Jun 2014 12:41	30 Jun 2014 21:53	2
HS14060393-02	FB060914	09 Jun 2014 10:50		26 Jun 2014 12:41	30 Jun 2014 21:59	1
HS14060393-03	MW-11	09 Jun 2014 11:40		26 Jun 2014 12:41	30 Jun 2014 22:04	2
HS14060393-04	EB060914	09 Jun 2014 11:45		26 Jun 2014 12:41	30 Jun 2014 22:10	1
HS14060393-05	MW-9S	09 Jun 2014 13:45		26 Jun 2014 12:41	01 Jul 2014 19:20	2
HS14060393-06	MW-3D	09 Jun 2014 14:50		26 Jun 2014 12:41	01 Jul 2014 19:26	2
HS14060393-07	MW-3S	09 Jun 2014 15:35		26 Jun 2014 12:41	30 Jun 2014 23:49	2
Batch ID R235607	**Test Name :** VOLATILES - SW8260C			**Matrix:** Water		
HS14060393-01	MW-17	09 Jun 2014 10:40			13 Jun 2014 13:37	1
HS14060393-02	FB060914	09 Jun 2014 10:50			13 Jun 2014 14:01	1
HS14060393-03	MW-11	09 Jun 2014 11:40			13 Jun 2014 14:49	1
HS14060393-04	EB060914	09 Jun 2014 11:45			13 Jun 2014 14:25	1
HS14060393-05	MW-9S	09 Jun 2014 13:45			13 Jun 2014 15:12	1
HS14060393-06	MW-3D	09 Jun 2014 14:50			13 Jun 2014 15:36	1
HS14060393-07	MW-3S	09 Jun 2014 15:35			13 Jun 2014 16:00	1

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060393
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83538 **Instrument: ICPMS03** **Method: SW6020**

MBLK Sample ID: **MBLKW6-062614** Units: **mg/L** Analysis Date: **30-Jun-2014 21:42**
Client ID: Run ID: **ICPMS03_236522** SeqNo: **2916813** PrepDate: **26-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.00500								

LCS Sample ID: **MLCSW6-062614** Units: **mg/L** Analysis Date: **30-Jun-2014 21:48**
Client ID: Run ID: **ICPMS03_236522** SeqNo: **2916814** PrepDate: **26-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04845	0.00500	0.05	0	96.9	80 - 120				

MS Sample ID: **HS14060422-03MS** Units: **mg/L** Analysis Date: **01-Jul-2014 20:01**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905819** PrepDate: **26-Jun-2014** DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.0827	0.250	0.05	0.05145	62.5	80 - 120				JS

MSD Sample ID: **HS14060422-03MSD** Units: **mg/L** Analysis Date: **01-Jul-2014 20:06**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905820** PrepDate: **26-Jun-2014** DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.09445	0.250	0.05	0.05145	86.0	80 - 120	0.0827	0	20	J

DUP Sample ID: **HS14060422-03DUP** Units: **mg/L** Analysis Date: **01-Jul-2014 19:55**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905818** PrepDate: **26-Jun-2014** DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.03065	0.250					0.05145	0	20	J

PDS Sample ID: **HS14060422-03BS** Units: **mg/L** Analysis Date: **01-Jul-2014 20:15**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905821** PrepDate: DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	6.075	0.250	5	0.05145	120	75 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060393
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83538 **Instrument: ICPMS03** **Method: SW6020**

SD Sample ID: **HS14060422-03 DIL SX** Units: **mg/L** Analysis Date: **01-Jul-2014 20:22**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905822** PrepDate: DF: **250**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	1.25					0.05145	0	10	

The following samples were anayzed in this batch: HS14060393-01 HS14060393-02 HS14060393-03 HS14060393-04 HS14060393-05 HS14060393-06 HS14060393-07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060393
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 82961 **Instrument: SV-6** **Method: SW8270**

MBLK Sample ID: **MBLK-82961** Units: **ug/L** Analysis Date: **12-Jun-2014 14:21**
Client ID: Run ID: **SV-6_236710** SeqNo: **2905755** PrepDate: **12-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	0.100								
Acenaphthylene	U	0.100								
Anthracene	U	0.100								
Benz(a)anthracene	U	0.100								
Benzo(a)pyrene	U	0.100								
Benzo(b)fluoranthene	U	0.100								
Benzo(g,h,i)perylene	U	0.100								
Benzo(k)fluoranthene	U	0.100								
Chrysene	U	0.100								
Dibenz(a,h)anthracene	U	0.100								
Fluoranthene	U	0.100								
Fluorene	U	0.100								
Naphthalene	U	0.100								
Phenanthrene	U	0.100								
Pyrene	U	0.100								
Surr: 2-Fluorobiphenyl	*2.266*	*0.100*	*3.03*	*0*	*74.8*	*32 - 130*				
Surr: 4-Terphenyl-d14	*3.378*	*0.100*	*3.03*	*0*	*111*	*40 - 135*				
Surr: Nitrobenzene-d5	*3.345*	*0.100*	*3.03*	*0*	*110*	*45 - 142*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060393
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 82961 **Instrument: SV-6** **Method: SW8270**

LCS Sample ID: **LCS-82961** Units: **ug/L** Analysis Date: **12-Jun-2014 14:41**
Client ID: Run ID: **SV-6_236710** SeqNo: **2905756** PrepDate: **12-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	3.321	0.100	3.03	0	110	40 - 140				
Acenaphthylene	3.201	0.100	3.03	0	106	40 - 140				
Anthracene	3.582	0.100	3.03	0	118	40 - 140				
Benz(a)anthracene	3.241	0.100	3.03	0	107	40 - 140				
Benzo(a)pyrene	3.029	0.100	3.03	0	100.0	40 - 140				
Benzo(b)fluoranthene	2.848	0.100	3.03	0	94.0	40 - 140				
Benzo(g,h,i)perylene	2.762	0.100	3.03	0	91.2	40 - 140				
Benzo(k)fluoranthene	2.818	0.100	3.03	0	93.0	40 - 140				
Chrysene	2.973	0.100	3.03	0	98.1	40 - 140				
Dibenz(a,h)anthracene	2.73	0.100	3.03	0	90.1	40 - 140				
Fluoranthene	3.404	0.100	3.03	0	112	40 - 140				
Fluorene	3.964	0.100	3.03	0	131	40 - 140				
Naphthalene	3.313	0.100	3.03	0	109	40 - 140				
Phenanthrene	3.568	0.100	3.03	0	118	40 - 140				
Pyrene	3.168	0.100	3.03	0	105	40 - 140				
Surr: 2-Fluorobiphenyl	*2.302*	*0.100*	*3.03*	*0*	*76.0*	*32 - 130*				
Surr: 4-Terphenyl-d14	*3.227*	*0.100*	*3.03*	*0*	*106*	*40 - 135*				
Surr: Nitrobenzene-d5	*3.303*	*0.100*	*3.03*	*0*	*109*	*45 - 142*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060393
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 82961 **Instrument: SV-6** **Method: SW8270**

LCSD Sample ID: **LCSD-82961** Units: **ug/L** Analysis Date: **12-Jun-2014 15:00**
Client ID: Run ID: **SV-6_236710** SeqNo: **2905757** PrepDate: **12-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	3.205	0.100	3.03	0	106	40 - 140	3.321	3.54	25	
Acenaphthylene	3.107	0.100	3.03	0	103	40 - 140	3.201	2.98	25	
Anthracene	3.416	0.100	3.03	0	113	40 - 140	3.582	4.75	25	
Benz(a)anthracene	3.154	0.100	3.03	0	104	40 - 140	3.241	2.73	25	
Benzo(a)pyrene	2.818	0.100	3.03	0	93.0	40 - 140	3.029	7.2	25	
Benzo(b)fluoranthene	2.809	0.100	3.03	0	92.7	40 - 140	2.848	1.38	25	
Benzo(g,h,i)perylene	2.694	0.100	3.03	0	88.9	40 - 140	2.762	2.49	25	
Benzo(k)fluoranthene	2.733	0.100	3.03	0	90.2	40 - 140	2.818	3.07	25	
Chrysene	2.861	0.100	3.03	0	94.4	40 - 140	2.973	3.84	25	
Dibenz(a,h)anthracene	2.639	0.100	3.03	0	87.1	40 - 140	2.73	3.4	25	
Fluoranthene	3.207	0.100	3.03	0	106	40 - 140	3.404	5.95	25	
Fluorene	4.024	0.100	3.03	0	133	40 - 140	3.964	1.52	25	
Naphthalene	3.255	0.100	3.03	0	107	40 - 140	3.313	1.78	25	
Phenanthrene	3.418	0.100	3.03	0	113	40 - 140	3.568	4.29	25	
Pyrene	3.077	0.100	3.03	0	102	40 - 140	3.168	2.92	25	
Surr: 2-Fluorobiphenyl	*2.201*	*0.100*	*3.03*	*0*	*72.6*	*32 - 130*	*2.302*	*4.5*	*25*	
Surr: 4-Terphenyl-d14	*3.219*	*0.100*	*3.03*	*0*	*106*	*40 - 135*	*3.227*	*0.244*	*25*	
Surr: Nitrobenzene-d5	*3.497*	*0.100*	*3.03*	*0*	*115*	*45 - 142*	*3.303*	*5.71*	*25*	

The following samples were anayzed in this batch: HS14060393-01 HS14060393-02 HS14060393-03 HS14060393-04
HS14060393-05 HS14060393-06 HS14060393-07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060393
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235607 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 13:12**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881253** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
o-Xylene	U	5.0								
Toluene	U	5.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	*44.83*	*5.0*	*50*	*0*	*89.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*49.22*	*5.0*	*50*	*0*	*98.4*	*72 - 125*				
Surr: Dibromofluoromethane	*47.45*	*5.0*	*50*	*0*	*94.9*	*71 - 125*				
Surr: Toluene-d8	*50.65*	*5.0*	*50*	*0*	*101*	*75 - 125*				

LCS Sample ID: **VLCSW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 12:00**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881252** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	47.6	5.0	50	0	95.2	73 - 121				
Ethylbenzene	48.58	5.0	50	0	97.2	80 - 120				
m,p-Xylene	98.22	10	100	0	98.2	78 - 121				
o-Xylene	48.36	5.0	50	0	96.7	80 - 120				
Toluene	47.3	5.0	50	0	94.6	80 - 120				
Xylenes, Total	146.6	15	150	0	97.7	80 - 120				
Surr: 1,2-Dichloroethane-d4	*43.16*	*5.0*	*50*	*0*	*86.3*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*51.69*	*5.0*	*50*	*0*	*103*	*72 - 125*				
Surr: Dibromofluoromethane	*46.27*	*5.0*	*50*	*0*	*92.5*	*71 - 125*				
Surr: Toluene-d8	*50.04*	*5.0*	*50*	*0*	*100*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060393
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235607 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS14060393-02MS** Units: **ug/L** Analysis Date: **13-Jun-2014 16:24**
Client ID: **FB060914** Run ID: **VOA6_235607** SeqNo: **2881267** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	44.35	5.0	50	0	88.7	73 - 121				
Ethylbenzene	42.96	5.0	50	0	85.9	80 - 120				
m,p-Xylene	86.25	10	100	0	86.2	78 - 121				
o-Xylene	43.05	5.0	50	0	86.1	80 - 120				
Toluene	43.78	5.0	50	0	87.6	80 - 120				
Xylenes, Total	129.3	15	150	0	86.2	80 - 120				
Surr: 1,2-Dichloroethane-d4	*44.83*	*5.0*	*50*	*0*	*89.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*52.45*	*5.0*	*50*	*0*	*105*	*72 - 125*				
Surr: Dibromofluoromethane	*46.57*	*5.0*	*50*	*0*	*93.1*	*71 - 125*				
Surr: Toluene-d8	*50.7*	*5.0*	*50*	*0*	*101*	*75 - 125*				

MSD Sample ID: **HS14060393-02MSD** Units: **ug/L** Analysis Date: **13-Jun-2014 16:49**
Client ID: **FB060914** Run ID: **VOA6_235607** SeqNo: **2881268** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	46.28	5.0	50	0	92.6	73 - 121	44.35	4.26	20	
Ethylbenzene	45.98	5.0	50	0	92.0	80 - 120	42.96	6.8	20	
m,p-Xylene	92.79	10	100	0	92.8	78 - 121	86.25	7.3	20	
o-Xylene	45.5	5.0	50	0	91.0	80 - 120	43.05	5.54	20	
Toluene	45.83	5.0	50	0	91.7	80 - 120	43.78	4.58	20	
Xylenes, Total	138.3	15	150	0	92.2	78 - 121	129.3	6.72	20	
Surr: 1,2-Dichloroethane-d4	*43.65*	*5.0*	*50*	*0*	*87.3*	*70 - 125*	*44.83*	*2.67*	*20*	
Surr: 4-Bromofluorobenzene	*51.38*	*5.0*	*50*	*0*	*103*	*72 - 125*	*52.45*	*2.07*	*20*	
Surr: Dibromofluoromethane	*46.06*	*5.0*	*50*	*0*	*92.1*	*71 - 125*	*46.57*	*1.11*	*20*	
Surr: Toluene-d8	*50.38*	*5.0*	*50*	*0*	*101*	*75 - 125*	*50.7*	*0.633*	*20*	

The following samples were anayzed in this batch: HS14060393-01, HS14060393-02, HS14060393-03, HS14060393-04, HS14060393-05, HS14060393-06, HS14060393-07

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
WorkOrder: **HS14060393**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	AR - 2014	27-Mar-2015
California	06248CA 2013-2014	31-Jul-2014
Dept of Defense	L2231 Rev 3-20-2014	22-Dec-2015
Illinois	003403	09-May-2015
Kansas	E-10352 8/15/2013-2014	31-Jul-2014
Kentucky	KY 2014-2015	30-Apr-2015
North Carolina	624 - 2014	31-Dec-2014
North Dakota	R-193 2025	30-Apr-2015
Oklahoma	2013-024	31-Aug-2014
Texas	TX104704231-14-13	30-Apr-2015

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060393

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS14060393-01	MW-17	Login	10-Jun-14 01:01	PMG	29C
HS14060393-01	MW-17	Login	10-Jun-14 01:01	PMG	VW-3
HS14060393-01	MW-17	Login	10-Jun-14 01:01	PMG	TPH C2
HS14060393-02	FB060914	Login	10-Jun-14 01:15	PMG	29C
HS14060393-02	FB060914	Login	10-Jun-14 01:15	PMG	VW-3
HS14060393-02	FB060914	Login	10-Jun-14 01:15	PMG	TPH C2
HS14060393-03	MW-11	Login	10-Jun-14 01:15	PMG	29C
HS14060393-03	MW-11	Login	10-Jun-14 01:15	PMG	VW-3
HS14060393-03	MW-11	Login	10-Jun-14 01:15	PMG	TPH C2
HS14060393-04	EB060914	Login	10-Jun-14 01:15	PMG	29C
HS14060393-04	EB060914	Login	10-Jun-14 01:15	PMG	VW-3
HS14060393-04	EB060914	Login	10-Jun-14 01:15	PMG	TPH C2
HS14060393-05	MW-9S	Login	10-Jun-14 01:15	PMG	29C
HS14060393-05	MW-9S	Login	10-Jun-14 01:15	PMG	VW-3
HS14060393-05	MW-9S	Login	10-Jun-14 01:15	PMG	TPH C2
HS14060393-06	MW-3D	Login	10-Jun-14 01:15	PMG	29C
HS14060393-06	MW-3D	Login	10-Jun-14 01:15	PMG	VW-3
HS14060393-06	MW-3D	Login	10-Jun-14 01:15	PMG	TPH C2
HS14060393-07	MW-3S	Login	10-Jun-14 01:15	PMG	29C
HS14060393-07	MW-3S	Login	10-Jun-14 01:15	PMG	VW-3
HS14060393-07	MW-3S	Login	10-Jun-14 01:15	PMG	TPH C2
HS14060393-08	TRIP BLANK	Login	10-Jun-14 01:19	PMG	VW-3

ALS Group USA, Corp Date: 14-Jul-14

Sample Receipt Checklist

Client Name: ARCADIS-EL PASO Date/Time Received: **10-Jun-2014 09:35**

Work Order: HS14060393 Received by: **JDE**

Checklist completed by: *Paresh M. Giga* (eSignature) 10-Jun-2014 (Date) Reviewed by: _____ (eSignature) _____ (Date)

Matrices: **WATER** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☑	Not Present ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.6	3	
Cooler(s)/Kit(s):	23479		
Date/Time sample(s) sent to storage:	6/10/2014 13:35		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: TRIP BLANK RECEIVED NOT ON CHAIN- LOGGED IN WITH NO ANALYSIS

Client Contacted: Date Contacted: Person Contacted:

Contacted By: 0 Regarding:

Comments:

Corrective Action:

ALS Environmental

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody Fo

Page 1 of 1

COC ID: 09956

HS14060393

ARCADIS U.S., Inc.
Arcadis - El Paso Smelter

ALS Project Manager:

Customer Information		Project Information			
Purchase Order	LA003185.0001	Project Name	Arcadis - El Paso Smelter	A	8260 BTEX (unpreserved)
Work Order		Project Number		B	8270 - PAH (NEAT)
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS U.S., Inc.	C	6020- Lead (HNO3)
Send Report To	Malcom Pimle	Invoice Attn	Malcom Pimle	D	
Address	211 N Florence Street, Suite 202	Address	211 N Florence Street, Suite 202	E	
				F	
City/State/Zip	El Paso,	City/State/Zip	El Paso,	G	
Phone	(915) 533-9025	Phone	(915) 533-9025	H	
Fax	(915) 533-9045	Fax	(915) 533-9045	I	
e-Mail Address		e-Mail Address		J	

NO.	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-17	6/9/14	1040	W	Y	7	X	X	X								
2	FB060914	6/9/14	1050	W	Y	7	X	X	X								
3	MW-11	6/9/14	1140	W	Y	7	X	X	X								
4	EB060914	6/9/14	1145	W	Y	7	X	X	X								
5	MW-9S	6/9/14	1345	W	Y	7	X	X	X								
6	MW-3D	6/9/14	1450	W	Y	7	X	X	X								
7	MW-3S	6/9/14	1535	W	Y	7	X	X	X								
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Doug Solon Dm Solon

Shipment Method: FedEx

Required Turnaround Time: (Check Box) [X] Std 10 WK days [ ] 5 WK Days [ ] 2 WK Days [ ] 24 Hour [ ] Other

Results Due Date:

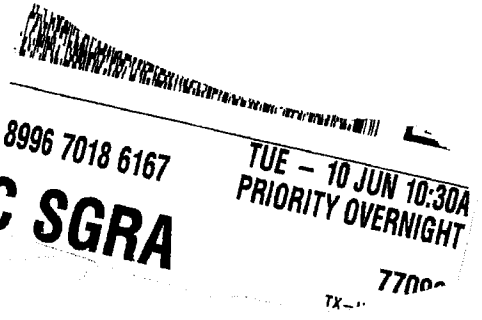
Relinquished by:	Date:	Time:	Received by:	Notes:
Dm Solon	6/9/14	1610		
Relinquished by:	Date: 6/10/14	Time: 9:35	Received by (Laboratory): Kristin E.	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Cooler ID	Cooler Temp

QC Package: (Check One Box Below)
- [ ] Level 2 Std QC
- [ ] Level 3 Std QC/Raw da
- [ ] Level 4 SW846/CLP
- [ ] Other/EDD
- [ ] TRRP ChkList
- [ ] TRRP Level 4

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.



ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 6.9.14 Time: 1630
Name: D Soto
Company: ARCADIS

Seal Initiated By: JC
Date: 6-10-14

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

July 17, 2014

Garrett Ferguson
ARCADIS U.S., Inc.
211 N Florence Street, Suite 202
El Paso,, TX 79901

Work Order: **HS14060474**

Laboratory Results for: **Brickland Refinery**

Dear Garrett,

ALS Environmental received 10 sample(s) on Jun 11, 2014 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Bethany McDaniel

Generated By: Jumoke.Lawal
Bethany McDaniel
Project Manager

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060474

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS14060474-01	MW-6D	Water		10-Jun-2014 08:40	11-Jun-2014 09:30	☐
HS14060474-02	FB061014	Water		10-Jun-2014 08:50	11-Jun-2014 09:30	☐
HS14060474-03	MW-6S	Water		10-Jun-2014 09:30	11-Jun-2014 09:30	☐
HS14060474-04	DUP061014	Water		10-Jun-2014 00:00	11-Jun-2014 09:30	☐
HS14060474-05	MW-12	Water		10-Jun-2014 11:00	11-Jun-2014 09:30	☐
HS14060474-06	MW-01	Water		10-Jun-2014 13:35	11-Jun-2014 09:30	☐
HS14060474-07	EB061014	Water		10-Jun-2014 13:45	11-Jun-2014 09:30	☐
HS14060474-08	MW-5	Water		10-Jun-2014 14:40	11-Jun-2014 09:30	☐
HS14060474-09	MW-8	Water		10-Jun-2014 15:40	11-Jun-2014 09:30	☐
HS14060474-10	Trip Blank	Water		10-Jun-2014 00:00	11-Jun-2014 09:30	☑

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060474

CASE NARRATIVE

GCMS Semivolatiles by Method SW8270

Batch ID: 82961

Sample ID: **LCSD-82961**
- Insufficient sample received to perform MS/MSD.

GCMS Volatiles by Method SW8260

Batch ID: R235596,R235607

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020

Batch ID: 83538

Sample ID: **HS14060422-03**
- MS/MSD performed on an unrelated sample.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-6D
Collection Date: 10-Jun-2014 08:40

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-01
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Acenaphthylene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Anthracene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Benz(a)anthracene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Benzo(a)pyrene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Benzo(b)fluoranthene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Benzo(g,h,i)perylene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Benzo(k)fluoranthene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Chrysene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Dibenz(a,h)anthracene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Fluoranthene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Fluorene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Indeno(1,2,3-cd)pyrene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Naphthalene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Phenanthrene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Pyrene	U		0.0197	0.0984	ug/L	1	12-Jun-2014 19:03
Surr: 2-Fluorobiphenyl	*63.7*			*32-1305*	*%REC*	*1*	*12-Jun-2014 19:03*
Surr: 4-Terphenyl-d14	*106*			*40-135*	*%REC*	*1*	*12-Jun-2014 19:03*
Surr: Nitrobenzene-d5	*77.0*			*45-142*	*%REC*	*1*	*12-Jun-2014 19:03*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 18:26
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:26
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 18:26
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:26
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:26
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 18:26
Surr: 1,2-Dichloroethane-d4	*89.7*			*70-125*	*%REC*	*1*	*13-Jun-2014 18:26*
Surr: 4-Bromofluorobenzene	*99.6*			*72-125*	*%REC*	*1*	*13-Jun-2014 18:26*
Surr: Dibromofluoromethane	*94.9*			*71-125*	*%REC*	*1*	*13-Jun-2014 18:26*
Surr: Toluene-d8	*97.3*			*75-125*	*%REC*	*1*	*13-Jun-2014 18:26*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: DQ
Lead	U		0.00100	0.0100	mg/L	2	01-Jul-2014 20:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: FB061014
Collection Date: 10-Jun-2014 08:50

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-02
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Acenaphthylene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Benz(a)anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Benzo(a)pyrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Benzo(b)fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Benzo(g,h,i)perylene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Benzo(k)fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Chrysene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Dibenz(a,h)anthracene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Fluoranthene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Fluorene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Indeno(1,2,3-cd)pyrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Naphthalene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Phenanthrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Pyrene	U		0.0202	0.101	ug/L	1	12-Jun-2014 19:23
Surr: 2-Fluorobiphenyl	*97.1*			*32-1305*	*%REC*	*1*	*12-Jun-2014 19:23*
Surr: 4-Terphenyl-d14	*110*			*40-135*	*%REC*	*1*	*12-Jun-2014 19:23*
Surr: Nitrobenzene-d5	*107*			*45-142*	*%REC*	*1*	*12-Jun-2014 19:23*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 18:50
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:50
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 18:50
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:50
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:50
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 18:50
Surr: 1,2-Dichloroethane-d4	*89.0*			*70-125*	*%REC*	*1*	*13-Jun-2014 18:50*
Surr: 4-Bromofluorobenzene	*100*			*72-125*	*%REC*	*1*	*13-Jun-2014 18:50*
Surr: Dibromofluoromethane	*93.7*			*71-125*	*%REC*	*1*	*13-Jun-2014 18:50*
Surr: Toluene-d8	*97.7*			*75-125*	*%REC*	*1*	*13-Jun-2014 18:50*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	**0.000615**	J	**0.000500**	**0.00500**	**mg/L**	1	16-Jul-2014 11:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-6S
Collection Date: 10-Jun-2014 09:30

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-03
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Acenaphthylene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Anthracene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Benz(a)anthracene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Benzo(a)pyrene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Benzo(b)fluoranthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Benzo(g,h,i)perylene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Benzo(k)fluoranthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Chrysene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Dibenz(a,h)anthracene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Fluoranthene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Fluorene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Indeno(1,2,3-cd)pyrene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Naphthalene	**0.0757**	J	**0.0200**	**0.100**	**ug/L**	1	12-Jun-2014 19:42
Phenanthrene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Pyrene	U		0.0200	0.100	ug/L	1	12-Jun-2014 19:42
Surr: 2-Fluorobiphenyl	*63.1*			*32-1305*	*%REC*	*1*	*12-Jun-2014 19:42*
Surr: 4-Terphenyl-d14	*105*			*40-135*	*%REC*	*1*	*12-Jun-2014 19:42*
Surr: Nitrobenzene-d5	*131*			*45-142*	*%REC*	*1*	*12-Jun-2014 19:42*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 19:14
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 19:14
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 19:14
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 19:14
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 19:14
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 19:14
Surr: 1,2-Dichloroethane-d4	*93.4*			*70-125*	*%REC*	*1*	*13-Jun-2014 19:14*
Surr: 4-Bromofluorobenzene	*102*			*72-125*	*%REC*	*1*	*13-Jun-2014 19:14*
Surr: Dibromofluoromethane	*93.9*			*71-125*	*%REC*	*1*	*13-Jun-2014 19:14*
Surr: Toluene-d8	*97.0*			*75-125*	*%REC*	*1*	*13-Jun-2014 19:14*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.00250	0.0250	mg/L	5	16-Jul-2014 10:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: DUP061014
Collection Date: 10-Jun-2014 00:00

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-04
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Acenaphthylene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Anthracene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Benz(a)anthracene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Benzo(a)pyrene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Benzo(b)fluoranthene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Benzo(g,h,i)perylene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Benzo(k)fluoranthene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Chrysene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Dibenz(a,h)anthracene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Fluoranthene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Fluorene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Indeno(1,2,3-cd)pyrene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Naphthalene	**0.187**		**0.0203**	**0.101**	**ug/L**	1	12-Jun-2014 20:02
Phenanthrene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Pyrene	U		0.0203	0.101	ug/L	1	12-Jun-2014 20:02
Surr: 2-Fluorobiphenyl	*47.2*			*32-1305*	*%REC*	*1*	*12-Jun-2014 20:02*
Surr: 4-Terphenyl-d14	*107*			*40-135*	*%REC*	*1*	*12-Jun-2014 20:02*
Surr: Nitrobenzene-d5	*117*			*45-142*	*%REC*	*1*	*12-Jun-2014 20:02*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 19:38
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 19:38
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 19:38
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 19:38
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 19:38
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 19:38
Surr: 1,2-Dichloroethane-d4	*91.2*			*70-125*	*%REC*	*1*	*13-Jun-2014 19:38*
Surr: 4-Bromofluorobenzene	*101*			*72-125*	*%REC*	*1*	*13-Jun-2014 19:38*
Surr: Dibromofluoromethane	*94.2*			*71-125*	*%REC*	*1*	*13-Jun-2014 19:38*
Surr: Toluene-d8	*97.8*			*75-125*	*%REC*	*1*	*13-Jun-2014 19:38*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.00250	0.0250	mg/L	5	16-Jul-2014 10:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-12
Collection Date: 10-Jun-2014 11:00

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-05
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Acenaphthylene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Anthracene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Benz(a)anthracene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Benzo(a)pyrene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Benzo(b)fluoranthene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Benzo(g,h,i)perylene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Benzo(k)fluoranthene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Chrysene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Dibenz(a,h)anthracene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Fluoranthene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Fluorene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Indeno(1,2,3-cd)pyrene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Naphthalene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Phenanthrene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Pyrene	U		0.0198	0.0990	ug/L	1	12-Jun-2014 20:21
Surr: 2-Fluorobiphenyl	*74.4*			*32-1305*	*%REC*	*1*	*12-Jun-2014 20:21*
Surr: 4-Terphenyl-d14	*92.6*			*40-135*	*%REC*	*1*	*12-Jun-2014 20:21*
Surr: Nitrobenzene-d5	*84.4*			*45-142*	*%REC*	*1*	*12-Jun-2014 20:21*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 20:03
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:03
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 20:03
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:03
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:03
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 20:03
Surr: 1,2-Dichloroethane-d4	*88.8*			*70-125*	*%REC*	*1*	*13-Jun-2014 20:03*
Surr: 4-Bromofluorobenzene	*99.9*			*72-125*	*%REC*	*1*	*13-Jun-2014 20:03*
Surr: Dibromofluoromethane	*91.1*			*71-125*	*%REC*	*1*	*13-Jun-2014 20:03*
Surr: Toluene-d8	*97.3*			*75-125*	*%REC*	*1*	*13-Jun-2014 20:03*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.00250	0.0250	mg/L	5	16-Jul-2014 10:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-01
Collection Date: 10-Jun-2014 13:35

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-06
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Acenaphthylene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Anthracene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Benz(a)anthracene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Benzo(a)pyrene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Benzo(b)fluoranthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Benzo(g,h,i)perylene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Benzo(k)fluoranthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Chrysene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Dibenz(a,h)anthracene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Fluoranthene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Fluorene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Indeno(1,2,3-cd)pyrene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Naphthalene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Phenanthrene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Pyrene	U		0.0199	0.0997	ug/L	1	12-Jun-2014 20:41
Surr: 2-Fluorobiphenyl	*72.5*			*32-1305*	*%REC*	*1*	*12-Jun-2014 20:41*
Surr: 4-Terphenyl-d14	*114*			*40-135*	*%REC*	*1*	*12-Jun-2014 20:41*
Surr: Nitrobenzene-d5	*99.8*			*45-142*	*%REC*	*1*	*12-Jun-2014 20:41*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 20:27
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:27
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 20:27
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:27
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:27
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 20:27
Surr: 1,2-Dichloroethane-d4	*92.7*			*70-125*	*%REC*	*1*	*13-Jun-2014 20:27*
Surr: 4-Bromofluorobenzene	*100*			*72-125*	*%REC*	*1*	*13-Jun-2014 20:27*
Surr: Dibromofluoromethane	*94.3*			*71-125*	*%REC*	*1*	*13-Jun-2014 20:27*
Surr: Toluene-d8	*97.7*			*75-125*	*%REC*	*1*	*13-Jun-2014 20:27*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.000500	0.00500	mg/L	1	16-Jul-2014 11:33

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: EB061014
Collection Date: 10-Jun-2014 13:45

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-07
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Acenaphthylene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Anthracene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Benz(a)anthracene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Benzo(a)pyrene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Benzo(b)fluoranthene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Benzo(g,h,i)perylene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Benzo(k)fluoranthene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Chrysene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Dibenz(a,h)anthracene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Fluoranthene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Fluorene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Indeno(1,2,3-cd)pyrene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Naphthalene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Phenanthrene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Pyrene	U		0.0204	0.102	ug/L	1	12-Jun-2014 21:01
Surr: 2-Fluorobiphenyl	*68.7*			*32-1305*	*%REC*	*1*	*12-Jun-2014 21:01*
Surr: 4-Terphenyl-d14	*107*			*40-135*	*%REC*	*1*	*12-Jun-2014 21:01*
Surr: Nitrobenzene-d5	*84.5*			*45-142*	*%REC*	*1*	*12-Jun-2014 21:01*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 17:13
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 17:13
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 17:13
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 17:13
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 17:13
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 17:13
Surr: 1,2-Dichloroethane-d4	*89.7*			*70-125*	*%REC*	*1*	*13-Jun-2014 17:13*
Surr: 4-Bromofluorobenzene	*101*			*72-125*	*%REC*	*1*	*13-Jun-2014 17:13*
Surr: Dibromofluoromethane	*92.9*			*71-125*	*%REC*	*1*	*13-Jun-2014 17:13*
Surr: Toluene-d8	*97.4*			*75-125*	*%REC*	*1*	*13-Jun-2014 17:13*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.000500	0.00500	mg/L	1	16-Jul-2014 11:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-5
Collection Date: 10-Jun-2014 14:40

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-08
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	**0.202**		**0.0199**	**0.0995**	**ug/L**	1	12-Jun-2014 21:20
Acenaphthylene	**0.0650**	J	**0.0199**	**0.0995**	**ug/L**	1	12-Jun-2014 21:20
Anthracene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Benz(a)anthracene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Benzo(a)pyrene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Benzo(b)fluoranthene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Benzo(g,h,i)perylene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Benzo(k)fluoranthene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Chrysene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Dibenz(a,h)anthracene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Fluoranthene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Fluorene	**0.323**		**0.0199**	**0.0995**	**ug/L**	1	12-Jun-2014 21:20
Indeno(1,2,3-cd)pyrene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Naphthalene	**0.247**		**0.0199**	**0.0995**	**ug/L**	1	12-Jun-2014 21:20
Phenanthrene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Pyrene	U		0.0199	0.0995	ug/L	1	12-Jun-2014 21:20
Surr: 2-Fluorobiphenyl	*46.5*			*32-1305*	*%REC*	*1*	*12-Jun-2014 21:20*
Surr: 4-Terphenyl-d14	*106*			*40-135*	*%REC*	*1*	*12-Jun-2014 21:20*
Surr: Nitrobenzene-d5	*90.4*			*45-142*	*%REC*	*1*	*12-Jun-2014 21:20*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	**420**		**3.0**	**25**	**ug/L**	5	15-Jun-2014 14:48
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:51
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 20:51
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 20:51
Toluene	**1.3**	J	**0.50**	**5.0**	**ug/L**	1	13-Jun-2014 20:51
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 20:51
Surr: 1,2-Dichloroethane-d4	*92.3*			*70-125*	*%REC*	*5*	*15-Jun-2014 14:48*
Surr: 1,2-Dichloroethane-d4	*91.4*			*70-125*	*%REC*	*1*	*13-Jun-2014 20:51*
Surr: 4-Bromofluorobenzene	*101*			*72-125*	*%REC*	*5*	*15-Jun-2014 14:48*
Surr: 4-Bromofluorobenzene	*101*			*72-125*	*%REC*	*1*	*13-Jun-2014 20:51*
Surr: Dibromofluoromethane	*94.8*			*71-125*	*%REC*	*5*	*15-Jun-2014 14:48*
Surr: Dibromofluoromethane	*95.2*			*71-125*	*%REC*	*1*	*13-Jun-2014 20:51*
Surr: Toluene-d8	*98.5*			*75-125*	*%REC*	*5*	*15-Jun-2014 14:48*
Surr: Toluene-d8	*97.6*			*75-125*	*%REC*	*1*	*13-Jun-2014 20:51*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	U		0.00250	0.0250	mg/L	5	16-Jul-2014 10:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-8
Collection Date: 10-Jun-2014 15:40

ANALYTICAL REPORT
WorkOrder:HS14060474
Lab ID:HS14060474-09
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 12-Jun-2014		Analyst: ACN
Acenaphthene	**0.146**		**0.0206**	**0.103**	**ug/L**	1	12-Jun-2014 21:39
Acenaphthylene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Anthracene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Benz(a)anthracene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Benzo(a)pyrene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Benzo(b)fluoranthene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Benzo(g,h,i)perylene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Benzo(k)fluoranthene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Chrysene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Dibenz(a,h)anthracene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Fluoranthene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Fluorene	**0.176**		**0.0206**	**0.103**	**ug/L**	1	12-Jun-2014 21:39
Indeno(1,2,3-cd)pyrene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Naphthalene	**2.64**		**0.0206**	**0.103**	**ug/L**	1	12-Jun-2014 21:39
Phenanthrene	**0.317**		**0.0206**	**0.103**	**ug/L**	1	12-Jun-2014 21:39
Pyrene	U		0.0206	0.103	ug/L	1	12-Jun-2014 21:39
Surr: 2-Fluorobiphenyl	*46.4*			*32-1305*	*%REC*	*1*	*12-Jun-2014 21:39*
Surr: 4-Terphenyl-d14	*103*			*40-135*	*%REC*	*1*	*12-Jun-2014 21:39*
Surr: Nitrobenzene-d5	*121*			*45-142*	*%REC*	*1*	*12-Jun-2014 21:39*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	**3,300**		**60**	**500**	**ug/L**	100	15-Jun-2014 13:35
Ethylbenzene	**4.3**	J	**0.50**	**5.0**	**ug/L**	1	13-Jun-2014 21:15
m,p-Xylene	**2.1**	J	**0.60**	**10**	**ug/L**	1	13-Jun-2014 21:15
o-Xylene	**3.4**	J	**0.50**	**5.0**	**ug/L**	1	13-Jun-2014 21:15
Toluene	**10**		**0.50**	**5.0**	**ug/L**	1	13-Jun-2014 21:15
Xylenes, Total	**5.5**	J	**1.5**	**15**	**ug/L**	1	13-Jun-2014 21:15
Surr: 1,2-Dichloroethane-d4	*93.0*			*70-125*	*%REC*	*100*	*15-Jun-2014 13:35*
Surr: 1,2-Dichloroethane-d4	*88.8*			*70-125*	*%REC*	*1*	*13-Jun-2014 21:15*
Surr: 4-Bromofluorobenzene	*99.8*			*72-125*	*%REC*	*100*	*15-Jun-2014 13:35*
Surr: 4-Bromofluorobenzene	*103*			*72-125*	*%REC*	*1*	*13-Jun-2014 21:15*
Surr: Dibromofluoromethane	*94.6*			*71-125*	*%REC*	*100*	*15-Jun-2014 13:35*
Surr: Dibromofluoromethane	*95.8*			*71-125*	*%REC*	*1*	*13-Jun-2014 21:15*
Surr: Toluene-d8	*96.8*			*75-125*	*%REC*	*100*	*15-Jun-2014 13:35*
Surr: Toluene-d8	*98.3*			*75-125*	*%REC*	*1*	*13-Jun-2014 21:15*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 26-Jun-2014		Analyst: ALR
Lead	**0.00385**	J	**0.00250**	**0.0250**	**mg/L**	5	16-Jul-2014 11:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
WorkOrder: HS14060474

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 82961	**Test Name :** LOW-LEVEL PAHS - 8270D			**Matrix:** Water		
HS14060474-01	MW-6D	10 Jun 2014 08:40		12 Jun 2014 13:51	12 Jun 2014 19:03	1
HS14060474-02	FB061014	10 Jun 2014 08:50		12 Jun 2014 13:51	12 Jun 2014 19:23	1
HS14060474-03	MW-6S	10 Jun 2014 09:30		12 Jun 2014 13:51	12 Jun 2014 19:42	1
HS14060474-04	DUP061014	10 Jun 2014 00:00		12 Jun 2014 13:51	12 Jun 2014 20:02	1
HS14060474-05	MW-12	10 Jun 2014 11:00		12 Jun 2014 13:51	12 Jun 2014 20:21	1
HS14060474-06	MW-01	10 Jun 2014 13:35		12 Jun 2014 13:51	12 Jun 2014 20:41	1
HS14060474-07	EB061014	10 Jun 2014 13:45		12 Jun 2014 13:51	12 Jun 2014 21:01	1
HS14060474-08	MW-5	10 Jun 2014 14:40		12 Jun 2014 13:51	12 Jun 2014 21:20	1
HS14060474-09	MW-8	10 Jun 2014 15:40		12 Jun 2014 13:51	12 Jun 2014 21:39	1
Batch ID 83538	**Test Name :** ICP-MS METALS SW6020A			**Matrix:** Water		
HS14060474-01	MW-6D	10 Jun 2014 08:40		26 Jun 2014 12:41	01 Jul 2014 20:27	2
HS14060474-02	FB061014	10 Jun 2014 08:50		26 Jun 2014 12:41	16 Jul 2014 11:28	1
HS14060474-03	MW-6S	10 Jun 2014 09:30		26 Jun 2014 12:41	16 Jul 2014 10:29	5
HS14060474-04	DUP061014	10 Jun 2014 00:00		26 Jun 2014 12:41	16 Jul 2014 10:35	5
HS14060474-05	MW-12	10 Jun 2014 11:00		26 Jun 2014 12:41	16 Jul 2014 10:40	5
HS14060474-06	MW-01	10 Jun 2014 13:35		26 Jun 2014 12:41	16 Jul 2014 11:33	1
HS14060474-07	EB061014	10 Jun 2014 13:45		26 Jun 2014 12:41	16 Jul 2014 11:39	1
HS14060474-08	MW-5	10 Jun 2014 14:40		26 Jun 2014 12:41	16 Jul 2014 10:57	5
HS14060474-09	MW-8	10 Jun 2014 15:40		26 Jun 2014 12:41	16 Jul 2014 11:10	5
Batch ID R235596	**Test Name :** VOLATILES - SW8260C			**Matrix:** Water		
HS14060474-08	MW-5	10 Jun 2014 14:40			15 Jun 2014 14:48	5
HS14060474-09	MW-8	10 Jun 2014 15:40			15 Jun 2014 13:35	100
Batch ID R235607	**Test Name :** VOLATILES - SW8260C			**Matrix:** Water		
HS14060474-01	MW-6D	10 Jun 2014 08:40			13 Jun 2014 18:26	1
HS14060474-02	FB061014	10 Jun 2014 08:50			13 Jun 2014 18:50	1
HS14060474-03	MW-6S	10 Jun 2014 09:30			13 Jun 2014 19:14	1
HS14060474-04	DUP061014	10 Jun 2014 00:00			13 Jun 2014 19:38	1
HS14060474-05	MW-12	10 Jun 2014 11:00			13 Jun 2014 20:03	1
HS14060474-06	MW-01	10 Jun 2014 13:35			13 Jun 2014 20:27	1
HS14060474-07	EB061014	10 Jun 2014 13:45			13 Jun 2014 17:13	1
HS14060474-08	MW-5	10 Jun 2014 14:40			13 Jun 2014 20:51	1
HS14060474-09	MW-8	10 Jun 2014 15:40			13 Jun 2014 21:15	1

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83538 **Instrument: ICPMS03** **Method: SW6020**

MBLK Sample ID: **MBLKW6-062614** Units: **mg/L** Analysis Date: **30-Jun-2014 21:42**
Client ID: Run ID: **ICPMS03_236522** SeqNo: **2916813** PrepDate: **26-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.00500								

LCS Sample ID: **MLCSW6-062614** Units: **mg/L** Analysis Date: **30-Jun-2014 21:48**
Client ID: Run ID: **ICPMS03_236522** SeqNo: **2916814** PrepDate: **26-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04845	0.00500	0.05	0	96.9	80 - 120				

MS Sample ID: **HS14060422-03MS** Units: **mg/L** Analysis Date: **01-Jul-2014 20:01**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905819** PrepDate: **26-Jun-2014** DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.0827	0.250	0.05	0.05145	62.5	80 - 120				JS

MSD Sample ID: **HS14060422-03MSD** Units: **mg/L** Analysis Date: **01-Jul-2014 20:06**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905820** PrepDate: **26-Jun-2014** DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.09445	0.250	0.05	0.05145	86.0	80 - 120	0.0827	0	20	J

DUP Sample ID: **HS14060422-03DUP** Units: **mg/L** Analysis Date: **01-Jul-2014 19:55**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905818** PrepDate: **26-Jun-2014** DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.03065	0.250					0.05145	0	20	J

PDS Sample ID: **HS14060422-03BS** Units: **mg/L** Analysis Date: **01-Jul-2014 20:15**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905821** PrepDate: DF: **50**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	6.075	0.250	5	0.05145	120	75 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83538 **Instrument: ICPMS03** **Method: SW6020**

SD Sample ID: **HS14060422-03 DIL SX** Units: **mg/L** Analysis Date: **01-Jul-2014 20:22**
Client ID: Run ID: **ICPMS03_236654** SeqNo: **2905822** PrepDate: DF: **250**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	1.25					0.05145	0	10	

The following samples were anayzed in this batch:

HS14060474-01	HS14060474-02	HS14060474-03	HS14060474-04
HS14060474-05	HS14060474-06	HS14060474-07	HS14060474-08
HS14060474-09			

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 82961 **Instrument: SV-6** **Method: SW8270**

MBLK Sample ID: **MBLK-82961** Units: **ug/L** Analysis Date: **12-Jun-2014 14:21**
Client ID: Run ID: **SV-6_236710** SeqNo: **2905755** PrepDate: **12-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	0.100								
Acenaphthylene	U	0.100								
Anthracene	U	0.100								
Benz(a)anthracene	U	0.100								
Benzo(a)pyrene	U	0.100								
Benzo(b)fluoranthene	U	0.100								
Benzo(g,h,i)perylene	U	0.100								
Benzo(k)fluoranthene	U	0.100								
Chrysene	U	0.100								
Dibenz(a,h)anthracene	U	0.100								
Fluoranthene	U	0.100								
Fluorene	U	0.100								
Indeno(1,2,3-cd)pyrene	U	0.100								
Naphthalene	U	0.100								
Phenanthrene	U	0.100								
Pyrene	U	0.100								
Surr: 2-Fluorobiphenyl	*2.266*	*0.100*	*3.03*	*0*	*74.8*	*32 - 130*				
Surr: 4-Terphenyl-d14	*3.378*	*0.100*	*3.03*	*0*	*111*	*40 - 135*				
Surr: Nitrobenzene-d5	*3.345*	*0.100*	*3.03*	*0*	*110*	*45 - 142*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 82961 **Instrument: SV-6** **Method: SW8270**

LCS Sample ID: **LCS-82961** Units: **ug/L** Analysis Date: **12-Jun-2014 14:41**
Client ID: Run ID: **SV-6_236710** SeqNo: **2905756** PrepDate: **12-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	3.321	0.100	3.03	0	110	40 - 140				
Acenaphthylene	3.201	0.100	3.03	0	106	40 - 140				
Anthracene	3.582	0.100	3.03	0	118	40 - 140				
Benz(a)anthracene	3.241	0.100	3.03	0	107	40 - 140				
Benzo(a)pyrene	3.029	0.100	3.03	0	100.0	40 - 140				
Benzo(b)fluoranthene	2.848	0.100	3.03	0	94.0	40 - 140				
Benzo(g,h,i)perylene	2.762	0.100	3.03	0	91.2	40 - 140				
Benzo(k)fluoranthene	2.818	0.100	3.03	0	93.0	40 - 140				
Chrysene	2.973	0.100	3.03	0	98.1	40 - 140				
Dibenz(a,h)anthracene	2.73	0.100	3.03	0	90.1	40 - 140				
Fluoranthene	3.404	0.100	3.03	0	112	40 - 140				
Fluorene	3.964	0.100	3.03	0	131	40 - 140				
Indeno(1,2,3-cd)pyrene	3.907	0.100	3.03	0	129	40 - 140				
Naphthalene	3.313	0.100	3.03	0	109	40 - 140				
Phenanthrene	3.568	0.100	3.03	0	118	40 - 140				
Pyrene	3.168	0.100	3.03	0	105	40 - 140				
Surr: 2-Fluorobiphenyl	*2.302*	*0.100*	*3.03*	*0*	*76.0*	*32 - 130*				
Surr: 4-Terphenyl-d14	*3.227*	*0.100*	*3.03*	*0*	*106*	*40 - 135*				
Surr: Nitrobenzene-d5	*3.303*	*0.100*	*3.03*	*0*	*109*	*45 - 142*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 82961 **Instrument: SV-6** **Method: SW8270**

LCSD Sample ID: **LCSD-82961** Units: **ug/L** Analysis Date: **12-Jun-2014 15:00**
Client ID: Run ID: **SV-6_236710** SeqNo: **2905757** PrepDate: **12-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	3.205	0.100	3.03	0	106	40 - 140	3.321	3.54	25	
Acenaphthylene	3.107	0.100	3.03	0	103	40 - 140	3.201	2.98	25	
Anthracene	3.416	0.100	3.03	0	113	40 - 140	3.582	4.75	25	
Benz(a)anthracene	3.154	0.100	3.03	0	104	40 - 140	3.241	2.73	25	
Benzo(a)pyrene	2.818	0.100	3.03	0	93.0	40 - 140	3.029	7.2	25	
Benzo(b)fluoranthene	2.809	0.100	3.03	0	92.7	40 - 140	2.848	1.38	25	
Benzo(g,h,i)perylene	2.694	0.100	3.03	0	88.9	40 - 140	2.762	2.49	25	
Benzo(k)fluoranthene	2.733	0.100	3.03	0	90.2	40 - 140	2.818	3.07	25	
Chrysene	2.861	0.100	3.03	0	94.4	40 - 140	2.973	3.84	25	
Dibenz(a,h)anthracene	2.639	0.100	3.03	0	87.1	40 - 140	2.73	3.4	25	
Fluoranthene	3.207	0.100	3.03	0	106	40 - 140	3.404	5.95	25	
Fluorene	4.024	0.100	3.03	0	133	40 - 140	3.964	1.52	25	
Indeno(1,2,3-cd)pyrene	3.793	0.100	3.03	0	125	40 - 140	3.907	2.95	25	
Naphthalene	3.255	0.100	3.03	0	107	40 - 140	3.313	1.78	25	
Phenanthrene	3.418	0.100	3.03	0	113	40 - 140	3.568	4.29	25	
Pyrene	3.077	0.100	3.03	0	102	40 - 140	3.168	2.92	25	
Surr: 2-Fluorobiphenyl	*2.201*	*0.100*	*3.03*	*0*	*72.6*	*32 - 130*	*2.302*	*4.5*	*25*	
Surr: 4-Terphenyl-d14	*3.219*	*0.100*	*3.03*	*0*	*106*	*40 - 135*	*3.227*	*0.244*	*25*	
Surr: Nitrobenzene-d5	*3.497*	*0.100*	*3.03*	*0*	*115*	*45 - 142*	*3.303*	*5.71*	*25*	

The following samples were anayzed in this batch: HS14060474-01, HS14060474-02, HS14060474-03, HS14060474-04, HS14060474-05, HS14060474-06, HS14060474-07, HS14060474-08, HS14060474-09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235596 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-140615** Units: **ug/L** Analysis Date: **15-Jun-2014 12:23**
Client ID: Run ID: **VOA6_235596** SeqNo: **2881069** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	5.0								
Surr: 1,2-Dichloroethane-d4	*43.86*	*5.0*	*50*	*0*	*87.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*50.34*	*5.0*	*50*	*0*	*101*	*72 - 125*				
Surr: Dibromofluoromethane	*46.75*	*5.0*	*50*	*0*	*93.5*	*71 - 125*				
Surr: Toluene-d8	*48.45*	*5.0*	*50*	*0*	*96.9*	*75 - 125*				

LCS Sample ID: **VLCSW-140615** Units: **ug/L** Analysis Date: **15-Jun-2014 11:36**
Client ID: Run ID: **VOA6_235596** SeqNo: **2881068** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	48.39	5.0	50	0	96.8	73 - 121				
Surr: 1,2-Dichloroethane-d4	*44.17*	*5.0*	*50*	*0*	*88.3*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*51.9*	*5.0*	*50*	*0*	*104*	*72 - 125*				
Surr: Dibromofluoromethane	*47.18*	*5.0*	*50*	*0*	*94.4*	*71 - 125*				
Surr: Toluene-d8	*50.54*	*5.0*	*50*	*0*	*101*	*75 - 125*				

MS Sample ID: **HS14060474-09MS** Units: **ug/L** Analysis Date: **15-Jun-2014 13:59**
Client ID: **MW-8** Run ID: **VOA6_235596** SeqNo: **2881071** PrepDate: DF: **100**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	7645	500	5000	3291	87.1	73 - 121				
Surr: 1,2-Dichloroethane-d4	*4519*	*500*	*5000*	*0*	*90.4*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*5202*	*500*	*5000*	*0*	*104*	*72 - 125*				
Surr: Dibromofluoromethane	*4775*	*500*	*5000*	*0*	*95.5*	*71 - 125*				
Surr: Toluene-d8	*5040*	*500*	*5000*	*0*	*101*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235596 **Instrument: VOA6** **Method: SW8260**

MSD Sample ID: **HS14060474-09MSD** Units: **ug/L** Analysis Date: **15-Jun-2014 14:24**
Client ID: **MW-8** Run ID: **VOA6_235596** SeqNo: **2881072** PrepDate: DF: **100**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	7798	500	5000	3291	90.2	73 - 121	7645	1.99	20	
Surr: 1,2-Dichloroethane-d4	*4466*	*500*	*5000*	*0*	*89.3*	*70 - 125*	*4519*	*1.19*	*20*	
Surr: 4-Bromofluorobenzene	*5223*	*500*	*5000*	*0*	*104*	*72 - 125*	*5202*	*0.386*	*20*	
Surr: Dibromofluoromethane	*4700*	*500*	*5000*	*0*	*94.0*	*71 - 125*	*4775*	*1.59*	*20*	
Surr: Toluene-d8	*5037*	*500*	*5000*	*0*	*101*	*75 - 125*	*5040*	*0.0655*	*20*	

The following samples were anayzed in this batch: HS14060474-08 HS14060474-09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235607 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 13:12**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881253** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
o-Xylene	U	5.0								
Toluene	U	5.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	*44.83*	*5.0*	*50*	*0*	*89.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*49.22*	*5.0*	*50*	*0*	*98.4*	*72 - 125*				
Surr: Dibromofluoromethane	*47.45*	*5.0*	*50*	*0*	*94.9*	*71 - 125*				
Surr: Toluene-d8	*50.65*	*5.0*	*50*	*0*	*101*	*75 - 125*				

LCS Sample ID: **VLCSW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 12:00**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881252** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	47.6	5.0	50	0	95.2	73 - 121				
Ethylbenzene	48.58	5.0	50	0	97.2	80 - 120				
m,p-Xylene	98.22	10	100	0	98.2	78 - 121				
o-Xylene	48.36	5.0	50	0	96.7	80 - 120				
Toluene	47.3	5.0	50	0	94.6	80 - 120				
Xylenes, Total	146.6	15	150	0	97.7	80 - 120				
Surr: 1,2-Dichloroethane-d4	*43.16*	*5.0*	*50*	*0*	*86.3*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*51.69*	*5.0*	*50*	*0*	*103*	*72 - 125*				
Surr: Dibromofluoromethane	*46.27*	*5.0*	*50*	*0*	*92.5*	*71 - 125*				
Surr: Toluene-d8	*50.04*	*5.0*	*50*	*0*	*100*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060474
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235607 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS14060393-02MS** Units: **ug/L** Analysis Date: **13-Jun-2014 16:24**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881267** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	44.35	5.0	50	0	88.7	73 - 121				
Ethylbenzene	42.96	5.0	50	0	85.9	80 - 120				
m,p-Xylene	86.25	10	100	0	86.2	78 - 121				
o-Xylene	43.05	5.0	50	0	86.1	80 - 120				
Toluene	43.78	5.0	50	0	87.6	80 - 120				
Xylenes, Total	129.3	15	150	0	86.2	80 - 120				
Surr: 1,2-Dichloroethane-d4	*44.83*	*5.0*	*50*	*0*	*89.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*52.45*	*5.0*	*50*	*0*	*105*	*72 - 125*				
Surr: Dibromofluoromethane	*46.57*	*5.0*	*50*	*0*	*93.1*	*71 - 125*				
Surr: Toluene-d8	*50.7*	*5.0*	*50*	*0*	*101*	*75 - 125*				

MSD Sample ID: **HS14060393-02MSD** Units: **ug/L** Analysis Date: **13-Jun-2014 16:49**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881268** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	46.28	5.0	50	0	92.6	73 - 121	44.35	4.26	20	
Ethylbenzene	45.98	5.0	50	0	92.0	80 - 120	42.96	6.8	20	
m,p-Xylene	92.79	10	100	0	92.8	78 - 121	86.25	7.3	20	
o-Xylene	45.5	5.0	50	0	91.0	80 - 120	43.05	5.54	20	
Toluene	45.83	5.0	50	0	91.7	80 - 120	43.78	4.58	20	
Xylenes, Total	138.3	15	150	0	92.2	78 - 121	129.3	6.72	20	
Surr: 1,2-Dichloroethane-d4	*43.65*	*5.0*	*50*	*0*	*87.3*	*70 - 125*	*44.83*	*2.67*	*20*	
Surr: 4-Bromofluorobenzene	*51.38*	*5.0*	*50*	*0*	*103*	*72 - 125*	*52.45*	*2.07*	*20*	
Surr: Dibromofluoromethane	*46.06*	*5.0*	*50*	*0*	*92.1*	*71 - 125*	*46.57*	*1.11*	*20*	
Surr: Toluene-d8	*50.38*	*5.0*	*50*	*0*	*101*	*75 - 125*	*50.7*	*0.633*	*20*	

The following samples were anayzed in this batch: HS14060474-01, HS14060474-02, HS14060474-03, HS14060474-04, HS14060474-05, HS14060474-06, HS14060474-07, HS14060474-08, HS14060474-09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
WorkOrder: **HS14060474**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	AR - 2014	27-Mar-2015
California	06248CA 2013-2014	31-Jul-2014
Dept of Defense	L2231 Rev 3-20-2014	22-Dec-2015
Illinois	003403	09-May-2015
Kansas	E-10352 8/15/2013-2014	31-Jul-2014
Kentucky	KY 2014-2015	30-Apr-2015
North Carolina	624 - 2014	31-Dec-2014
North Dakota	R-193 2025	30-Apr-2015
Oklahoma	2013-024	31-Aug-2014
Texas	TX104704231-14-13	30-Apr-2015

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060474

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS14060474-01	MW-6D	Login	11-Jun-14 01:56	MES	29D
HS14060474-01	MW-6D	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-01	MW-6D	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-02	FB061014	Login	11-Jun-14 01:56	MES	29D
HS14060474-02	FB061014	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-02	FB061014	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-03	MW-6S	Login	11-Jun-14 01:56	MES	29D
HS14060474-03	MW-6S	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-03	MW-6S	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-04	DUP061014	Login	11-Jun-14 01:56	MES	29D
HS14060474-04	DUP061014	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-04	DUP061014	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-05	MW-12	Login	11-Jun-14 01:56	MES	29D
HS14060474-05	MW-12	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-05	MW-12	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-06	MW-01	Login	11-Jun-14 01:56	MES	29D
HS14060474-06	MW-01	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-06	MW-01	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-07	EB061014	Login	11-Jun-14 01:56	MES	29D
HS14060474-07	EB061014	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-07	EB061014	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-08	MW-5	Login	11-Jun-14 01:56	MES	29D
HS14060474-08	MW-5	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-08	MW-5	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-09	MW-8	Login	11-Jun-14 01:56	MES	29D
HS14060474-09	MW-8	Login	11-Jun-14 01:56	MES	VW-3
HS14060474-09	MW-8	Login	11-Jun-14 01:56	MES	TPH C2
HS14060474-10	Trip Blank	Login	11-Jun-14 02:58	MES	VW-3

ALS Group USA, Corp Date: 17-Jul-14

Sample Receipt Checklist

Client Name: ARCADIS-EL PASO Date/Time Received: **11-Jun-2014 09:30**

Work Order: HS14060474 Received by: **JDE**

Checklist completed by: *Michael E. Schepcoff* 11-Jun-2014
eSignature | Date

Reviewed by: *Bethany McDaniel* 12-Jun-2014
eSignature | Date

Matrices: **Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.8c/2.8c C/U	3	
Cooler(s)/Kit(s):	23480		
Date/Time sample(s) sent to storage:	6/11/2014 14:45		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☑	N/A ☐
pH adjusted?	Yes ☑	No ☐	N/A ☐
pH adjusted by:	Michael E. Schepcoff		

Login Notes: Samples MW-65, Dup061014, and MW-08 had pH over 2for the metals container, preserved at lab .

Client Contacted: Date Contacted: Person Contacted:

Contacted By: 0 Regarding:

Comments:

Corrective Action:

ALS Environmental

Cincinnati, OH +1 513 733 5336
Everett, WA +1 425 356 2600
Fort Collins, CO +1 970 490 1511
Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 099565

HS14060474

ARCADIS U.S., Inc.
Arcadis - El Paso Smelter

, WV

ALS Project Manager:

Customer Information		Project Information			
Purchase Order	LA003185.0001	Project Name	Arcadis - El Paso Smelter	A	8260 BTEX (unpreserved)
Work Order		Project Number		B	8270 - PAH (NEAT)
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS U.S., Inc.	C	8020- Lead (hno3)
Send Report To	Malcom Pimle	Invoice Attn	Malcom Pimle	D	
Address	211 N Florence Street, Suite 202	Address	211 N Florence Street, Suite 202	E	
				F	
City/State/Zip	El Paso,	City/State/Zip	El Paso,	G	
Phone	(915) 533-9025	Phone	(915) 533-9025	H	
Fax	(915) 533-9045	Fax	(915) 533-9045	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-6D	061014	0840	W	Y	7	X	X	X								
2	FB061014	061014	0850	W	Y	7	X	X	X								
3	MW-6S	061014	0930	W	Y	7	X	X	X								
4	DUP061014	061014	—	W	Y	7	X	X	X								
5	MW-12	061014	1100	W	Y	7	X	X	X								
6	MW-01	061014	1335	W	Y	7	X	X	X								
7	EB061014	061014	1345	W	Y	7	X	X	X								
8	MW-5	061014	1440	W	Y	7	X	X	X								
9	MW-8	061014	1540	W	Y	7	X	X	X								
10																	

Sampler(s) Please Print & Sign: Doug Golon DMGolon

Shipment Method: FedEx

Required Turnaround Time: (Check Box) ☐ Other ____ ☒ Std 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
DMGolon	6/10/14	1605		
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID / Cooler Temp.
	6-11-14	9:30		
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

QC Package: (Check One Box Below)
☐ Level 2 Std QC ☐ TRRP ChkList
☐ Level 3 Std QC/Raw dz ☐ TRRP Level 4
☐ Level 4 SW846/CLP
☐ Other/EDD

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

TRK# 0215 8996 7018 6190

WED - 11 JUN 10:30A
PRIORITY OVERNIGHT

NC SGRA

77099
TX-US IAH

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5687

CUSTODY SEAL
Date: 6/10/14 Time: 1634
Name: D Solan
Company: ALS

Seal Broken By: SLD
Date: 6-11-14 SLD

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

July 22, 2014

Garrett Ferguson
ARCADIS U.S., Inc.
211 N Florence Street, Suite 202
El Paso,, TX 79901

Work Order: **HS14060556**

Laboratory Results for: **Brickland Refinery**

Dear Garrett,

ALS Environmental received 10 sample(s) on Jun 12, 2014 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Bethany McDaniel

Generated By: Dayna.Fisher
Bethany McDaniel
Project Manager

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060556

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS14060556-01	MW-14	Water		11-Jun-2014 08:35	12-Jun-2014 09:40	☐
HS14060556-02	FB061114	Water		11-Jun-2014 08:45	12-Jun-2014 09:40	☐
HS14060556-03	MW-4	Water		11-Jun-2014 09:25	12-Jun-2014 09:40	☐
HS14060556-04	EB061114	Water		11-Jun-2014 09:35	12-Jun-2014 09:40	☐
HS14060556-05	MW-7	Water		11-Jun-2014 10:20	12-Jun-2014 09:40	☐
HS14060556-06	MW-10	Water		11-Jun-2014 11:25	12-Jun-2014 09:40	☐
HS14060556-07	MW-15	Water		11-Jun-2014 14:00	12-Jun-2014 09:40	☐
HS14060556-08	Upstream	Water		11-Jun-2014 15:15	12-Jun-2014 09:40	☐
HS14060556-09	Downstream	Water		11-Jun-2014 15:30	12-Jun-2014 09:40	☐
HS14060556-10	Trip Blank	Water		11-Jun-2014 00:00	12-Jun-2014 09:40	☐

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060556

CASE NARRATIVE

GCMS Semivolatiles by Method SW8270

Batch ID: 83120

Sample ID: **LCS-83120**
- Insufficient sample received to perform MS/MSD.

Sample ID: **LCSD-83120**
- The RPD between the LCS and LCSD was outside of the control limit for several compounds

GCMS Volatiles by Method SW8260

Batch ID: R235596,R235607,R235617

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020

Batch ID: 83760

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-14
Collection Date: 11-Jun-2014 08:35

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-01
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Acenaphthylene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Benz(a)anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Benzo(a)pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Benzo(b)fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Benzo(g,h,i)perylene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Benzo(k)fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Chrysene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Dibenz(a,h)anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Fluorene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Indeno(1,2,3-cd)pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Naphthalene	**0.0417**	J	**0.0202**	**0.101**	**ug/L**	1	07-Jul-2014 15:01
Phenanthrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 15:01
Surr: 2-Fluorobiphenyl	*48.4*			*32-130*	*%REC*	*1*	*07-Jul-2014 15:01*
Surr: 4-Terphenyl-d14	*101*			*40-135*	*%REC*	*1*	*07-Jul-2014 15:01*
Surr: Nitrobenzene-d5	*109*			*45-142*	*%REC*	*1*	*07-Jul-2014 15:01*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	15-Jun-2014 16:01
Ethylbenzene	U		0.50	5.0	ug/L	1	15-Jun-2014 16:01
m,p-Xylene	U		0.60	10	ug/L	1	15-Jun-2014 16:01
o-Xylene	U		0.50	5.0	ug/L	1	15-Jun-2014 16:01
Toluene	U		0.50	5.0	ug/L	1	15-Jun-2014 16:01
Xylenes, Total	U		1.5	15	ug/L	1	15-Jun-2014 16:01
Surr: 1,2-Dichloroethane-d4	*95.4*			*70-125*	*%REC*	*1*	*15-Jun-2014 16:01*
Surr: 4-Bromofluorobenzene	*99.3*			*72-125*	*%REC*	*1*	*15-Jun-2014 16:01*
Surr: Dibromofluoromethane	*96.0*			*71-125*	*%REC*	*1*	*15-Jun-2014 16:01*
Surr: Toluene-d8	*98.0*			*75-125*	*%REC*	*1*	*15-Jun-2014 16:01*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	U		0.00250	0.0250	mg/L	5	07-Jul-2014 20:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: FB061114
Collection Date: 11-Jun-2014 08:45

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-02
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Acenaphthylene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Anthracene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Benz(a)anthracene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Benzo(a)pyrene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Benzo(b)fluoranthene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Benzo(g,h,i)perylene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Benzo(k)fluoranthene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Chrysene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Dibenz(a,h)anthracene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Fluoranthene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Fluorene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Indeno(1,2,3-cd)pyrene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Naphthalene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Phenanthrene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Pyrene	U		0.0208	0.104	ug/L	1	07-Jul-2014 15:21
Surr: 2-Fluorobiphenyl	*67.6*			*32-130*	*%REC*	*1*	*07-Jul-2014 15:21*
Surr: 4-Terphenyl-d14	*104*			*40-135*	*%REC*	*1*	*07-Jul-2014 15:21*
Surr: Nitrobenzene-d5	*102*			*45-142*	*%REC*	*1*	*07-Jul-2014 15:21*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 17:37
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 17:37
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 17:37
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 17:37
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 17:37
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 17:37
Surr: 1,2-Dichloroethane-d4	*88.1*			*70-125*	*%REC*	*1*	*13-Jun-2014 17:37*
Surr: 4-Bromofluorobenzene	*99.3*			*72-125*	*%REC*	*1*	*13-Jun-2014 17:37*
Surr: Dibromofluoromethane	*92.4*			*71-125*	*%REC*	*1*	*13-Jun-2014 17:37*
Surr: Toluene-d8	*96.9*			*75-125*	*%REC*	*1*	*13-Jun-2014 17:37*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	**0.000609**	J	**0.000500**	**0.00500**	**mg/L**	1	03-Jul-2014 22:56

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-4
Collection Date: 11-Jun-2014 09:25

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-03
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Acenaphthylene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Anthracene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Benz(a)anthracene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Benzo(a)pyrene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Benzo(b)fluoranthene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Benzo(g,h,i)perylene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Benzo(k)fluoranthene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Chrysene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Dibenz(a,h)anthracene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Fluoranthene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Fluorene	**0.0224**	J	**0.0199**	**0.0997**	**ug/L**	1	07-Jul-2014 15:40
Indeno(1,2,3-cd)pyrene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Naphthalene	**0.0738**	J	**0.0199**	**0.0997**	**ug/L**	1	07-Jul-2014 15:40
Phenanthrene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Pyrene	U		0.0199	0.0997	ug/L	1	07-Jul-2014 15:40
Surr: 2-Fluorobiphenyl	*41.9*			*32-130*	*%REC*	*1*	*07-Jul-2014 15:40*
Surr: 4-Terphenyl-d14	*105*			*40-135*	*%REC*	*1*	*07-Jul-2014 15:40*
Surr: Nitrobenzene-d5	*98.0*			*45-142*	*%REC*	*1*	*07-Jul-2014 15:40*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	15-Jun-2014 16:25
Ethylbenzene	U		0.50	5.0	ug/L	1	15-Jun-2014 16:25
m,p-Xylene	U		0.60	10	ug/L	1	15-Jun-2014 16:25
o-Xylene	U		0.50	5.0	ug/L	1	15-Jun-2014 16:25
Toluene	U		0.50	5.0	ug/L	1	15-Jun-2014 16:25
Xylenes, Total	U		1.5	15	ug/L	1	15-Jun-2014 16:25
Surr: 1,2-Dichloroethane-d4	*93.9*			*70-125*	*%REC*	*1*	*15-Jun-2014 16:25*
Surr: 4-Bromofluorobenzene	*99.9*			*72-125*	*%REC*	*1*	*15-Jun-2014 16:25*
Surr: Dibromofluoromethane	*95.3*			*71-125*	*%REC*	*1*	*15-Jun-2014 16:25*
Surr: Toluene-d8	*97.7*			*75-125*	*%REC*	*1*	*15-Jun-2014 16:25*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	U		0.00250	0.0250	mg/L	5	07-Jul-2014 22:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: EB061114
Collection Date: 11-Jun-2014 09:35

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-04
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Acenaphthylene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Anthracene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Benz(a)anthracene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Benzo(a)pyrene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Benzo(b)fluoranthene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Benzo(g,h,i)perylene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Benzo(k)fluoranthene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Chrysene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Dibenz(a,h)anthracene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Fluoranthene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Fluorene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Indeno(1,2,3-cd)pyrene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Naphthalene	**0.0269**	J	**0.0205**	**0.102**	**ug/L**	1	07-Jul-2014 15:59
Phenanthrene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Pyrene	U		0.0205	0.102	ug/L	1	07-Jul-2014 15:59
Surr: 2-Fluorobiphenyl	*56.6*			*32-130*	*%REC*	*1*	*07-Jul-2014 15:59*
Surr: 4-Terphenyl-d14	*105*			*40-135*	*%REC*	*1*	*07-Jul-2014 15:59*
Surr: Nitrobenzene-d5	*90.3*			*45-142*	*%REC*	*1*	*07-Jul-2014 15:59*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 18:01
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:01
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 18:01
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:01
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 18:01
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 18:01
Surr: 1,2-Dichloroethane-d4	*89.1*			*70-125*	*%REC*	*1*	*13-Jun-2014 18:01*
Surr: 4-Bromofluorobenzene	*99.5*			*72-125*	*%REC*	*1*	*13-Jun-2014 18:01*
Surr: Dibromofluoromethane	*92.2*			*71-125*	*%REC*	*1*	*13-Jun-2014 18:01*
Surr: Toluene-d8	*96.8*			*75-125*	*%REC*	*1*	*13-Jun-2014 18:01*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	U		0.000500	0.00500	mg/L	1	03-Jul-2014 23:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-7
Collection Date: 11-Jun-2014 10:20

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-05
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Acenaphthylene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Anthracene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Benz(a)anthracene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Benzo(a)pyrene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Benzo(b)fluoranthene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Benzo(g,h,i)perylene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Benzo(k)fluoranthene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Chrysene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Dibenz(a,h)anthracene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Fluoranthene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Fluorene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Indeno(1,2,3-cd)pyrene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Naphthalene	**0.0462**	J	**0.0201**	**0.100**	**ug/L**	1	07-Jul-2014 16:19
Phenanthrene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Pyrene	U		0.0201	0.100	ug/L	1	07-Jul-2014 16:19
Surr: 2-Fluorobiphenyl	*49.2*			*32-130*	*%REC*	*1*	*07-Jul-2014 16:19*
Surr: 4-Terphenyl-d14	*105*			*40-135*	*%REC*	*1*	*07-Jul-2014 16:19*
Surr: Nitrobenzene-d5	*110*			*45-142*	*%REC*	*1*	*07-Jul-2014 16:19*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	**1.4**	J	**0.60**	**5.0**	**ug/L**	1	13-Jun-2014 21:26
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 21:26
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 21:26
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 21:26
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 21:26
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 21:26
Surr: 1,2-Dichloroethane-d4	*111*			*70-125*	*%REC*	*1*	*13-Jun-2014 21:26*
Surr: 4-Bromofluorobenzene	*98.7*			*72-125*	*%REC*	*1*	*13-Jun-2014 21:26*
Surr: Dibromofluoromethane	*106*			*71-125*	*%REC*	*1*	*13-Jun-2014 21:26*
Surr: Toluene-d8	*102*			*75-125*	*%REC*	*1*	*13-Jun-2014 21:26*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	**0.000699**	J	**0.000500**	**0.00500**	**mg/L**	1	03-Jul-2014 23:21

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-10
Collection Date: 11-Jun-2014 11:25

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-06
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	**1.06**		**0.0206**	**0.103**	**ug/L**	1	07-Jul-2014 16:38
Acenaphthylene	**0.231**		**0.0206**	**0.103**	**ug/L**	1	07-Jul-2014 16:38
Anthracene	**0.300**		**0.0206**	**0.103**	**ug/L**	1	07-Jul-2014 16:38
Benz(a)anthracene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Benzo(a)pyrene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Benzo(b)fluoranthene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Benzo(g,h,i)perylene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Benzo(k)fluoranthene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Chrysene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Dibenz(a,h)anthracene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Fluoranthene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Fluorene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Indeno(1,2,3-cd)pyrene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Naphthalene	**0.517**		**0.0206**	**0.103**	**ug/L**	1	07-Jul-2014 16:38
Phenanthrene	U		0.0206	0.103	ug/L	1	07-Jul-2014 16:38
Pyrene	**0.455**		**0.0206**	**0.103**	**ug/L**	1	07-Jul-2014 16:38
Surr: 2-Fluorobiphenyl	*42.5*			*32-130*	*%REC*	*1*	*07-Jul-2014 16:38*
Surr: 4-Terphenyl-d14	*104*			*40-135*	*%REC*	*1*	*07-Jul-2014 16:38*
Surr: Nitrobenzene-d5	*87.1*			*45-142*	*%REC*	*1*	*07-Jul-2014 16:38*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 21:51
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 21:51
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 21:51
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 21:51
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 21:51
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 21:51
Surr: 1,2-Dichloroethane-d4	*109*			*70-125*	*%REC*	*1*	*13-Jun-2014 21:51*
Surr: 4-Bromofluorobenzene	*98.4*			*72-125*	*%REC*	*1*	*13-Jun-2014 21:51*
Surr: Dibromofluoromethane	*106*			*71-125*	*%REC*	*1*	*13-Jun-2014 21:51*
Surr: Toluene-d8	*102*			*75-125*	*%REC*	*1*	*13-Jun-2014 21:51*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	U		0.000500	0.00500	mg/L	1	03-Jul-2014 23:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: MW-15
Collection Date: 11-Jun-2014 14:00

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-07
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Acenaphthylene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Anthracene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Benz(a)anthracene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Benzo(a)pyrene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Benzo(b)fluoranthene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Benzo(g,h,i)perylene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Benzo(k)fluoranthene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Chrysene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Dibenz(a,h)anthracene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Fluoranthene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Fluorene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Indeno(1,2,3-cd)pyrene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Naphthalene	**0.0584**	J	**0.0203**	**0.102**	**ug/L**	1	07-Jul-2014 16:57
Phenanthrene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Pyrene	U		0.0203	0.102	ug/L	1	07-Jul-2014 16:57
Surr: 2-Fluorobiphenyl	*41.9*			*32-130*	*%REC*	*1*	*07-Jul-2014 16:57*
Surr: 4-Terphenyl-d14	*104*			*40-135*	*%REC*	*1*	*07-Jul-2014 16:57*
Surr: Nitrobenzene-d5	*103*			*45-142*	*%REC*	*1*	*07-Jul-2014 16:57*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 22:16
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 22:16
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 22:16
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 22:16
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 22:16
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 22:16
Surr: 1,2-Dichloroethane-d4	*110*			*70-125*	*%REC*	*1*	*13-Jun-2014 22:16*
Surr: 4-Bromofluorobenzene	*98.1*			*72-125*	*%REC*	*1*	*13-Jun-2014 22:16*
Surr: Dibromofluoromethane	*108*			*71-125*	*%REC*	*1*	*13-Jun-2014 22:16*
Surr: Toluene-d8	*104*			*75-125*	*%REC*	*1*	*13-Jun-2014 22:16*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	U		0.000500	0.00500	mg/L	1	03-Jul-2014 23:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: Upstream
Collection Date: 11-Jun-2014 15:15

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-08
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Acenaphthylene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Benz(a)anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Benzo(a)pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Benzo(b)fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Benzo(g,h,i)perylene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Benzo(k)fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Chrysene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Dibenz(a,h)anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Fluorene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Indeno(1,2,3-cd)pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Naphthalene	**0.0224**	J	**0.0202**	**0.101**	**ug/L**	1	07-Jul-2014 17:17
Phenanthrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:17
Surr: 2-Fluorobiphenyl	*59.2*			*32-130*	*%REC*	*1*	*07-Jul-2014 17:17*
Surr: 4-Terphenyl-d14	*108*			*40-135*	*%REC*	*1*	*07-Jul-2014 17:17*
Surr: Nitrobenzene-d5	*87.1*			*45-142*	*%REC*	*1*	*07-Jul-2014 17:17*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 22:41
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 22:41
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 22:41
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 22:41
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 22:41
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 22:41
Surr: 1,2-Dichloroethane-d4	*112*			*70-125*	*%REC*	*1*	*13-Jun-2014 22:41*
Surr: 4-Bromofluorobenzene	*97.8*			*72-125*	*%REC*	*1*	*13-Jun-2014 22:41*
Surr: Dibromofluoromethane	*109*			*71-125*	*%REC*	*1*	*13-Jun-2014 22:41*
Surr: Toluene-d8	*104*			*75-125*	*%REC*	*1*	*13-Jun-2014 22:41*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	**0.0211**		**0.000500**	**0.00500**	**mg/L**	1	03-Jul-2014 23:35

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Sample ID: Downstream
Collection Date: 11-Jun-2014 15:30

ANALYTICAL REPORT
WorkOrder:HS14060556
Lab ID:HS14060556-09
Matrix:Water

ANALYSES	RESULT	QUAL	SDL	MQL	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW-LEVEL PAHS - 8270D		**Method:SW8270**			Prep:SW3511 / 16-Jun-2014		Analyst: LG
Acenaphthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Acenaphthylene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Benz(a)anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Benzo(a)pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Benzo(b)fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Benzo(g,h,i)perylene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Benzo(k)fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Chrysene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Dibenz(a,h)anthracene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Fluoranthene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Fluorene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Indeno(1,2,3-cd)pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Naphthalene	**0.0202**	J	**0.0202**	**0.101**	**ug/L**	1	07-Jul-2014 17:36
Phenanthrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Pyrene	U		0.0202	0.101	ug/L	1	07-Jul-2014 17:36
Surr: 2-Fluorobiphenyl	*43.5*			*32-130*	*%REC*	*1*	*07-Jul-2014 17:36*
Surr: 4-Terphenyl-d14	*103*			*40-135*	*%REC*	*1*	*07-Jul-2014 17:36*
Surr: Nitrobenzene-d5	*92.4*			*45-142*	*%REC*	*1*	*07-Jul-2014 17:36*
VOLATILES - SW8260C		**Method:SW8260**					Analyst: PC
Benzene	U		0.60	5.0	ug/L	1	13-Jun-2014 23:06
Ethylbenzene	U		0.50	5.0	ug/L	1	13-Jun-2014 23:06
m,p-Xylene	U		0.60	10	ug/L	1	13-Jun-2014 23:06
o-Xylene	U		0.50	5.0	ug/L	1	13-Jun-2014 23:06
Toluene	U		0.50	5.0	ug/L	1	13-Jun-2014 23:06
Xylenes, Total	U		1.5	15	ug/L	1	13-Jun-2014 23:06
Surr: 1,2-Dichloroethane-d4	*114*			*70-125*	*%REC*	*1*	*13-Jun-2014 23:06*
Surr: 4-Bromofluorobenzene	*96.9*			*72-125*	*%REC*	*1*	*13-Jun-2014 23:06*
Surr: Dibromofluoromethane	*107*			*71-125*	*%REC*	*1*	*13-Jun-2014 23:06*
Surr: Toluene-d8	*103*			*75-125*	*%REC*	*1*	*13-Jun-2014 23:06*
ICP-MS METALS SW6020A		**Method:SW6020**			Prep:SW3010A / 03-Jul-2014		Analyst: ALR
Lead	**0.0214**		**0.000500**	**0.00500**	**mg/L**	1	03-Jul-2014 23:40

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
WorkOrder: HS14060556

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID 83120	**Test Name :** LOW-LEVEL PAHS - 8270D			**Matrix:** Water		
HS14060556-01	MW-14	11 Jun 2014 08:35		16 Jun 2014 16:53	07 Jul 2014 15:01	1
HS14060556-02	FB061114	11 Jun 2014 08:45		16 Jun 2014 16:53	07 Jul 2014 15:21	1
HS14060556-03	MW-4	11 Jun 2014 09:25		16 Jun 2014 16:53	07 Jul 2014 15:40	1
HS14060556-04	EB061114	11 Jun 2014 09:35		16 Jun 2014 16:53	07 Jul 2014 15:59	1
HS14060556-05	MW-7	11 Jun 2014 10:20		16 Jun 2014 16:53	07 Jul 2014 16:19	1
HS14060556-06	MW-10	11 Jun 2014 11:25		16 Jun 2014 16:53	07 Jul 2014 16:38	1
HS14060556-07	MW-15	11 Jun 2014 14:00		16 Jun 2014 16:53	07 Jul 2014 16:57	1
HS14060556-08	Upstream	11 Jun 2014 15:15		16 Jun 2014 16:53	07 Jul 2014 17:17	1
HS14060556-09	Downstream	11 Jun 2014 15:30		16 Jun 2014 16:53	07 Jul 2014 17:36	1
Batch ID 83760	**Test Name :** ICP-MS METALS SW6020A			**Matrix:** Water		
HS14060556-01	MW-14	11 Jun 2014 08:35		03 Jul 2014 06:30	07 Jul 2014 20:17	5
HS14060556-02	FB061114	11 Jun 2014 08:45		03 Jul 2014 06:30	03 Jul 2014 22:56	1
HS14060556-03	MW-4	11 Jun 2014 09:25		03 Jul 2014 06:30	07 Jul 2014 22:11	5
HS14060556-04	EB061114	11 Jun 2014 09:35		03 Jul 2014 06:30	03 Jul 2014 23:06	1
HS14060556-05	MW-7	11 Jun 2014 10:20		03 Jul 2014 06:30	03 Jul 2014 23:21	1
HS14060556-06	MW-10	11 Jun 2014 11:25		03 Jul 2014 06:30	03 Jul 2014 23:25	1
HS14060556-07	MW-15	11 Jun 2014 14:00		03 Jul 2014 06:30	03 Jul 2014 23:30	1
HS14060556-08	Upstream	11 Jun 2014 15:15		03 Jul 2014 06:30	03 Jul 2014 23:35	1
HS14060556-09	Downstream	11 Jun 2014 15:30		03 Jul 2014 06:30	03 Jul 2014 23:40	1
Batch ID R235596	**Test Name :** VOLATILES - SW8260C			**Matrix:** Water		
HS14060556-01	MW-14	11 Jun 2014 08:35			15 Jun 2014 16:01	1
HS14060556-03	MW-4	11 Jun 2014 09:25			15 Jun 2014 16:25	1
Batch ID R235607	**Test Name :** VOLATILES - SW8260C			**Matrix:** Water		
HS14060556-02	FB061114	11 Jun 2014 08:45			13 Jun 2014 17:37	1
HS14060556-04	EB061114	11 Jun 2014 09:35			13 Jun 2014 18:01	1
Batch ID R235617	**Test Name :** VOLATILES - SW8260C			**Matrix:** Water		
HS14060556-05	MW-7	11 Jun 2014 10:20			13 Jun 2014 21:26	1
HS14060556-06	MW-10	11 Jun 2014 11:25			13 Jun 2014 21:51	1
HS14060556-07	MW-15	11 Jun 2014 14:00			13 Jun 2014 22:16	1
HS14060556-08	Upstream	11 Jun 2014 15:15			13 Jun 2014 22:41	1
HS14060556-09	Downstream	11 Jun 2014 15:30			13 Jun 2014 23:06	1

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83760 **Instrument: ICP7500** **Method: SW6020**

MBLK Sample ID: **MBLKW3-070314** Units: **mg/L** Analysis Date: **07-Jul-2014 18:23**
Client ID: Run ID: **ICP7500_236916** SeqNo: **2912041** PrepDate: **03-Jul-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.00500								

LCS Sample ID: **MLCSW3-070314** Units: **mg/L** Analysis Date: **03-Jul-2014 21:52**
Client ID: Run ID: **ICP7500_236801** SeqNo: **2909173** PrepDate: **03-Jul-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04837	0.00500	0.05	0	96.7	80 - 120				

MS Sample ID: **HS14060556-01MS** Units: **mg/L** Analysis Date: **07-Jul-2014 20:37**
Client ID: **MW-14** Run ID: **ICP7500_236916** SeqNo: **2912553** PrepDate: **03-Jul-2014** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.0521	0.0250	0.05	0.001222	102	80 - 120				

MSD Sample ID: **HS14060556-01MSD** Units: **mg/L** Analysis Date: **07-Jul-2014 20:47**
Client ID: **MW-14** Run ID: **ICP7500_236916** SeqNo: **2912555** PrepDate: **03-Jul-2014** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05235	0.0250	0.05	0.001222	102	80 - 120	0.0521	0.479	20	

DUP Sample ID: **HS14060556-01DUP** Units: **mg/L** Analysis Date: **07-Jul-2014 20:27**
Client ID: **MW-14** Run ID: **ICP7500_236916** SeqNo: **2912551** PrepDate: **03-Jul-2014** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.0250					0.001222	0	20	

PDS Sample ID: **HS14060556-01BS** Units: **mg/L** Analysis Date: **07-Jul-2014 20:52**
Client ID: **MW-14** Run ID: **ICP7500_236916** SeqNo: **2912556** PrepDate: **03-Jul-2014** DF: **5**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.5045	0.0250	0.5	0	101	75 - 125				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83760 **Instrument:** ICP7500 **Method:** SW6020

SD Sample ID: **HS14060556-01 DIL SX** Units: **mg/L** Analysis Date: **07-Jul-2014 20:32**
Client ID: **MW-14** Run ID: **ICP7500_236916** SeqNo: **2912552** PrepDate: **03-Jul-2014** DF: **25**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	U	0.125					0.001222	0	10	

The following samples were anayzed in this batch:

HS14060556-01	HS14060556-02	HS14060556-03	HS14060556-04
HS14060556-05	HS14060556-06	HS14060556-07	HS14060556-08
HS14060556-09			

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83120 **Instrument: SV-6** **Method: SW8270**

MBLK Sample ID: **MBLK-83120** Units: **ug/L** Analysis Date: **03-Jul-2014 16:12**
Client ID: Run ID: **SV-6_237519** SeqNo: **2926387** PrepDate: **16-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	0.100								
Acenaphthylene	U	0.100								
Anthracene	U	0.100								
Benz(a)anthracene	U	0.100								
Benzo(a)pyrene	U	0.100								
Benzo(b)fluoranthene	U	0.100								
Benzo(g,h,i)perylene	U	0.100								
Benzo(k)fluoranthene	U	0.100								
Chrysene	U	0.100								
Dibenz(a,h)anthracene	U	0.100								
Fluoranthene	U	0.100								
Fluorene	U	0.100								
Indeno(1,2,3-cd)pyrene	U	0.100								
Naphthalene	U	0.100								
Phenanthrene	U	0.100								
Pyrene	U	0.100								
Surr: 2-Fluorobiphenyl	*1.388*	*0.100*	*3.03*	*0*	*45.8*	*32 - 130*				
Surr: 4-Terphenyl-d14	*2.727*	*0.100*	*3.03*	*0*	*90.0*	*40 - 135*				
Surr: Nitrobenzene-d5	*2.934*	*0.100*	*3.03*	*0*	*96.8*	*45 - 142*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83120 **Instrument: SV-6** **Method: SW8270**

LCS Sample ID: **LCS-83120** Units: **ug/L** Analysis Date: **03-Jul-2014 16:31**
Client ID: Run ID: **SV-6_237519** SeqNo: **2926388** PrepDate: **16-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1.808	0.100	3.03	0	59.7	40 - 140				
Acenaphthylene	1.702	0.100	3.03	0	56.2	40 - 140				
Anthracene	1.794	0.100	3.03	0	59.2	40 - 140				
Benz(a)anthracene	1.819	0.100	3.03	0	60.0	40 - 140				
Benzo(a)pyrene	1.834	0.100	3.03	0	60.5	40 - 140				
Benzo(b)fluoranthene	1.653	0.100	3.03	0	54.6	40 - 140				
Benzo(g,h,i)perylene	1.796	0.100	3.03	0	59.3	40 - 140				
Benzo(k)fluoranthene	1.854	0.100	3.03	0	61.2	40 - 140				
Chrysene	2.092	0.100	3.03	0	69.0	40 - 140				
Dibenz(a,h)anthracene	1.867	0.100	3.03	0	61.6	40 - 140				
Fluoranthene	1.785	0.100	3.03	0	58.9	40 - 140				
Fluorene	1.781	0.100	3.03	0	58.8	40 - 140				
Indeno(1,2,3-cd)pyrene	2.486	0.100	3.03	0	82.0	40 - 140				
Naphthalene	1.872	0.100	3.03	0	61.8	40 - 140				
Phenanthrene	1.924	0.100	3.03	0	63.5	40 - 140				
Pyrene	1.746	0.100	3.03	0	57.6	40 - 140				
Surr: 2-Fluorobiphenyl	*1.579*	*0.100*	*3.03*	*0*	*52.1*	*32 - 130*				
Surr: 4-Terphenyl-d14	*2.106*	*0.100*	*3.03*	*0*	*69.5*	*40 - 135*				
Surr: Nitrobenzene-d5	*2.381*	*0.100*	*3.03*	*0*	*78.6*	*45 - 142*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: 83120 **Instrument: SV-6** **Method: SW8270**

LCSD Sample ID: **LCSD-83120** Units: **ug/L** Analysis Date: **03-Jul-2014 16:51**
Client ID: Run ID: **SV-6_237519** SeqNo: **2926389** PrepDate: **16-Jun-2014** DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	2.469	0.100	3.03	0	81.5	40 - 140	1.808	30.9	25	R
Acenaphthylene	2.31	0.100	3.03	0	76.3	40 - 140	1.702	30.3	25	R
Anthracene	2.621	0.100	3.03	0	86.5	40 - 140	1.794	37.5	25	R
Benz(a)anthracene	2.712	0.100	3.03	0	89.5	40 - 140	1.819	39.4	25	R
Benzo(a)pyrene	2.677	0.100	3.03	0	88.4	40 - 140	1.834	37.4	25	R
Benzo(b)fluoranthene	2.522	0.100	3.03	0	83.2	40 - 140	1.653	41.6	25	R
Benzo(g,h,i)perylene	2.738	0.100	3.03	0	90.4	40 - 140	1.796	41.6	25	R
Benzo(k)fluoranthene	2.811	0.100	3.03	0	92.8	40 - 140	1.854	41.1	25	R
Chrysene	2.979	0.100	3.03	0	98.3	40 - 140	2.092	35	25	R
Dibenz(a,h)anthracene	2.833	0.100	3.03	0	93.5	40 - 140	1.867	41.1	25	R
Fluoranthene	2.613	0.100	3.03	0	86.2	40 - 140	1.785	37.7	25	R
Fluorene	2.66	0.100	3.03	0	87.8	40 - 140	1.781	39.6	25	R
Indeno(1,2,3-cd)pyrene	2.567	0.100	3.03	0	84.7	40 - 140	2.486	3.22	25	
Naphthalene	2.717	0.100	3.03	0	89.7	40 - 140	1.872	36.8	25	R
Phenanthrene	2.817	0.100	3.03	0	93.0	40 - 140	1.924	37.7	25	R
Pyrene	2.618	0.100	3.03	0	86.4	40 - 140	1.746	39.9	25	R
Surr: 2-Fluorobiphenyl	*1.595*	*0.100*	*3.03*	*0*	*52.6*	*32 - 130*	*1.579*	*1.04*	*25*	
Surr: 4-Terphenyl-d14	*3.069*	*0.100*	*3.03*	*0*	*101*	*40 - 135*	*2.106*	*37.2*	*25*	R
Surr: Nitrobenzene-d5	*3.794*	*0.100*	*3.03*	*0*	*125*	*45 - 142*	*2.381*	*45.8*	*25*	R

The following samples were anayzed in this batch: HS14060556-01, HS14060556-02, HS14060556-03, HS14060556-04, HS14060556-05, HS14060556-06, HS14060556-07, HS14060556-08, HS14060556-09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235596 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-140615** Units: **ug/L** Analysis Date: **15-Jun-2014 12:23**
Client ID: Run ID: **VOA6_235596** SeqNo: **2881069** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
o-Xylene	U	5.0								
Toluene	U	5.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	*43.86*	*5.0*	*50*	*0*	*87.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*50.34*	*5.0*	*50*	*0*	*101*	*72 - 125*				
Surr: Dibromofluoromethane	*46.75*	*5.0*	*50*	*0*	*93.5*	*71 - 125*				
Surr: Toluene-d8	*48.45*	*5.0*	*50*	*0*	*96.9*	*75 - 125*				

LCS Sample ID: **VLCSW-140615** Units: **ug/L** Analysis Date: **15-Jun-2014 11:36**
Client ID: Run ID: **VOA6_235596** SeqNo: **2881068** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	48.39	5.0	50	0	96.8	73 - 121				
Ethylbenzene	46.91	5.0	50	0	93.8	80 - 120				
m,p-Xylene	95.42	10	100	0	95.4	78 - 121				
o-Xylene	47.1	5.0	50	0	94.2	80 - 120				
Toluene	47.1	5.0	50	0	94.2	80 - 120				
Xylenes, Total	142.5	15	150	0	95.0	80 - 120				
Surr: 1,2-Dichloroethane-d4	*44.17*	*5.0*	*50*	*0*	*88.3*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*51.9*	*5.0*	*50*	*0*	*104*	*72 - 125*				
Surr: Dibromofluoromethane	*47.18*	*5.0*	*50*	*0*	*94.4*	*71 - 125*				
Surr: Toluene-d8	*50.54*	*5.0*	*50*	*0*	*101*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235596 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS14060474-09MS** Units: **ug/L** Analysis Date: **15-Jun-2014 13:59**
Client ID: Run ID: **VOA6_235596** SeqNo: **2881071** PrepDate: DF: **100**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	7645	500	5000	3291	87.1	73 - 121				
Ethylbenzene	4049	500	5000	0	81.0	80 - 120				
m,p-Xylene	8119	1000	10000	0	81.2	78 - 121				
o-Xylene	4146	500	5000	0	82.9	80 - 120				
Toluene	4147	500	5000	0	82.9	80 - 120				
Xylenes, Total	12270	1500	15000	0	81.8	80 - 120				
Surr: 1,2-Dichloroethane-d4	*4519*	*500*	*5000*	*0*	*90.4*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*5202*	*500*	*5000*	*0*	*104*	*72 - 125*				
Surr: Dibromofluoromethane	*4775*	*500*	*5000*	*0*	*95.5*	*71 - 125*				
Surr: Toluene-d8	*5040*	*500*	*5000*	*0*	*101*	*75 - 125*				

MSD Sample ID: **HS14060474-09MSD** Units: **ug/L** Analysis Date: **15-Jun-2014 14:24**
Client ID: Run ID: **VOA6_235596** SeqNo: **2881072** PrepDate: DF: **100**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	7798	500	5000	3291	90.2	73 - 121	7645	1.99	20	
Ethylbenzene	4498	500	5000	0	90.0	80 - 120	4049	10.5	20	
m,p-Xylene	9103	1000	10000	0	91.0	78 - 121	8119	11.4	20	
o-Xylene	4568	500	5000	0	91.4	80 - 120	4146	9.68	20	
Toluene	4554	500	5000	0	91.1	80 - 120	4147	9.35	20	
Xylenes, Total	13670	1500	15000	0	91.1	78 - 121	12270	10.8	20	
Surr: 1,2-Dichloroethane-d4	*4466*	*500*	*5000*	*0*	*89.3*	*70 - 125*	*4519*	*1.19*	*20*	
Surr: 4-Bromofluorobenzene	*5223*	*500*	*5000*	*0*	*104*	*72 - 125*	*5202*	*0.386*	*20*	
Surr: Dibromofluoromethane	*4700*	*500*	*5000*	*0*	*94.0*	*71 - 125*	*4775*	*1.59*	*20*	
Surr: Toluene-d8	*5037*	*500*	*5000*	*0*	*101*	*75 - 125*	*5040*	*0.0655*	*20*	

The following samples were anayzed in this batch: HS14060556-01 HS14060556-03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235607 **Instrument: VOA6** **Method: SW8260**

MBLK Sample ID: **VBLKW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 13:12**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881253** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
o-Xylene	U	5.0								
Toluene	U	5.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	*44.83*	*5.0*	*50*	*0*	*89.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*49.22*	*5.0*	*50*	*0*	*98.4*	*72 - 125*				
Surr: Dibromofluoromethane	*47.45*	*5.0*	*50*	*0*	*94.9*	*71 - 125*				
Surr: Toluene-d8	*50.65*	*5.0*	*50*	*0*	*101*	*75 - 125*				

LCS Sample ID: **VLCSW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 12:00**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881252** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	47.6	5.0	50	0	95.2	73 - 121				
Ethylbenzene	48.58	5.0	50	0	97.2	80 - 120				
m,p-Xylene	98.22	10	100	0	98.2	78 - 121				
o-Xylene	48.36	5.0	50	0	96.7	80 - 120				
Toluene	47.3	5.0	50	0	94.6	80 - 120				
Xylenes, Total	146.6	15	150	0	97.7	80 - 120				
Surr: 1,2-Dichloroethane-d4	*43.16*	*5.0*	*50*	*0*	*86.3*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*51.69*	*5.0*	*50*	*0*	*103*	*72 - 125*				
Surr: Dibromofluoromethane	*46.27*	*5.0*	*50*	*0*	*92.5*	*71 - 125*				
Surr: Toluene-d8	*50.04*	*5.0*	*50*	*0*	*100*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235607 **Instrument: VOA6** **Method: SW8260**

MS Sample ID: **HS14060393-02MS** Units: **ug/L** Analysis Date: **13-Jun-2014 16:24**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881267** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	44.35	5.0	50	0	88.7	73 - 121				
Ethylbenzene	42.96	5.0	50	0	85.9	80 - 120				
m,p-Xylene	86.25	10	100	0	86.2	78 - 121				
o-Xylene	43.05	5.0	50	0	86.1	80 - 120				
Toluene	43.78	5.0	50	0	87.6	80 - 120				
Xylenes, Total	129.3	15	150	0	86.2	80 - 120				
Surr: 1,2-Dichloroethane-d4	*44.83*	*5.0*	*50*	*0*	*89.7*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*52.45*	*5.0*	*50*	*0*	*105*	*72 - 125*				
Surr: Dibromofluoromethane	*46.57*	*5.0*	*50*	*0*	*93.1*	*71 - 125*				
Surr: Toluene-d8	*50.7*	*5.0*	*50*	*0*	*101*	*75 - 125*				

MSD Sample ID: **HS14060393-02MSD** Units: **ug/L** Analysis Date: **13-Jun-2014 16:49**
Client ID: Run ID: **VOA6_235607** SeqNo: **2881268** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	46.28	5.0	50	0	92.6	73 - 121	44.35	4.26	20	
Ethylbenzene	45.98	5.0	50	0	92.0	80 - 120	42.96	6.8	20	
m,p-Xylene	92.79	10	100	0	92.8	78 - 121	86.25	7.3	20	
o-Xylene	45.5	5.0	50	0	91.0	80 - 120	43.05	5.54	20	
Toluene	45.83	5.0	50	0	91.7	80 - 120	43.78	4.58	20	
Xylenes, Total	138.3	15	150	0	92.2	78 - 121	129.3	6.72	20	
Surr: 1,2-Dichloroethane-d4	*43.65*	*5.0*	*50*	*0*	*87.3*	*70 - 125*	*44.83*	*2.67*	*20*	
Surr: 4-Bromofluorobenzene	*51.38*	*5.0*	*50*	*0*	*103*	*72 - 125*	*52.45*	*2.07*	*20*	
Surr: Dibromofluoromethane	*46.06*	*5.0*	*50*	*0*	*92.1*	*71 - 125*	*46.57*	*1.11*	*20*	
Surr: Toluene-d8	*50.38*	*5.0*	*50*	*0*	*101*	*75 - 125*	*50.7*	*0.633*	*20*	

The following samples were anayzed in this batch: HS14060556-02 HS14060556-04

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235617 **Instrument: VOA8** **Method: SW8260**

MBLK Sample ID: **VBLKW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 14:05**
Client ID: Run ID: **VOA8_235617** SeqNo: **2881409** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	5.0								
Ethylbenzene	U	5.0								
m,p-Xylene	U	10								
o-Xylene	U	5.0								
Toluene	U	5.0								
Xylenes, Total	U	15								
Surr: 1,2-Dichloroethane-d4	*55.07*	*5.0*	*50*	*0*	*110*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*49.27*	*5.0*	*50*	*0*	*98.5*	*72 - 125*				
Surr: Dibromofluoromethane	*53.14*	*5.0*	*50*	*0*	*106*	*71 - 125*				
Surr: Toluene-d8	*51.33*	*5.0*	*50*	*0*	*103*	*75 - 125*				

LCS Sample ID: **VLCSW-140613** Units: **ug/L** Analysis Date: **13-Jun-2014 12:49**
Client ID: Run ID: **VOA8_235617** SeqNo: **2881408** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	47.23	5.0	50	0	94.5	73 - 121				
Ethylbenzene	48.25	5.0	50	0	96.5	80 - 120				
m,p-Xylene	100.3	10	100	0	100	78 - 121				
o-Xylene	50.11	5.0	50	0	100	80 - 120				
Toluene	50.05	5.0	50	0	100	80 - 120				
Xylenes, Total	150.4	15	150	0	100	80 - 120				
Surr: 1,2-Dichloroethane-d4	*50.49*	*5.0*	*50*	*0*	*101*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*51.27*	*5.0*	*50*	*0*	*103*	*72 - 125*				
Surr: Dibromofluoromethane	*51.19*	*5.0*	*50*	*0*	*102*	*71 - 125*				
Surr: Toluene-d8	*47.85*	*5.0*	*50*	*0*	*95.7*	*75 - 125*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
WorkOrder: HS14060556
Project: Brickland Refinery

QC BATCH REPORT

Batch ID: R235617 **Instrument: VOA8** **Method: SW8260**

MS Sample ID: **HS14060364-04MS** Units: **ug/L** Analysis Date: **13-Jun-2014 17:14**
Client ID: Run ID: **VOA8_235617** SeqNo: **2881414** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	50.52	5.0	50	0	101	73 - 121				
Ethylbenzene	45.19	5.0	50	0	90.4	80 - 120				
m,p-Xylene	93.11	10	100	0	93.1	78 - 121				
o-Xylene	47.24	5.0	50	0	94.5	80 - 120				
Toluene	51.14	5.0	50	0	102	80 - 120				
Xylenes, Total	140.3	15	150	0	93.6	80 - 120				
Surr: 1,2-Dichloroethane-d4	*51.67*	*5.0*	*50*	*0*	*103*	*70 - 125*				
Surr: 4-Bromofluorobenzene	*51.32*	*5.0*	*50*	*0*	*103*	*72 - 125*				
Surr: Dibromofluoromethane	*51.78*	*5.0*	*50*	*0*	*104*	*71 - 125*				
Surr: Toluene-d8	*46.95*	*5.0*	*50*	*0*	*93.9*	*75 - 125*				

MSD Sample ID: **HS14060364-04MSD** Units: **ug/L** Analysis Date: **13-Jun-2014 18:04**
Client ID: Run ID: **VOA8_235617** SeqNo: **2881415** PrepDate: DF: **1**

Analyte	Result	MQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	44.8	5.0	50	0	89.6	73 - 121	50.52	12	20	
Ethylbenzene	40.52	5.0	50	0	81.0	80 - 120	45.19	10.9	20	
m,p-Xylene	84.54	10	100	0	84.5	78 - 121	93.11	9.64	20	
o-Xylene	43	5.0	50	0	86.0	80 - 120	47.24	9.4	20	
Toluene	45.66	5.0	50	0	91.3	80 - 120	51.14	11.3	20	
Xylenes, Total	127.5	15	150	0	85.0	78 - 121	140.3	9.56	20	
Surr: 1,2-Dichloroethane-d4	*51.66*	*5.0*	*50*	*0*	*103*	*70 - 125*	*51.67*	*0.0343*	*20*	
Surr: 4-Bromofluorobenzene	*50.69*	*5.0*	*50*	*0*	*101*	*72 - 125*	*51.32*	*1.22*	*20*	
Surr: Dibromofluoromethane	*51.99*	*5.0*	*50*	*0*	*104*	*71 - 125*	*51.78*	*0.409*	*20*	
Surr: Toluene-d8	*46.31*	*5.0*	*50*	*0*	*92.6*	*75 - 125*	*46.95*	*1.38*	*20*	

The following samples were anayzed in this batch: HS14060556-05 HS14060556-06 HS14060556-07 HS14060556-08 HS14060556-09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
WorkOrder: **HS14060556**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	AR - 2014	27-Mar-2015
California	06248CA 2013-2014	31-Jul-2014
Dept of Defense	L2231 Rev 3-20-2014	22-Dec-2015
Illinois	003403	09-May-2015
Kansas	E-10352 8/15/2013-2014	31-Jul-2014
Kentucky	KY 2014-2015	30-Apr-2015
North Carolina	624 - 2014	31-Dec-2014
North Dakota	R-193 2025	30-Apr-2015
Oklahoma	2013-024	31-Aug-2014
Texas	TX104704231-14-13	30-Apr-2015

Client: ARCADIS U.S., Inc.
Project: Brickland Refinery
Work Order: HS14060556

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS14060556-01	MW-14	Login	13-Jun-14 09:20	DRC	1C
HS14060556-01	MW-14	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-01	MW-14	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-02	FB061114	Login	13-Jun-14 09:20	DRC	1C
HS14060556-02	FB061114	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-02	FB061114	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-03	MW-4	Login	13-Jun-14 09:20	DRC	1C
HS14060556-03	MW-4	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-03	MW-4	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-04	EB061114	Login	13-Jun-14 09:20	DRC	1C
HS14060556-04	EB061114	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-04	EB061114	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-05	MW-7	Login	13-Jun-14 09:20	DRC	1C
HS14060556-05	MW-7	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-05	MW-7	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-06	MW-10	Login	13-Jun-14 09:20	DRC	1C
HS14060556-06	MW-10	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-06	MW-10	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-07	MW-15	Login	13-Jun-14 09:20	DRC	1C
HS14060556-07	MW-15	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-07	MW-15	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-08	Upstream	Login	13-Jun-14 09:20	DRC	1C
HS14060556-08	Upstream	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-08	Upstream	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-09	Downstream	Login	13-Jun-14 09:20	DRC	1C
HS14060556-09	Downstream	Login	13-Jun-14 09:20	DRC	VW-3
HS14060556-09	Downstream	Login	13-Jun-14 09:20	DRC	TPH C2
HS14060556-10	Trip Blank	Login	13-Jun-14 09:23	DRC	VW-3

ALS Group USA, Corp Date: 22-Jul-14

Sample Receipt Checklist

Client Name: ARCADIS-EL PASO Date/Time Received: **12-Jun-2014 09:40**

Work Order: HS14060556 Received by: **JDE**

Checklist completed by: *Dana.Capps* eSignature 13-Jun-2014 Date Reviewed by: *Dane J. Wacasey* eSignature Date

Matrices: **Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.6/2.6 C/U	IR1	
Cooler(s)/Kit(s):	0838		
Date/Time sample(s) sent to storage:	06/13/2014		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: Trip Blank not listed on COC.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: 0 Regarding:

Comments:

Corrective Action:

ALS Environmental

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 099566

HS14060556

ARCADIS U.S., Inc.
Arcadis - El Paso Smelter

ALS Project Manager:

Customer Information		Project Information			
Purchase Order	LA003185.0091	Project Name	Arcadis - El Paso Smelter	A	8260 BTEX (unpreserved)
Work Order		Project Number		B	8270 - PAH (Neat)
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS U.S., Inc.	C	6020- Lead (HNO3)
Send Report To	Malcom Pimle	Invoice Attn	Malcom Pimle	D	
Address	211 N Florence Street, Suite 202	Address	211 N Florence Street, Suite 202	E	
				F	
City/State/Zip	El Paso,	City/State/Zip	El Paso,	G	
Phone	(915) 533-9025	Phone	(915) 533-9025	H	
Fax	(915) 533-9045	Fax	(915) 533-9045	I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-14	061114	0835	W	Y	7	X	X	X								
2	FB061114	061114	0845	W	Y	7	X	X	X								
3	MW-4	061114	0925	W	Y	7	X	X	X								
4	EB061114	061114	0935	W	Y	7	X	X	X								
5	MW-7	061114	1020	W	Y	7	X	X	X								
6	MW-10	061114	1125	W	Y	7	X	X	X								
7	MW-15	061114	1400	W	Y	7	X	X	X								
8	Upstream	061114	1515	W	Y	7	X	X	X								
9	Downstream	061114	1530	W	Y	7	X	X	X								
10																	

Sampler(s) Please Print & Sign: Doug Solon DMSolon

Shipment Method: FedEx

Required Turnaround Time: (Check Box) X Std. 10 WK days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour ☐ Other

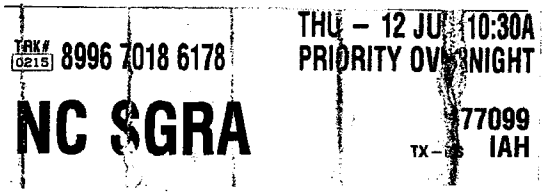
Results Due Date:

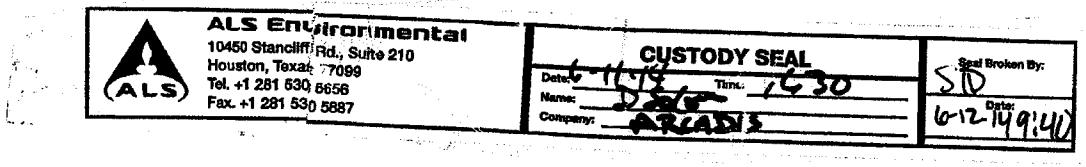
Relinquished by: DMSolon	Date: 6-11-14	Time: 1620	Received by:	Notes:	
Relinquished by:	Date: 6-12-14	Time: 9:40	Received by (Laboratory): DMR	Cooler ID	Cooler Temp
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		

QC Package: (Check One Box Below)
☐ Level 2 Std QC ☐ TRRP ChkList
☐ Level 3 Std QC/Raw ds ☐ TRRP Level 4
☐ Level 4 SW846/CLP
☐ Other/EDD

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.


TRK#
0215 8996 7018 6178
THU – 12 JU 10:30A
PRIORITY OV NIGHT
NC SGRA
77099
TX-US IAH


ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887
CUSTODY SEAL
Date: 6-11-14
Time: 1630
Name: DAVE
Company: ARCADIS
Seal Broken By:
SD
Date:
6-12-14 9:40

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

December 22, 2014

Tim Ratchford
ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge, LA 70816

Work Order: **HS14120484**

Laboratory Results for: **Huntsman-Brickland NM LA003185.000**

Dear Tim,

ALS Environmental received 20 sample(s) on Dec 12, 2014 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Generated By: Dane.Wacasey
Dane J. Wacasey

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Work Order: HS14120484

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS14120484-01	MW-9S	Water		09-Dec-2014 10:55	12-Dec-2014 09:25	☐
HS14120484-02	FB 120914	Water		09-Dec-2014 10:55	12-Dec-2014 09:25	☐
HS14120484-03	MW-6D	Water		09-Dec-2014 11:50	12-Dec-2014 09:25	☐
HS14120484-04	FD 120914	Water		09-Dec-2014 00:00	12-Dec-2014 09:25	☐
HS14120484-05	MW-6S	Water		09-Dec-2014 12:35	12-Dec-2014 09:25	☐
HS14120484-06	EB 120914	Water		09-Dec-2014 13:00	12-Dec-2014 09:25	☐
HS14120484-07	MW-3D	Water		10-Dec-2014 08:35	12-Dec-2014 09:25	☐
HS14120484-08	FB 121014	Water		10-Dec-2014 08:35	12-Dec-2014 09:25	☐
HS14120484-09	MW-3S	Water		10-Dec-2014 09:20	12-Dec-2014 09:25	☐
HS14120484-10	MW-05	Water		10-Dec-2014 10:15	12-Dec-2014 09:25	☐
HS14120484-11	MW-08	Water		10-Dec-2014 11:05	12-Dec-2014 09:25	☐
HS14120484-12	MW-17	Water		10-Dec-2014 13:45	12-Dec-2014 09:25	☐
HS14120484-13	EB 121014	Water		10-Dec-2014 13:55	12-Dec-2014 09:25	☐
HS14120484-14	MW-11	Water		11-Dec-2014 08:55	12-Dec-2014 09:25	☐
HS14120484-15	FB 121114	Water		11-Dec-2014 09:00	12-Dec-2014 09:25	☐
HS14120484-16	MW-10	Water		11-Dec-2014 09:55	12-Dec-2014 09:25	☐
HS14120484-17	Upstream	Water		11-Dec-2014 10:20	12-Dec-2014 09:25	☐
HS14120484-18	Downstream	Water		11-Dec-2014 10:40	12-Dec-2014 09:25	☐
HS14120484-19	EB 121114	Water		11-Dec-2014 10:50	12-Dec-2014 09:25	☐
HS14120484-20	Trip Blank - 120314-75	Water		09-Dec-2014 00:00	12-Dec-2014 09:25	☑

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Work Order: HS14120484

CASE NARRATIVE

GC Volatiles by Method SW8021B

Batch ID: R246656,R246744

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-9S
Collection Date: 09-Dec-2014 10:55

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-01
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 23:24
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 23:24
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 23:24
Toluene	ND		1.0	ug/L	1	12-Dec-2014 23:24
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 23:24
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 23:24
Surr: 4-Bromofluorobenzene	*97.0*		*75-129*	*%REC*	*1*	*12-Dec-2014 23:24*
Surr: Trifluorotoluene	*112*		*75-130*	*%REC*	*1*	*12-Dec-2014 23:24*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: FB 120914
Collection Date: 09-Dec-2014 10:55

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-02
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 20:51
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 20:51
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 20:51
Toluene	ND		1.0	ug/L	1	12-Dec-2014 20:51
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 20:51
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 20:51
Surr: 4-Bromofluorobenzene	*99.5*		*75-129*	*%REC*	*1*	*12-Dec-2014 20:51*
Surr: Trifluorotoluene	*109*		*75-130*	*%REC*	*1*	*12-Dec-2014 20:51*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-6D
Collection Date: 09-Dec-2014 11:50

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-03
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 00:15
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 00:15
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 00:15
Toluene	ND		1.0	ug/L	1	13-Dec-2014 00:15
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 00:15
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 00:15
Surr: 4-Bromofluorobenzene	*98.6*		*75-129*	*%REC*	*1*	*13-Dec-2014 00:15*
Surr: Trifluorotoluene	*106*		*75-130*	*%REC*	*1*	*13-Dec-2014 00:15*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: FD 120914
Collection Date: 09-Dec-2014 00:00

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-04
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B	**Method:SW8021B**					Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 21:08
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 21:08
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 21:08
Toluene	ND		1.0	ug/L	1	12-Dec-2014 21:08
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 21:08
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 21:08
Surr: 4-Bromofluorobenzene	*102*		*75-129*	*%REC*	*1*	*12-Dec-2014 21:08*
Surr: Trifluorotoluene	*110*		*75-130*	*%REC*	*1*	*12-Dec-2014 21:08*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-6S
Collection Date: 09-Dec-2014 12:35

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-05
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 01:58
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 01:58
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 01:58
Toluene	ND		1.0	ug/L	1	13-Dec-2014 01:58
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 01:58
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 01:58
Surr: 4-Bromofluorobenzene	*101*		*75-129*	*%REC*	*1*	*13-Dec-2014 01:58*
Surr: Trifluorotoluene	*112*		*75-130*	*%REC*	*1*	*13-Dec-2014 01:58*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: EB 120914
Collection Date: 09-Dec-2014 13:00

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-06
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 21:25
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 21:25
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 21:25
Toluene	ND		1.0	ug/L	1	12-Dec-2014 21:25
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 21:25
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 21:25
Surr: 4-Bromofluorobenzene	*102*		*75-129*	*%REC*	*1*	*12-Dec-2014 21:25*
Surr: Trifluorotoluene	*109*		*75-130*	*%REC*	*1*	*12-Dec-2014 21:25*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-3D
Collection Date: 10-Dec-2014 08:35

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-07
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 00:32
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 00:32
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 00:32
Toluene	ND		1.0	ug/L	1	13-Dec-2014 00:32
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 00:32
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 00:32
Surr: 4-Bromofluorobenzene	*103*		*75-129*	*%REC*	*1*	*13-Dec-2014 00:32*
Surr: Trifluorotoluene	*107*		*75-130*	*%REC*	*1*	*13-Dec-2014 00:32*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: FB 121014
Collection Date: 10-Dec-2014 08:35

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-08
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 21:42
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 21:42
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 21:42
Toluene	ND		1.0	ug/L	1	12-Dec-2014 21:42
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 21:42
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 21:42
Surr: 4-Bromofluorobenzene	*100*		*75-129*	*%REC*	*1*	*12-Dec-2014 21:42*
Surr: Trifluorotoluene	*111*		*75-130*	*%REC*	*1*	*12-Dec-2014 21:42*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-3S
Collection Date: 10-Dec-2014 09:20

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-09
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 00:49
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 00:49
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 00:49
Toluene	ND		1.0	ug/L	1	13-Dec-2014 00:49
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 00:49
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 00:49
Surr: 4-Bromofluorobenzene	*96.0*		*75-129*	*%REC*	*1*	*13-Dec-2014 00:49*
Surr: Trifluorotoluene	*103*		*75-130*	*%REC*	*1*	*13-Dec-2014 00:49*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-05
Collection Date: 10-Dec-2014 10:15

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-10
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	**580**		**50**	**ug/L**	50	15-Dec-2014 11:35
m,p-Xylene	**27**		**2.0**	**ug/L**	1	13-Dec-2014 01:07
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 01:07
Toluene	**2.5**	P	**1.0**	**ug/L**	1	13-Dec-2014 01:07
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 01:07
Xylenes, Total	**27**		**3.0**	**ug/L**	1	13-Dec-2014 01:07
Surr: 4-Bromofluorobenzene	*99.1*		*75-129*	*%REC*	*1*	*13-Dec-2014 01:07*
Surr: 4-Bromofluorobenzene	*97.7*		*75-129*	*%REC*	*50*	*15-Dec-2014 11:35*
Surr: Trifluorotoluene	*122*		*75-130*	*%REC*	*1*	*13-Dec-2014 01:07*
Surr: Trifluorotoluene	*105*		*75-130*	*%REC*	*50*	*15-Dec-2014 11:35*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-08
Collection Date: 10-Dec-2014 11:05

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-11
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	**1,600**		**50**	**ug/L**	50	15-Dec-2014 11:52
m,p-Xylene	ND		2.0	ug/L	1	15-Dec-2014 12:09
o-Xylene	**1.5**		**1.0**	**ug/L**	1	15-Dec-2014 12:09
Toluene	**4.1**	P	**1.0**	**ug/L**	1	15-Dec-2014 12:09
Ethylbenzene	**4.1**		**1.0**	**ug/L**	1	15-Dec-2014 12:09
Xylenes, Total	**3.4**		**3.0**	**ug/L**	1	15-Dec-2014 12:09
Surr: 4-Bromofluorobenzene	*101*		*75-129*	*%REC*	*1*	*15-Dec-2014 12:09*
Surr: 4-Bromofluorobenzene	*102*		*75-129*	*%REC*	*50*	*15-Dec-2014 11:52*
Surr: Trifluorotoluene	*106*		*75-130*	*%REC*	*50*	*15-Dec-2014 11:52*
Surr: Trifluorotoluene	*117*		*75-130*	*%REC*	*1*	*15-Dec-2014 12:09*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-17
Collection Date: 10-Dec-2014 13:45

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-12
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	15-Dec-2014 11:18
m,p-Xylene	ND		2.0	ug/L	1	15-Dec-2014 11:18
o-Xylene	ND		1.0	ug/L	1	15-Dec-2014 11:18
Toluene	ND		1.0	ug/L	1	15-Dec-2014 11:18
Ethylbenzene	ND		1.0	ug/L	1	15-Dec-2014 11:18
Xylenes, Total	ND		3.0	ug/L	1	15-Dec-2014 11:18
Surr: 4-Bromofluorobenzene	*87.7*		*75-129*	*%REC*	*1*	*15-Dec-2014 11:18*
Surr: Trifluorotoluene	*93.6*		*75-130*	*%REC*	*1*	*15-Dec-2014 11:18*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: EB 121014
Collection Date: 10-Dec-2014 13:55

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-13
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B	**Method:SW8021B**					Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 21:59
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 21:59
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 21:59
Toluene	ND		1.0	ug/L	1	12-Dec-2014 21:59
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 21:59
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 21:59
Surr: 4-Bromofluorobenzene	*104*		*75-129*	*%REC*	*1*	*12-Dec-2014 21:59*
Surr: Trifluorotoluene	*111*		*75-130*	*%REC*	*1*	*12-Dec-2014 21:59*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-11
Collection Date: 11-Dec-2014 08:55

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-14
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B	**Method:SW8021B**					Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 03:40
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 03:40
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 03:40
Toluene	ND		1.0	ug/L	1	13-Dec-2014 03:40
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 03:40
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 03:40
Surr: 4-Bromofluorobenzene	*97.8*		*75-129*	*%REC*	*1*	*13-Dec-2014 03:40*
Surr: Trifluorotoluene	*108*		*75-130*	*%REC*	*1*	*13-Dec-2014 03:40*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: FB 121114
Collection Date: 11-Dec-2014 09:00

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-15
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 22:16
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 22:16
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 22:16
Toluene	ND		1.0	ug/L	1	12-Dec-2014 22:16
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 22:16
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 22:16
Surr: 4-Bromofluorobenzene	*103*		*75-129*	*%REC*	*1*	*12-Dec-2014 22:16*
Surr: Trifluorotoluene	*111*		*75-130*	*%REC*	*1*	*12-Dec-2014 22:16*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: MW-10
Collection Date: 11-Dec-2014 09:55

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-16
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 03:57
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 03:57
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 03:57
Toluene	ND		1.0	ug/L	1	13-Dec-2014 03:57
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 03:57
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 03:57
Surr: 4-Bromofluorobenzene	*95.7*		*75-129*	*%REC*	*1*	*13-Dec-2014 03:57*
Surr: Trifluorotoluene	*111*		*75-130*	*%REC*	*1*	*13-Dec-2014 03:57*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: Upstream
Collection Date: 11-Dec-2014 10:20

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-17
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 01:41
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 01:41
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 01:41
Toluene	ND		1.0	ug/L	1	13-Dec-2014 01:41
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 01:41
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 01:41
Surr: 4-Bromofluorobenzene	*97.0*		*75-129*	*%REC*	*1*	*13-Dec-2014 01:41*
Surr: Trifluorotoluene	*107*		*75-130*	*%REC*	*1*	*13-Dec-2014 01:41*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: Downstream
Collection Date: 11-Dec-2014 10:40

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-18
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	13-Dec-2014 03:23
m,p-Xylene	ND		2.0	ug/L	1	13-Dec-2014 03:23
o-Xylene	ND		1.0	ug/L	1	13-Dec-2014 03:23
Toluene	ND		1.0	ug/L	1	13-Dec-2014 03:23
Ethylbenzene	ND		1.0	ug/L	1	13-Dec-2014 03:23
Xylenes, Total	ND		3.0	ug/L	1	13-Dec-2014 03:23
Surr: 4-Bromofluorobenzene	*101*		*75-129*	*%REC*	*1*	*13-Dec-2014 03:23*
Surr: Trifluorotoluene	*106*		*75-130*	*%REC*	*1*	*13-Dec-2014 03:23*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Sample ID: EB 121114
Collection Date: 11-Dec-2014 10:50

ANALYTICAL REPORT
WorkOrder:HS14120484
Lab ID:HS14120484-19
Matrix:Water

ANALYSES	RESULT	QUAL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
BTEX BY SW8021B		**Method:SW8021B**				Analyst: SFE
Benzene	ND		1.0	ug/L	1	12-Dec-2014 22:33
m,p-Xylene	ND		2.0	ug/L	1	12-Dec-2014 22:33
o-Xylene	ND		1.0	ug/L	1	12-Dec-2014 22:33
Toluene	ND		1.0	ug/L	1	12-Dec-2014 22:33
Ethylbenzene	ND		1.0	ug/L	1	12-Dec-2014 22:33
Xylenes, Total	ND		3.0	ug/L	1	12-Dec-2014 22:33
Surr: 4-Bromofluorobenzene	*100*		*75-129*	*%REC*	*1*	*12-Dec-2014 22:33*
Surr: Trifluorotoluene	*108*		*75-130*	*%REC*	*1*	*12-Dec-2014 22:33*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
WorkOrder: HS14120484

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R246656	**Test Name :** BTEX BY SW8021B			**Matrix:** Water		
HS14120484-01	MW-9S	09 Dec 2014 10:55			12 Dec 2014 23:24	1
HS14120484-02	FB 120914	09 Dec 2014 10:55			12 Dec 2014 20:51	1
HS14120484-03	MW-6D	09 Dec 2014 11:50			13 Dec 2014 00:15	1
HS14120484-04	FD 120914	09 Dec 2014 00:00			12 Dec 2014 21:08	1
HS14120484-05	MW-6S	09 Dec 2014 12:35			13 Dec 2014 01:58	1
HS14120484-06	EB 120914	09 Dec 2014 13:00			12 Dec 2014 21:25	1
HS14120484-07	MW-3D	10 Dec 2014 08:35			13 Dec 2014 00:32	1
HS14120484-08	FB 121014	10 Dec 2014 08:35			12 Dec 2014 21:42	1
HS14120484-09	MW-3S	10 Dec 2014 09:20			13 Dec 2014 00:49	1
HS14120484-10	MW-05	10 Dec 2014 10:15			13 Dec 2014 01:07	1
HS14120484-13	EB 121014	10 Dec 2014 13:55			12 Dec 2014 21:59	1
HS14120484-14	MW-11	11 Dec 2014 08:55			13 Dec 2014 03:40	1
HS14120484-15	FB 121114	11 Dec 2014 09:00			12 Dec 2014 22:16	1
HS14120484-16	MW-10	11 Dec 2014 09:55			13 Dec 2014 03:57	1
HS14120484-17	Upstream	11 Dec 2014 10:20			13 Dec 2014 01:41	1
HS14120484-18	Downstream	11 Dec 2014 10:40			13 Dec 2014 03:23	1
HS14120484-19	EB 121114	11 Dec 2014 10:50			12 Dec 2014 22:33	1
Batch ID R246744	**Test Name :** BTEX BY SW8021B			**Matrix:** Water		
HS14120484-10	MW-05	10 Dec 2014 10:15			15 Dec 2014 11:35	50
HS14120484-11	MW-08	10 Dec 2014 11:05			15 Dec 2014 12:09	1
HS14120484-11	MW-08	10 Dec 2014 11:05			15 Dec 2014 11:52	50
HS14120484-12	MW-17	10 Dec 2014 13:45			15 Dec 2014 11:18	1

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
WorkOrder: HS14120484

QC BATCH REPORT

Batch ID: R246656 **Instrument: BTEX1** **Method: SW8021B**

MBLK Sample ID: **BBLKW1-121214** Units: **ug/L** Analysis Date: **12-Dec-2014 20:33**
Client ID: Run ID: **BTEX1_246656** SeqNo: **3127466** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
m,p-Xylene	ND	2.0								
o-Xylene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	*31.28*	*1.0*	*30*	*0*	*104*	*75 - 129*				
Surr: Trifluorotoluene	*33.95*	*1.0*	*30*	*0*	*113*	*75 - 130*				

LCS Sample ID: **BLCSW1-121214** Units: **ug/L** Analysis Date: **12-Dec-2014 19:59**
Client ID: Run ID: **BTEX1_246656** SeqNo: **3127464** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.16	1.0	20	0	106	75 - 126				
m,p-Xylene	42.34	2.0	40	0	106	75 - 125				
o-Xylene	21.92	1.0	20	0	110	75 - 125				
Toluene	21.9	1.0	20	0	110	75 - 125				
Ethylbenzene	21.93	1.0	20	0	110	75 - 125				
Xylenes, Total	64.26	3.0	60	0	107	75 - 125				
Surr: 4-Bromofluorobenzene	*30.88*	*1.0*	*30*	*0*	*103*	*75 - 129*				
Surr: Trifluorotoluene	*33.35*	*1.0*	*30*	*0*	*111*	*75 - 130*				

MS Sample ID: **HS14120484-01MS** Units: **ug/L** Analysis Date: **12-Dec-2014 23:41**
Client ID: **MW-9S** Run ID: **BTEX1_246656** SeqNo: **3127477** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	23.14	1.0	20	0	116	75 - 126				
m,p-Xylene	46.3	2.0	40	0	116	75 - 125				
o-Xylene	23.89	1.0	20	0	119	75 - 125				
Toluene	23.03	1.0	20	0	115	75 - 125				
Ethylbenzene	23.78	1.0	20	0	119	75 - 125				
Xylenes, Total	70.19	3.0	60	0	117	75 - 125				
Surr: 4-Bromofluorobenzene	*31.53*	*1.0*	*30*	*0*	*105*	*75 - 129*				
Surr: Trifluorotoluene	*33.08*	*1.0*	*30*	*0*	*110*	*75 - 130*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
WorkOrder: HS14120484

QC BATCH REPORT

Batch ID: R246656 **Instrument:** BTEX1 **Method:** SW8021B

MSD Sample ID: **HS14120484-01MSD** Units: **ug/L** Analysis Date: **12-Dec-2014 23:58**
Client ID: **MW-9S** Run ID: **BTEX1_246656** SeqNo: **3127478** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Benzene	22.87	1.0	20	0	114	75 - 126	23.14	1.17	20	
m,p-Xylene	46.37	2.0	40	0	116	75 - 125	46.3	0.154	20	
o-Xylene	23.69	1.0	20	0	118	75 - 125	23.89	0.855	20	
Toluene	22.94	1.0	20	0	115	75 - 125	23.03	0.368	20	
Ethylbenzene	23.9	1.0	20	0	119	76 - 125	23.78	0.474	20	
Xylenes, Total	70.06	3.0	60	0	117	75 - 125	70.19	0.188	20	
Surr: 4-Bromofluorobenzene	*30.87*	*1.0*	*30*	*0*	*103*	*75 - 129*	*31.53*	*2.09*	*20*	
Surr: Trifluorotoluene	*32.91*	*1.0*	*30*	*0*	*110*	*75 - 130*	*33.08*	*0.517*	*20*	

The following samples were anayzed in this batch:

HS14120484-01	HS14120484-02	HS14120484-03	HS14120484-04
HS14120484-05	HS14120484-06	HS14120484-07	HS14120484-08
HS14120484-09	HS14120484-10	HS14120484-13	HS14120484-14
HS14120484-15	HS14120484-16	HS14120484-17	HS14120484-18
HS14120484-19			

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
WorkOrder: HS14120484

QC BATCH REPORT

Batch ID: R246744 **Instrument: BTEX1** **Method: SW8021B**

MBLK Sample ID: **BBLKW1-121514** Units: **ug/L** Analysis Date: **15-Dec-2014 10:43**
Client ID: Run ID: **BTEX1_246744** SeqNo: **3129245** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
m,p-Xylene	ND	2.0								
o-Xylene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	*30.09*	*1.0*	*30*	*0*	*100*	*75 - 129*				
Surr: Trifluorotoluene	*31.5*	*1.0*	*30*	*0*	*105*	*75 - 130*				

LCS Sample ID: **BLCSW1-121514** Units: **ug/L** Analysis Date: **15-Dec-2014 10:09**
Client ID: Run ID: **BTEX1_246744** SeqNo: **3129243** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.62	1.0	20	0	98.1	75 - 126				
m,p-Xylene	41.63	2.0	40	0	104	75 - 125				
o-Xylene	20.86	1.0	20	0	104	75 - 125				
Toluene	20.04	1.0	20	0	100	75 - 125				
Ethylbenzene	21.06	1.0	20	0	105	75 - 125				
Xylenes, Total	62.49	3.0	60	0	104	75 - 125				
Surr: 4-Bromofluorobenzene	*29.8*	*1.0*	*30*	*0*	*99.3*	*75 - 129*				
Surr: Trifluorotoluene	*31.53*	*1.0*	*30*	*0*	*105*	*75 - 130*				

MS Sample ID: **HS14120509-01MS** Units: **ug/L** Analysis Date: **15-Dec-2014 15:12**
Client ID: Run ID: **BTEX1_246744** SeqNo: **3129259** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.38	1.0	20	0	107	75 - 126				
m,p-Xylene	44.8	2.0	40	0	112	75 - 125				
o-Xylene	22.42	1.0	20	0	112	75 - 125				
Toluene	21.97	1.0	20	0	110	75 - 125				
Ethylbenzene	22.63	1.0	20	0	113	75 - 125				
Xylenes, Total	67.22	3.0	60	0	112	75 - 125				
Surr: 4-Bromofluorobenzene	*29.78*	*1.0*	*30*	*0*	*99.3*	*75 - 129*				
Surr: Trifluorotoluene	*31.96*	*1.0*	*30*	*0*	*107*	*75 - 130*				

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
WorkOrder: HS14120484

QC BATCH REPORT

Batch ID: R246744 **Instrument: BTEX1** **Method: SW8021B**

MSD Sample ID: **HS14120509-01MSD** Units: **ug/L** Analysis Date: **15-Dec-2014 15:29**
Client ID: Run ID: **BTEX1_246744** SeqNo: **3129260** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Benzene	21.52	1.0	20	0	108	75 - 126	21.38	0.618	20	
m,p-Xylene	45.85	2.0	40	0	115	75 - 125	44.8	2.31	20	
o-Xylene	22.81	1.0	20	0	114	75 - 125	22.42	1.75	20	
Toluene	22.08	1.0	20	0	110	75 - 125	21.97	0.466	20	
Ethylbenzene	22.95	1.0	20	0	115	76 - 125	22.63	1.43	20	
Xylenes, Total	68.66	3.0	60	0	114	75 - 125	67.22	2.13	20	
Surr: 4-Bromofluorobenzene	*30.03*	*1.0*	*30*	*0*	*100*	*75 - 129*	*29.78*	*0.837*	*20*	
Surr: Trifluorotoluene	*31.9*	*1.0*	*30*	*0*	*106*	*75 - 130*	*31.96*	*0.205*	*20*	

The following samples were anayzed in this batch: HS14120484-10 HS14120484-11 HS14120484-12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
WorkOrder: **HS14120484**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
µg/L	Micrograms per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	AR - 2014	27-Mar-2015
California	2919	31-Jul-2015
Dept of Defense	L2231 Rev 3-20-2014	22-Dec-2015
Illinois	003403	09-May-2015
Kansas	E-10352 2014-2015	31-Jul-2015
Kentucky	KY 2014-2015	30-Apr-2015
Louisiana	03087 2014/2015	30-Jun-2015
North Carolina	624 - 2015	31-Dec-2015
North Carolina	624 - 2014	31-Dec-2014
North Dakota	R-193 2025	30-Apr-2015
Oklahoma	2014-128	31-Aug-2015
Texas	T104704231-14-14	30-Apr-2015

ALS Group USA, Corp Date: 22-Dec-14

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM LA003185.000
Work Order: HS14120484

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS14120484-01	MW-9S	Login	12/12/2014 1:20:21 PM	PMG	BTEX A1
HS14120484-02	FB 120914	Login	12/12/2014 1:25:17 PM	PMG	BTEX A1
HS14120484-03	MW-6D	Login	12/12/2014 1:25:17 PM	PMG	BTEX A1
HS14120484-04	FD 120914	Login	12/12/2014 1:25:17 PM	PMG	BTEX A1
HS14120484-05	MW-6S	Login	12/12/2014 1:25:18 PM	PMG	BTEX A1
HS14120484-06	EB 120914	Login	12/12/2014 1:25:18 PM	PMG	BTEX A1
HS14120484-07	MW-3D	Login	12/12/2014 1:25:18 PM	PMG	BTEX A1
HS14120484-08	FB 121014	Login	12/12/2014 1:25:18 PM	PMG	BTEX A1
HS14120484-09	MW-3S	Login	12/12/2014 1:25:18 PM	PMG	BTEX A1
HS14120484-10	MW-05	Login	12/12/2014 1:25:18 PM	PMG	BTEX A1
HS14120484-11	MW-08	Login	12/12/2014 1:27:57 PM	PMG	BTEX A1
HS14120484-12	MW-17	Login	12/12/2014 1:27:57 PM	PMG	BTEX A1
HS14120484-13	EB 121014	Login	12/12/2014 1:27:57 PM	PMG	BTEX A1
HS14120484-14	MW-11	Login	12/12/2014 1:27:57 PM	PMG	BTEX A1
HS14120484-15	FB 121114	Login	12/12/2014 1:27:57 PM	PMG	BTEX A1
HS14120484-16	MW-10	Login	12/12/2014 1:27:57 PM	PMG	BTEX A1
HS14120484-17	Upstream	Login	12/12/2014 1:27:57 PM	PMG	BTEX A1
HS14120484-18	Downstream	Login	12/12/2014 1:27:58 PM	PMG	BTEX A1
HS14120484-19	EB 121114	Login	12/12/2014 1:27:58 PM	PMG	BTEX A1
HS14120484-20	Trip Blank - 120314-75	Login	12/12/2014 1:29:49 PM	PMG	BTEX A1

ALS Group USA, Corp Date: 22-Dec-14

Sample Receipt Checklist

Client Name: ARCADIS-BATON ROUGE Date/Time Received: **12-Dec-2014 09:25**

Work Order: HS14120484 Received by: **BHH**

Checklist completed by: *Paresh M. Giga* 12-Dec-2014 (eSignature / Date) Reviewed by: *Dane J. Wacasey* 15-Dec-2014 (eSignature / Date)

Matrices: **Water** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	0.8c/0.8c c/U	IR1	
Cooler(s)/Kit(s):	23626		
Date/Time sample(s) sent to storage:	12/12/14 13:55		
Water - VOA vials have zero headspace?	Yes ☐	No ☑	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:			

Login Notes: Sample MW-11 - 1 x vial has headspace >6mm in diameter. Sufficient uncompromised volume remains. Trip Blank not on chain - Logged in with no analysis

Client Contacted: Date Contacted: Person Contacted:

Contacted By: 0 Regarding:

Comments:

Corrective Action:

ALS Environmental

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Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody Fc

Page 1 of 2

COC ID: 11521

HS14120484

ARCADIS U.S., Inc.
Huntsman-Brickland NM LA003185.000

eston, WV 3168
5280

ALS Project Manager:

Customer Information		Project Information			
Purchase Order	LA003185.000	Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.000	B	
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	
Send Report To	Chad D'Gerolamo	Invoice Attn	Accounts Payable	D	
Address	10352 Plaza Americana Drive	Address	630 Plaza Drive, Suite 600	E	
				F	
City/State/Zip	Baton Rouge, LA 70816	City/State/Zip	Highlands Ranch, CO 80129	G	
Phone	(225) 292-1004	Phone	(303) 471-3699	H	
Fax		Fax		I	
e-Mail Address	chad.DGerolamo@arcadis-us.com	e-Mail Address	accountspayable.administration@arca	J	

No.	Sample Description	Date	Time	Matrix	Pres.	#Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-9S	12-09-14	1055	W	HCl	3	X										
2	FB 120914	12-09-14	1055	W	HCl	3	X										
3	MW-6D	12-09-14	1150	W	HCl	3	X										
4	FD120914	12-09-14	-	W	HCl	3	X										
5	MW-6S	12-09-14	1235	W	HCl	3	X										
6	EB120914	12-09-14	1300	W	HCl	3	X										
7	MW-3D	12-10-14	0835	W	HCl	3	X										
8	~~Field~~ FB121014	12-10-14	0835	W	HCl	3	X										
9	MW-3S	12-10-14	0920	W	HCl	3	X										
10	MW-05	12-10-14	1015	W	HCl	3	X										

Sampler(s) Please Print & Sign: Doug Solon DM Solon

Shipment Method:

Required Turnaround Time: (Check Box) [X] Std 10 WK days [ ] 5 WK Days [ ] 2 WK Days [ ] 24 Hour [ ] Other

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Douglas M Solon	12-11-14	1300		
Relinquished by:	Date:	Time:	Received by (Laboratory):	
	12/12/14	0925	Brad Hunt	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Cooler ID	Cooler Temp.
236226	0.8°

QC Package: (Check One Box Below)
[X] Level 2 Std QC
[ ] Level 3 Std QC/Raw da
[ ] Level 4 SW846/CLP
[ ] Other/EDD
[ ] TRRP ChkList
[ ] TRRP Level 4

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Environmental

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Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070

Chain of Custody Fo

Page 2 of 2

COC ID: 115220

HS14120484

ARCADIS U.S., Inc.
Huntsman-Brickland NM LA003185.000

ston, WV
168
280

ALS Project Manager:

Customer Information		Project Information			
Purchase Order	LA003185.000	Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.000	B	
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	
Send Report To	Chad D'Gerolamo	Invoice Attn	Accounts Payable	D	
Address	10352 Plaza Americana Drive	Address	630 Plaza Drive, Suite 600	E	
				F	
City/State/Zip	Baton Rouge, LA 70816	City/State/Zip	Highlands Ranch, CO 80129	G	
Phone	(225) 292-1004	Phone	(303) 471-3699	H	
Fax		Fax		I	
e-Mail Address	chad.DGerolamo@arcadis-us.com	e-Mail Address	accountspayable.administration@arca	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-08	12-10-14	1105	W	HCl	3	X										
2	MW-17	12-10-14	1345	W	HCl	3	X										
3	EB121014	12-10-14	1355	W	HCl	3	X										
4	MW-11	12-11-14	0855	W	HCl	3	X										
5	FB121114	12-11-14	0900	W	HCl	3	X										
6	MW-10	12-11-14	0955	W	HCl	3	X										
7	UPSTREAM	12-11-14	1020	W	HCl	3	X										
8	DOWNSTREAM	12-11-14	1040	W	HCl	3	X										
9	EB121114	12-11-14	1050	W	HCl	3	X										
10																	

Sampler(s) Please Print & Sign: Doug Solon

Shipment Method:

Required Turnaround Time: (Check Box): [X] Std 10 WK days [ ] 5 WK Days [ ] 2 WK Days [ ] 24 Hour [ ] Other

Results Due Date:

Relinquished by: Douglas M. Solon — Date: 12-11-14 — Time: 1300 — Received by:

Relinquished by: — Date: 12/12/14 — Time: 0925 — Received by (Laboratory):

Logged by (Laboratory): — Date: — Time: — Checked by (Laboratory):

Notes:

Cooler ID	Cooler Temp.
236260	0.8°

QC Package: (Check One Box Below)
- [X] Level 2 Std QC
- [ ] Level 3 Std QC/Raw da
- [ ] Level 4 SW846/CLP
- [ ] Other/EDD
- [ ] TRRP ChkList
- [ ] TRRP Level 4

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 12.11.14 Time: 1310
Name: [illegible]
Company: ABGARS

Seal Broken By: B-H
Date: 12/12/14

FRI – 12 DEC 10:30A
PRIORITY OVERNIGHT

TRK# 0215 8033 8131 8058

AB SGRA

77099
TX–US IAH

ARCADIS

Appendix C

Modification Request
Correspondence

HUNTSMAN

Enriching lives through innovation

November 19, 2014

Mr. Glenn Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Subject: Request to Modify Sampling at the Former Brickland Refinery Sunland Park, New Mexico

Dear Mr. Von Gonten:

Huntsman requests your approval to modify the sampling performed at the former Brickland Refinery site located in Sunland Park, New Mexico. As we discussed in our meeting on September 30, 2014, this request is in accordance with Title 19 Chapter 15 Part 30 (19.15.30.9 New Mexico Administrative Code [NMAC] Abatement Standards and Requirements) and the criteria of the approved Stage 2 Abatement Plan.

Proposed Sampling Modification

Following your guidance during out meeting, we request your approval to modify the sampling performed at the site as follows:

- Cease sampling of and plug Monitoring Wells MW-4, MW-7, MW-14, and MW-15;
- Cease analysis for polyaromatic hydrocarbons (PAH) for all monitoring wells except MW-8;
- Cease analysis for lead;
- Cease sampling of the Rio Grande River;
- Perform analyses for benzene only for Monitoring Wells MW-3S, MW-3D, MW-5, MW-6S, MW-6D, MW-8, MW-9S, MW-10, MW-11, and MW-17; and
- Remove remaining well points.

The attached figure (Attachment A) shows the locations of the referenced monitoring wells and river samples.

Rationale for Modification Request

The proposed modification meets the requirements of 19.15.30.9 NMAC and the criteria of the approved Stage 2 Abatement Plan. Our proposal is to discontinue sampling of monitoring wells and river samples that have met the abatement standards in Subsections A, B, and C of 19.15.30.9 NMAC for eight consecutive sampling events.

The attached graphs (Attachment B) show the detected concentrations of compounds as compared to the New Mexico Water Quality Control Commission (NMWQCC) standard. No exceedances of NMWQCC standards have been observed in Monitoring Well MW-7 since 2003. No exceedances of NMWQCC standards have been observed in Monitoring Wells MW-4, MW-14, and MW-15 since 2004. With the exception of MW-8, no exceedances of the NMWQCC PAH standard have been observed in any of monitoring wells or river water samples since 2000. No exceedances of the NMWQCC lead standard have been observed in any of monitoring wells or river water samples since 2005.

8600 Gosling Road, The Woodlands, Texas 77381
Tel.: 1-281-719-7400 Fax.: 1-281-719-7500 www.huntsman.com

We appreciate your consideration of this request to modify the sampling performed at the former Brickland Refinery site. If you have any questions or require additional information, please contact me at 281-719-3039 or via email at ed_l_gunderson@huntsman.com.

Sincerely,

Edward L Gunderson

Ed Gunderson
Senior Manager, EHS Legal and Regulatory Compliance

Attachments:
Well Location Figure
Analyte Concentration Graphs

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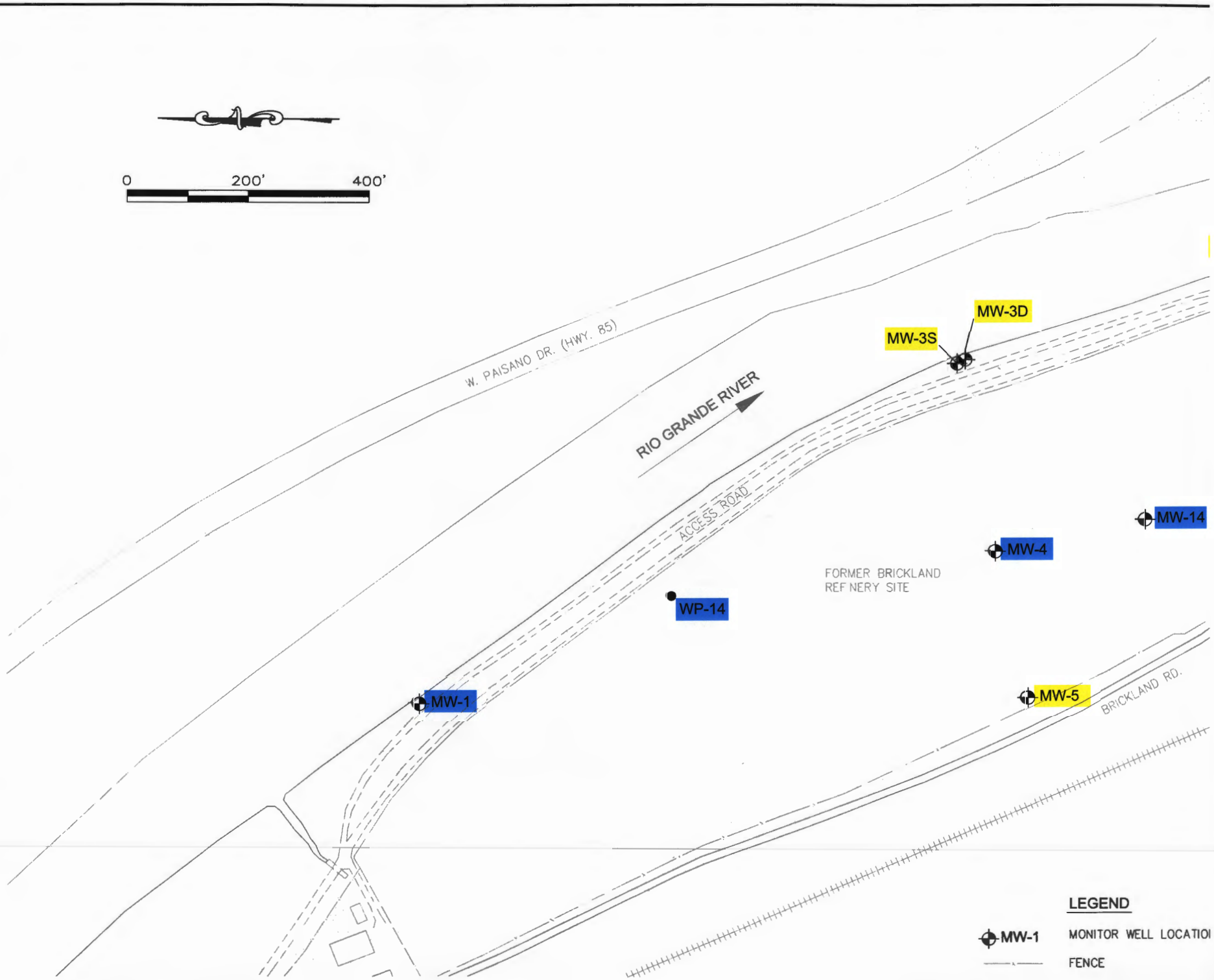
Attachment A

Well Location Figure


0
200'
400'
W. PAISANO DR. (HWY. 85)
RIO GRANDE RIVER
MW-3D
MW-3S
ACCESS ROAD
MW-14
MW-4
FORMER BRICKLAND
REFINERY SITE
WP-14
MW-1
MW-5
BRICKLAND RD.
LEGEND
MW-1
MONITOR WELL LOCATIOI
FENCE

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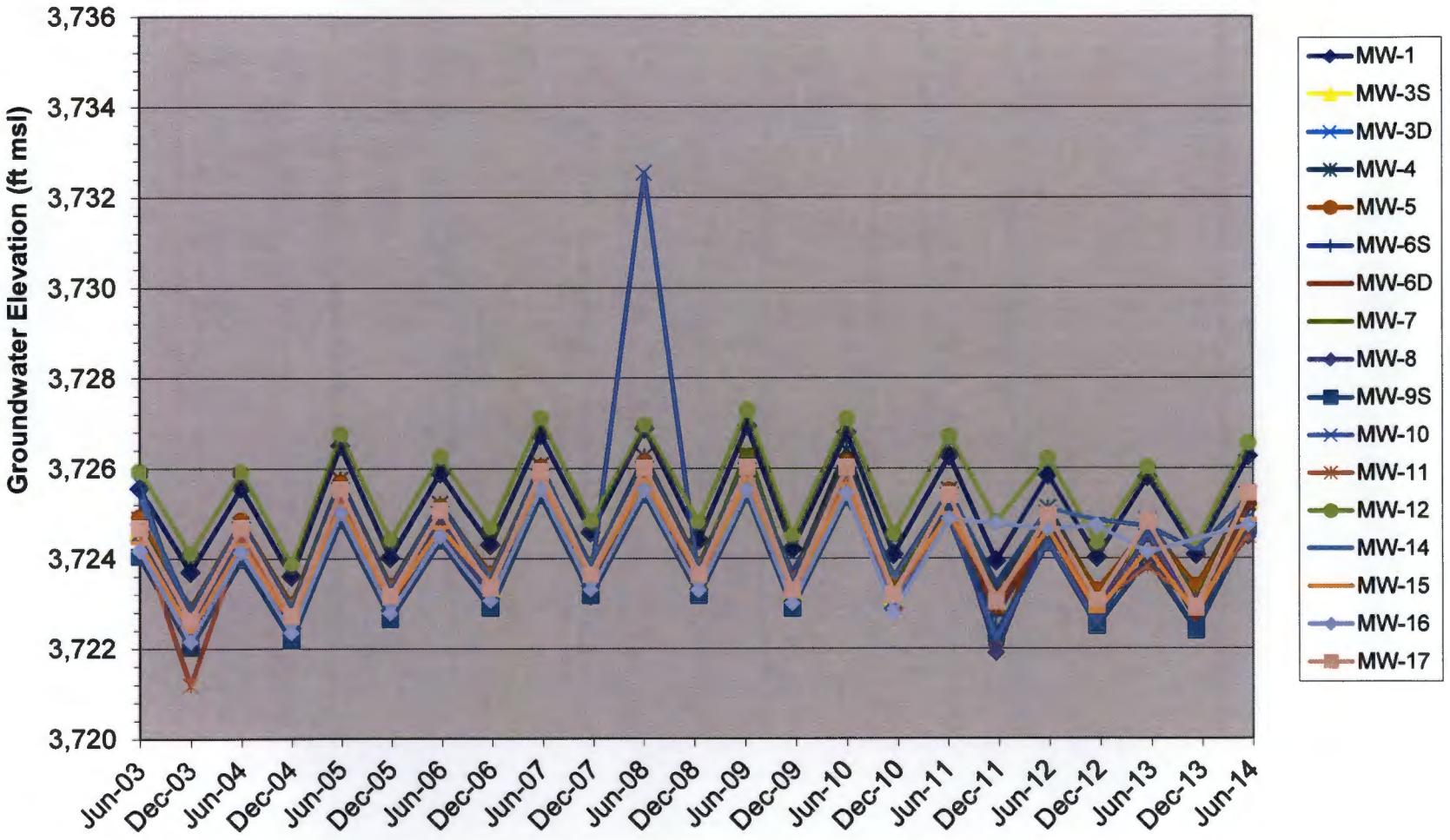
Attachment B
Analyte Concentration Graphs

ARCADIS

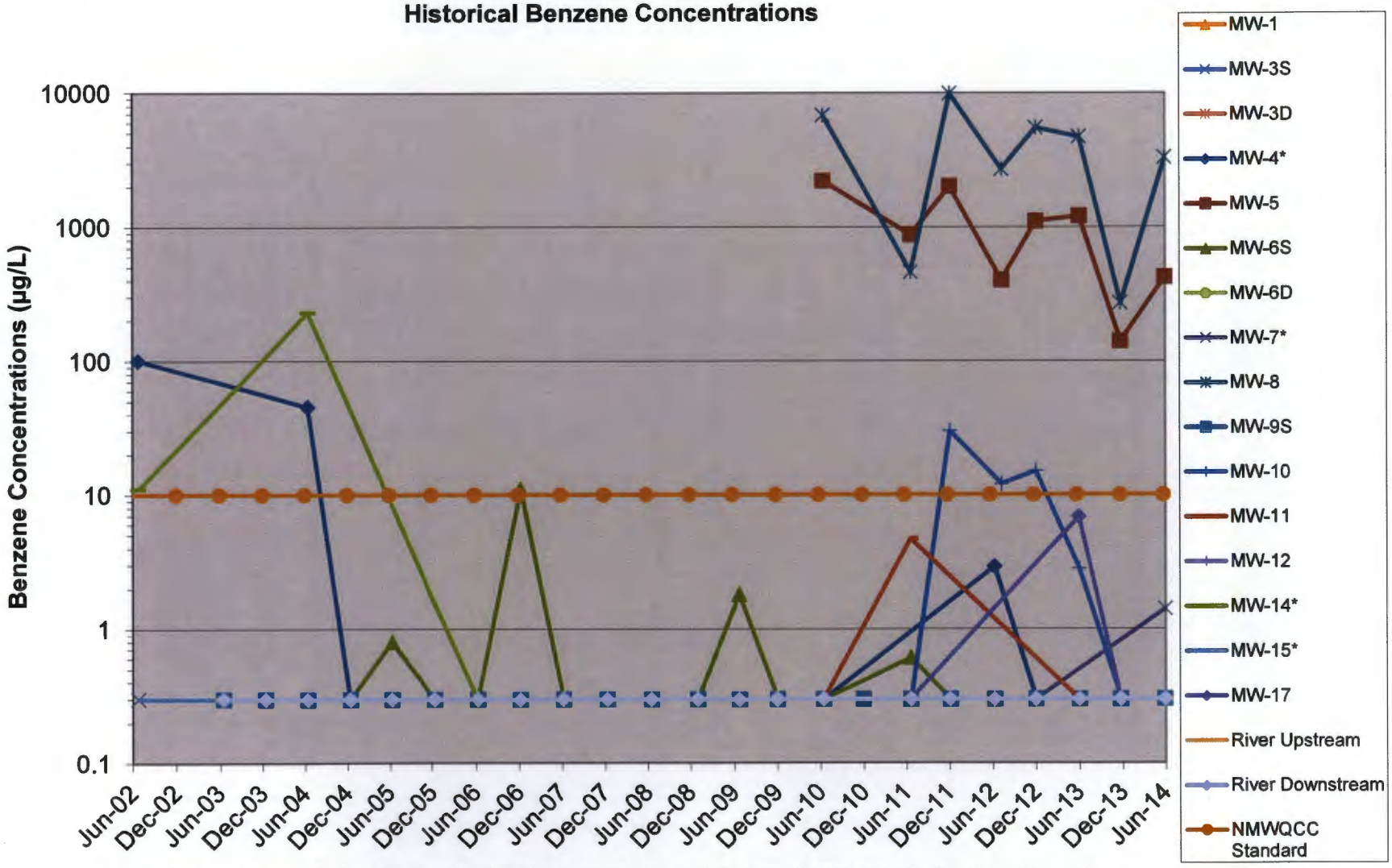
Historical Water Level Elevations



Note: MW-16 was not measured in December 2013 due to roots on probe.
ft msl = Feet per mean sea level.

ARCADIS

Historical Benzene Concentrations



Note: The highest detection between the parent and duplicate samples was used. The New Mexico Water Quality Control Commission (NMWQCC) standard for benzene concentrations is 10 micrograms per liter (µg/L). For consistency, all non-detect values are graphed at 0.3 µg/L (1/2 the 2014 reporting limit). * = Wells that are only sampled biennially.

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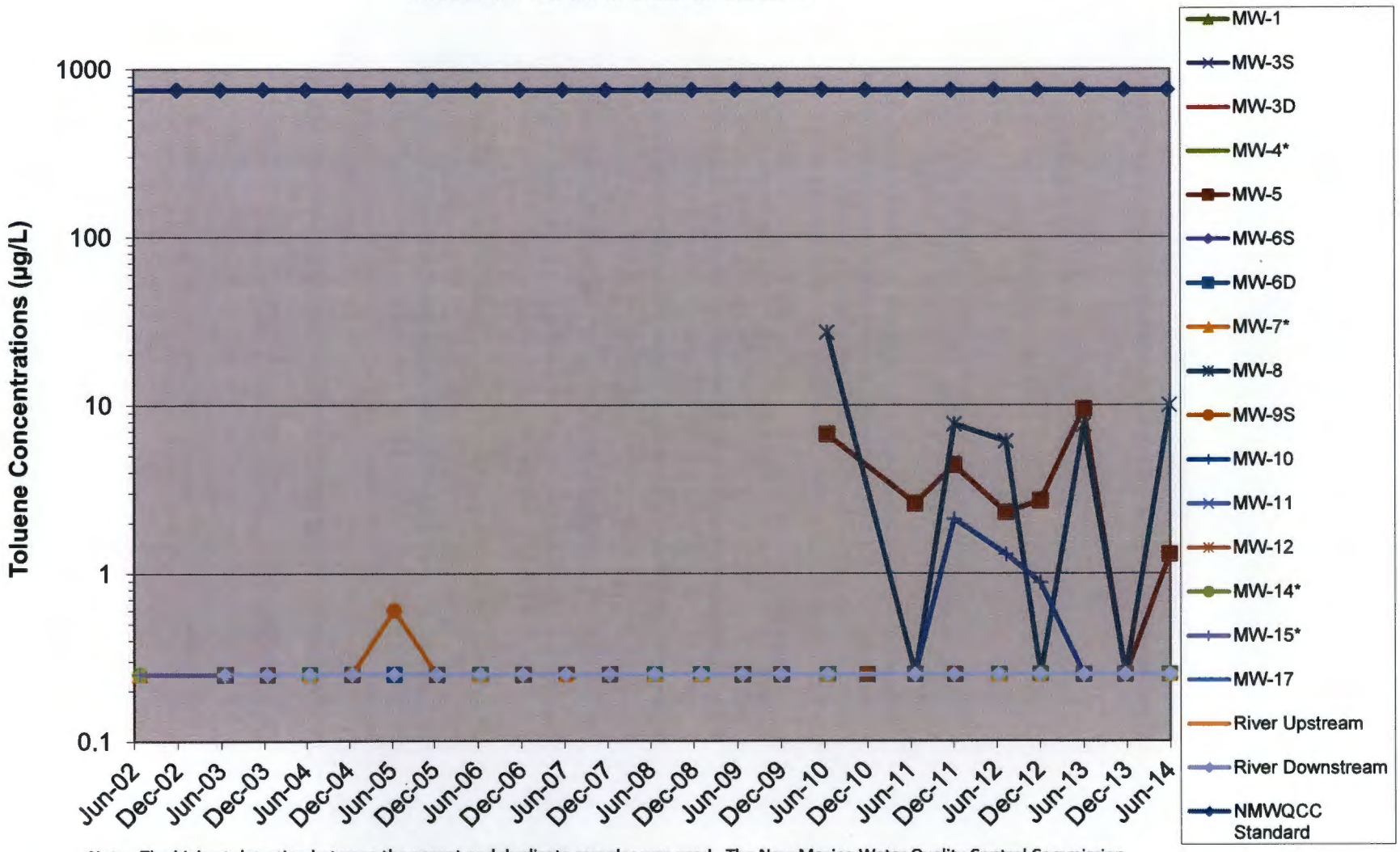
Historical Toluene Concentrations



Note: The highest detection between the parent and duplicate samples was used. The New Mexico Water Quality Control Commission (NMWQCC) standard for toluene concentrations is 750 micrograms per liter (µg/L). For consistency, all non-detect values are graphed at 0.25 µg/L (1/2 the 2014 reporting limit). * = Wells that are only sampled biennially.

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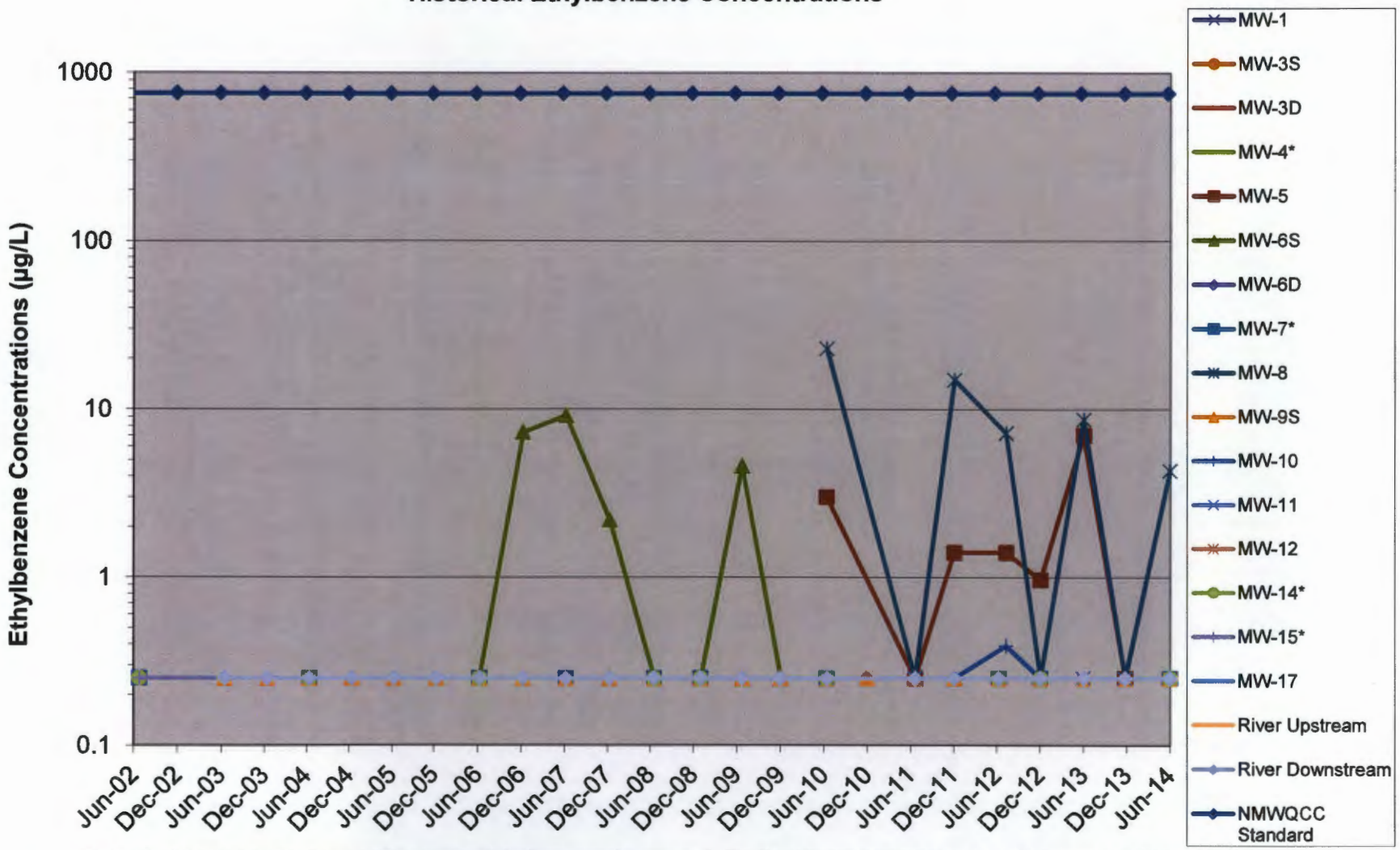
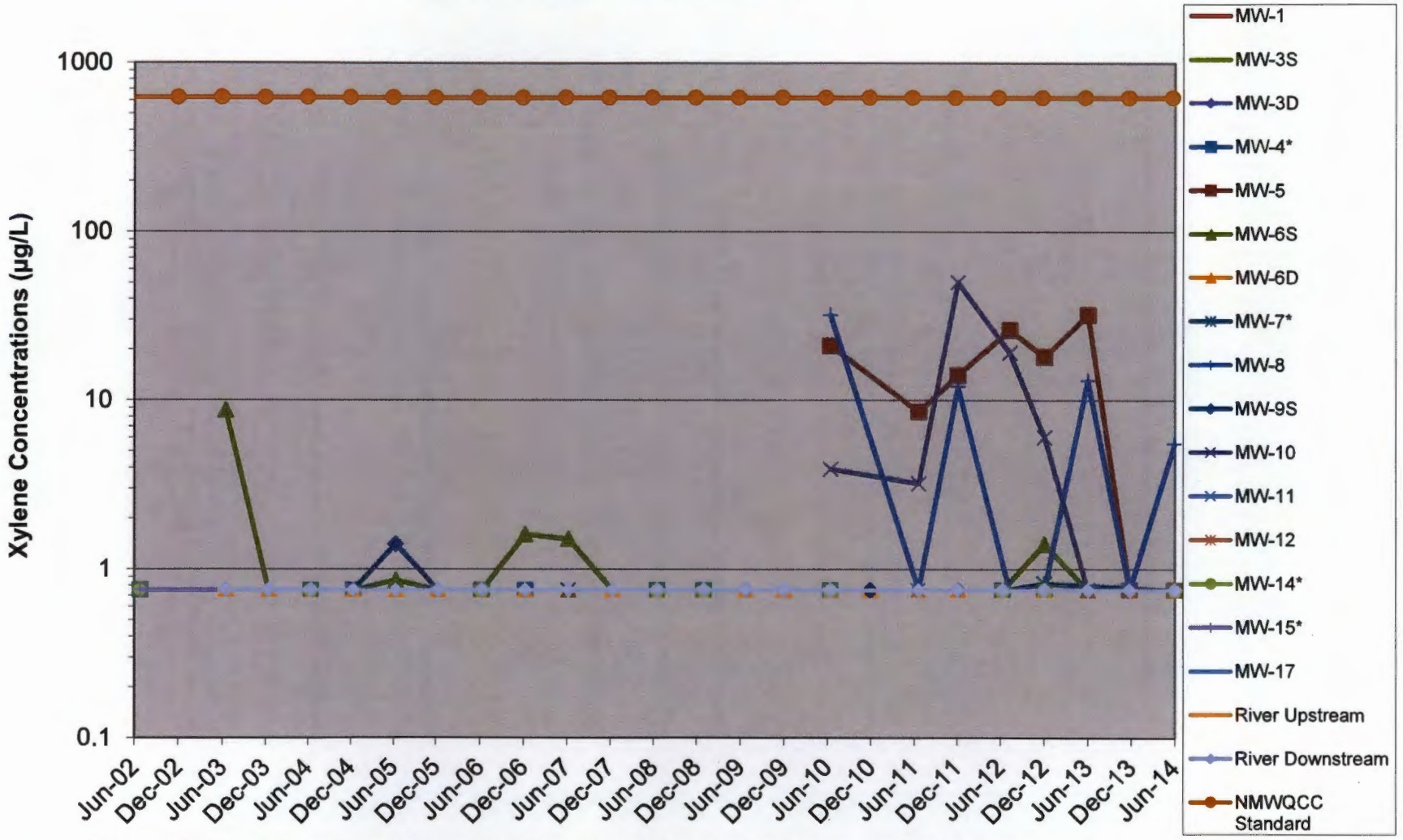
Historical Ethylbenzene Concentrations



Note: The highest detection between the parent and duplicate samples was used. The New Mexico Water Quality Control Commission (NMWQCC) standard for ethylbenzene concentrations is 750 micrograms per liter (µg/L). For consistency, all non-detect values are graphed at 0.25 µg/L (1/2 the 2014 reporting limit). * = Wells that are only sampled biennially.

ARCADIS

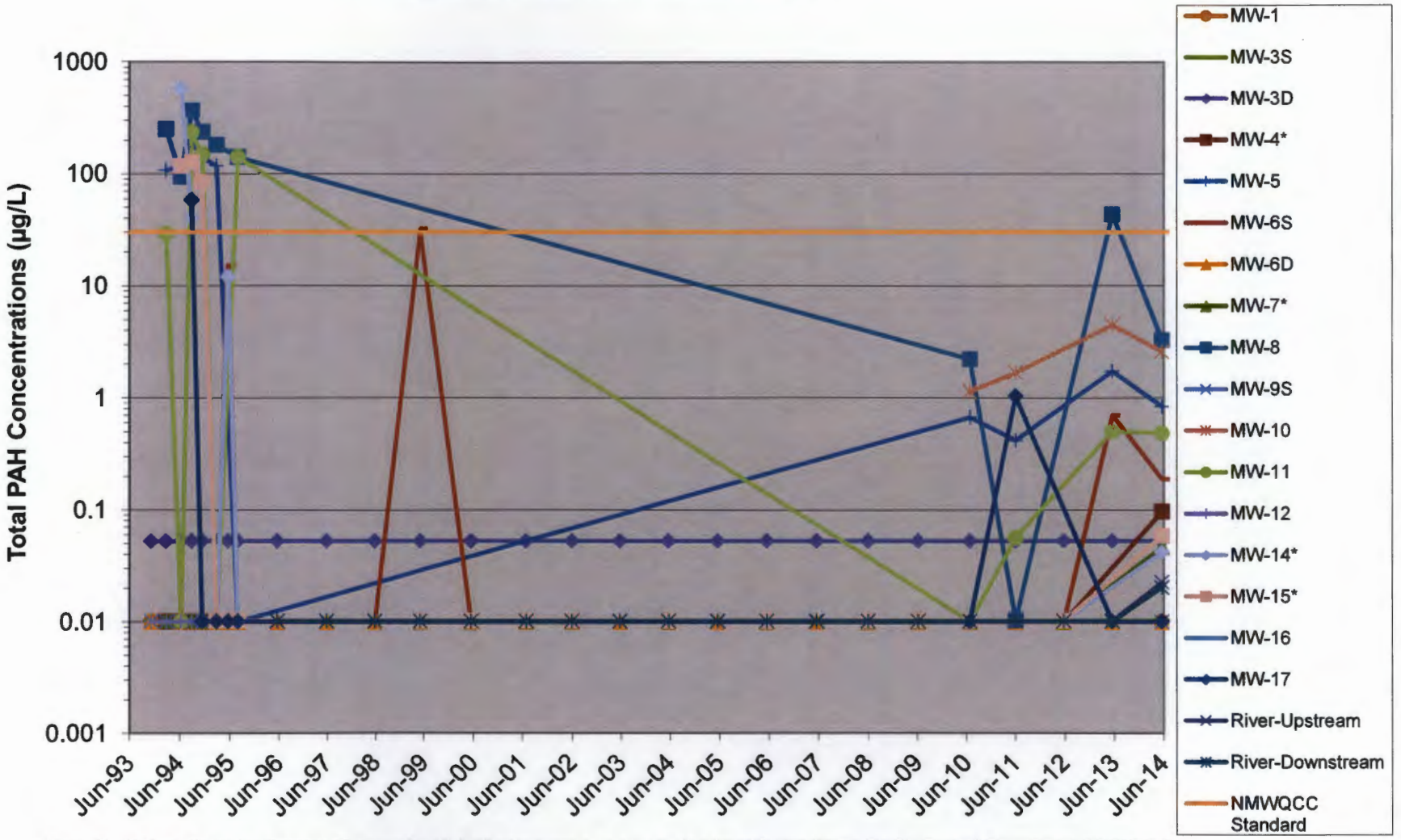
Historical Xylene Concentrations



Note: The highest detection between the parent and duplicate samples was used. The New Mexico Water Quality Control Commission (NMWQCC) standard for xylene concentrations is 620 micrograms per liter (µg/L). For consistency, all non-detect values are graphed at 0.75 µg/L (1/2 the 2014 reporting limit). * = Wells that are only sampled biennially.

ARCADIS

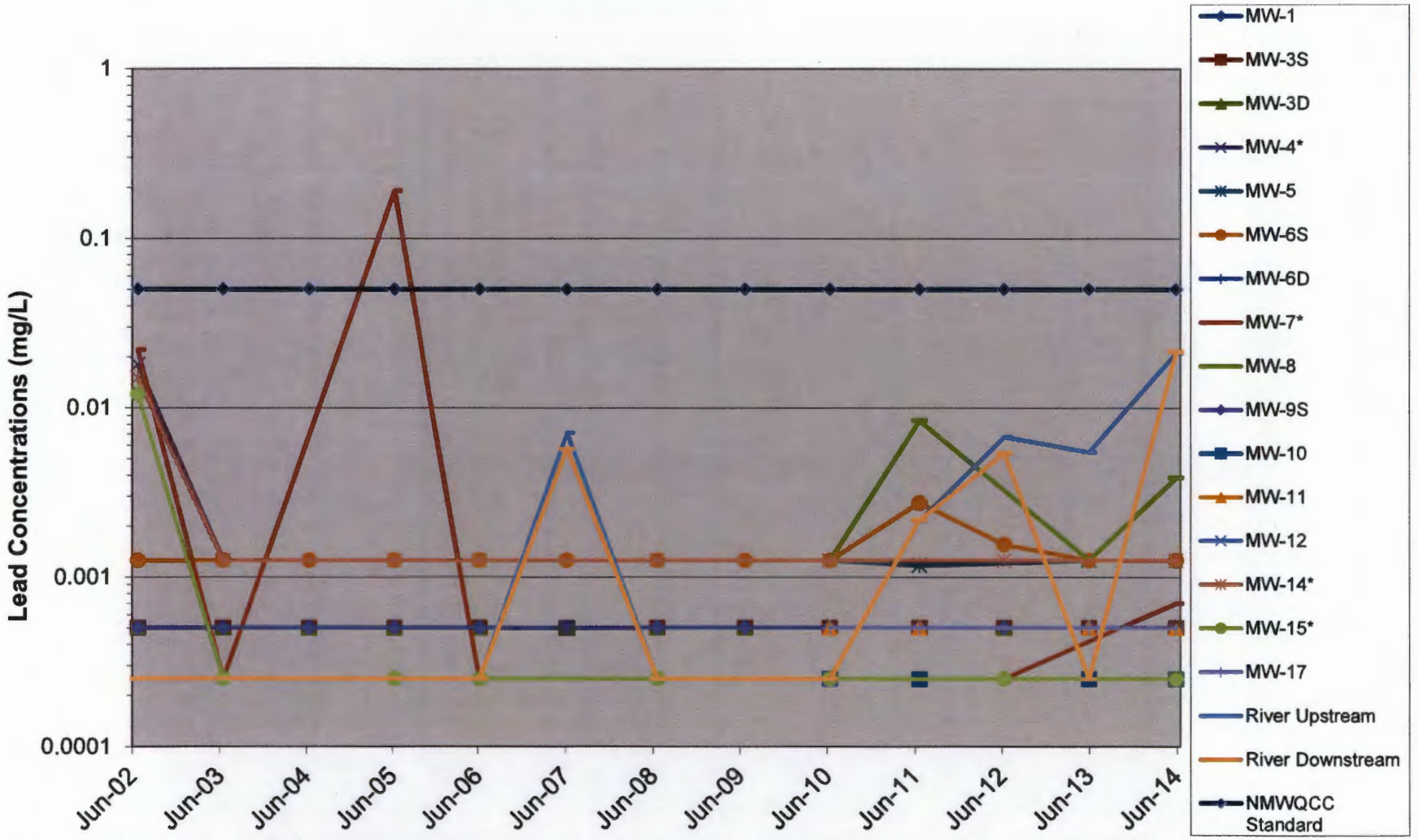
Historical Total PAH Concentrations



Note: The highest detection between the parent and duplicate samples was used. The New Mexico Water Quality Control Commission (NMWQCC) standard for PAH concentrations is 30 micrograms per liter (µg/L). For consistency, all non-detect values are graphed at 0.01 µg/L and 0.05 µg/L (1/2 the 2014 reporting limits). * = Wells that are only sampled biennially.

ARCADIS

Historical Lead Concentrations



Note: The highest detection between the parent and duplicate samples was used. The New Mexico Water Quality Control Commission (NMWQCC) standard for lead concentrations is 0.05 milligrams per liter (mg/L). For consistency, all non-detect values are graphed at 0.00025 mg/L, 0.0005, mg/L and 0.00125 mg/L (1/2 the 2014 reporting limits). * = Wells that are only sampled biennially.