AP-001

03 / 18 / 2014

2013 AGWMR

ARCADIS

Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana 70827
Tel 225 292 1004
Fax 225 218 9677
www.arcadis-us.com

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

Subject:
2013 Annual Groundwater Report
Former Brickland Refinery Site
Sunland Park, New Mexico
Huntsman Corporation
Case No. AP-01

ENVIRONMENT

Date:
18 March 2014

Contact:
Timothy D. Ratchford

Extension:
242

Email:
tim.ratchford@arcadis-us.com

Our ref:
LA003185.0001.00004
Huntsman/3185.1/C/1/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.

John Ellis, P.G.
Principal Scientist/Hydrogeologist

Timothy D. Ratchford, P.G.
Principal Scientist/Hydrogeologist

George H. Cramer, II, P.G.
Vice President/Principal Hydrogeologist

Enclosure

Copies:
NMOCD District 2 – Artesia
Lon Tullos – Huntsman EHS Library

ARCADIS

Infrastructure · Water · Environment · Buildings

Imagine the result

HUNTSMAN

Enriching lives through innovation

2013 Annual Groundwater Monitoring Report

Former Brickland Refinery
Sunland Park, New Mexico

18 March 2014

ARCADIS

John Ellis, P.G.
Principal Scientist/Hydrogeologist

Timothy D. Ratchford, P.G.
Principal Scientist/Hydrogeologist

George H. Cramer, II, P.G.
Vice President/Principal Hydrogeologist

2013 Annual Groundwater Monitoring Report

Former Brickland Refinery
Sunland Park, New Mexico

Prepared for:
Huntsman International LLC

Prepared by:
ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge
Louisiana 70816
Tel 225 292 1004
Fax 225 218 9677

Our Ref.:
LA003185.0001.00004

Date:
18 March 2014

ARCADIS

Table of Contents

Executive Summary

This 2013 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 2013 semiannual groundwater monitoring events were conducted in June (June 11-13) and December (December 3-5). This report contains summaries of groundwater elevation and analytical data from the 2013 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 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 Abatement Plan, the following wells are sampled biennially during even numbered years and were not sampled in 2013: MW-4, MW-7, MW-14, and MW-15. During the 2013 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); 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 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 were 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 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 2013 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 2013 monitoring event with the exception of MW-8. 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 2013 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. Annually, the gradient varies from approximately 0.0007 (June) to 0.0005 (December) foot per foot. The groundwater flow direction is generally to the southeast, parallel to the river.

Light non-aqueous phase liquid (LNAPL) was measured in MW-10 and WP-14 during June 2013 (thickness of 0.04 foot and 0.33 foot, respectively). In September 2013, a red sheen was observed in MW-10 and tar was observed in WP-14. Sorbent socks were placed in both MW-10 and WP-14 in an attempt to remove this material. In December 2013, a sheen was observed in MW-10 and tar was observed in WP-14. Sorbent socks were replaced in both of these wells. LNAPL was not found in any other wells during the 2013 monitoring events.

Based on the results of ongoing monitoring, the following actions are recommended:

- Continue LNAPL removal at WP-14, if feasible, and at MW-10 by bailing or pumping at quarterly intervals.
- Continue monitoring of benzene in MW-5, MW-8, and MW-10 to evaluate trends in groundwater concentrations.

- Propose modifications of the Groundwater Monitoring Plan to focus groundwater monitoring at the site to specific well locations.

- 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 of 0.05 milligram per liter since 2011.

FINAL

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 NMAC 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 (s70-2-12.8 (22) NMSA 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 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 were 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 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 2013. 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 September 2013. 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 (NMED), 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 2013 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 8021B, 8270, and 6020, 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.

- 2013 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 2013.

- 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.

- Extraction system operations and maintenance (O&M) 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 2013 the gradient was approximately 0.0007 foot per foot (ft/ft). The groundwater flow direction is generally to the southeast, parallel to the river. The hydraulic gradient in December 2013 was calculated to be approximately 0.0005 ft/ft. The groundwater flow direction in December is generally to the southeast paralleling the river.

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 2013 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 Production 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. Measureable thicknesses of LNAPL were measured at MW-10 and WP-14 in June 2013 (0.04 foot and 0.33 foot, respectively). In September 2013, a red sheen was observed in MW-10 and tar was observed in WP-14. Sorbent socks were placed in both MW-10 and WP-14 in an attempt to remove this material. In December 2013, a sheen was observed in MW-10 and tar was observed in WP-14. Sorbent socks were replaced in both of these wells. 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 only two wells contained measurable amounts of LNAPL.

3.2 Removal and Disposal of LNAPL

Historically, a total of approximately 235 gallons of LNAPL has been removed from MW-10 since December 1998, when the product recovery system was installed. When LNAPL yields were no longer recovered in measurable amounts during 2006 and 2007, 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 June 2013 sampling event, LNAPL thickness of 0.04 foot was measured in MW-10; this is approximately the same thickness measured in December 2012. LNAPL removal from MW-10 during June 2013 was accomplished through pumping in order to capture the thin layer. A peristaltic pump and polyethylene tubing was used to pump the layer of product by positioning the tip of the tubing at the liquid surface. Pumping was continued until clear water was consistently observed and no additional LNAPL was being recovered. Approximately 0.5 gallon of liquid was removed from MW-10 in June, which consisted of groundwater and LNAPL. Removed groundwater with LNAPL was containerized on site in a 55-gallon drum for future disposal.

During the September 2013 LNAPL gauging and removal event, a sheen was observed in MW-10. Pumping the well resulted in no accumulation of LNAPL. Tar was observed in WP-14. Attempts to pump the material were unsuccessful due to the viscosity of the material. Sorbent socks were placed in the wells because pumping was not effective.

During the December 2013 sampling event, no measureable amount of LNAPL was observed in MW-10 and the tar was still present in WP-14. No LNAPL was removed from the wells; however, the sorbent socks were replaced.

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 prior to use at the site. Each calibration was carried out in accordance with the equipment manufacturer's procedures and recommendations. Date, time, calibration readings, and the method of calibration were recorded on the Field Daily Activity Logs and Field Notes presented in Appendix A.

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 0.5 to 3 gallons were removed from each well with pumping rates of approximately 0.04 to 0.33 liter per minute. Field data collected during the purging of each well are provided in Appendix A. Groundwater odor, color, and other physically apparent characteristics were also documented. Monitor well integrity was also documented (see the Daily Reports provided in Appendix A).

During the June 2013 event, five of the wells sampled were equipped with dedicated pumps (Micropurge Bladder Pumps). Wells not equipped with dedicated pumps were purged 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. During the December 2013 event, the dedicated pump for Monitor Well MW-35 was not operational, so purging and sampling was accomplished with a peristaltic pump. Approximately 22 gallons of water were purged from the sampled monitor wells during the June 2013 monitoring event. Approximately 26.5 gallons of water were purged from the sampled wells during the December 2013 monitoring event. The purged water collected during these monitoring events will be collected by Safety-Kleen for subsequent non-hazardous 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 (first, BTEX; second, PAHs; and third, metals). All samples were labeled with the sampling location, date, time, and testing requirements on self-adhering labels provided by the laboratory.

4.4.1 BTEX

The groundwater samples were analyzed by USEPA Method 8021B for BTEX. Sample containers for volatile organic compounds (VOCs) were 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 PAHs

Wells sampled in the June 2013 monitoring event were analyzed by USEPA Method 8270 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 directly into the sample container until filled to the neck.

4.4.3 Metals

Wells sampled in the June 2013 monitoring event were analyzed by USEPA Method 6020 for lead. Sample bottles were 500-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, trip 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 (COC) 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 COC forms are provided in Appendix B. Descriptions of the QA/QC samples and evaluation of QA/QC results for 2013 are presented below.

4.6.1 Field Blanks

Field blanks were used to determine potential absorption of volatile organics from the air into the water samples. The blanks for volatile organics were collected by filling three 40-mL glass vials with distilled water. The field blanks were analyzed for BTEX.

Toluene was the only constituent detected in one of the field blanks collected during the December sampling.

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 blank was analyzed for BTEX.

BTEX constituents were not detected in the equipment blanks.

4.6.3 Trip Blanks

The trip blank is used to detect and quantify potential organic chemical artifacts occurring in the samples which originate from either the sample containers or the deionized water comprising the blank. One bottle set for each ice chest was filled with deionized water by the laboratory prior to field mobilization. These bottles were transported to the sampling location and returned to the laboratory in the ice chests used to transport groundwater and surface water samples. The trip blanks were analyzed for BTEX.

BTEX constituents were not detected in the trip blanks.

4.6.4 Duplicate Samples

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

Duplicate sample results from June at MW-6S had some variation with the original sample. The duplicate sample result for naphthalene was within 38 percent difference of the original MW-6S result. Acenaphthene was detected in the MW-6S duplicate sample; however, it was not detected in the original MW-6S sample. Acenaphthene detected in the MW-6S 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-6S 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-6S.

5. Groundwater Analytical Results

5.1 BTEX

According to the Abatement Plan, BTEX concentrations are measured semiannually during the 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 2013. Benzene concentrations detected at MW-5 and MW-8 in December 2013 were less than concentrations reported in June 2013. Benzene was detected below the NMWQCC standard in MW-10 and MW-17 in June 2013.

Toluene, ethylbenzene, and total xylenes were detected in MW-5 and MW-8 in June 2013. 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 2013. Laboratory results for BTEX analyses are shown in Table 3.

5.2 PAHs

Samples were analyzed for PAHs in June 2013, and concentrations were reported below the NMWQCC standard of 30 µg/L for Total PAHs with the exception of MW-8. 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 for metals, removing all metals, except lead, from the list of analytes. Samples were analyzed for lead in June 2013, and concentrations were reported below the NMWQCC standard of 0.05 milligram per liter (mg/L). Laboratory results for lead analyses are shown in Table 5.

6. Remediation Performance

6.1 Bioremediation Pilot Testing

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 were 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. O-Sox use has been discontinued while LNAPL continues to be observed at the site, as described in Section 3.1.

Following the removal of 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, concentrations have 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 events. Well WP-14 was gauged, and a tar-like substance was observed. However, the thin layer was unable to be pumped. Because of the minimal amount of material and the difficulty in physically removing the material with a pump, sorbent socks were placed in MW-10 and WP-14. Well MW-10 was also gauged, and a red sheen was observed. The well was purged of 2 liters of water, but no product was recovered. LNAPL removal was completed in June 2013 for MW-10 as described in Section 3.2.

7. Conclusions

Overall, the reported concentrations in groundwater appear to be stable or decreasing. During the 2013 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 as well as in MW-10. Review of laboratory results show a decrease in benzene concentrations in MW-5, MW-8, and MW-10. This decreasing trend will be verified with future sampling events.

2013 sampling confirmed that residual LNAPL is present on the site. LNAPL was measured in Monitor Wells MW-10 and WP-14 during the 2013 monitoring events, suggesting residual LNAPL is present in the vadose zone. The recurrence of measureable LNAPL may be attributed to seasonal groundwater fluctuations at the site. Overall, LNAPL present at the site has decreased through time.

8. Recommendations

The following recommendations are proposed for the remediation system and monitoring operations at the former Brickland Refinery.

- Continue LNAPL removal at WP-14, if feasible, and at MW-10 by bailing or pumping at quarterly intervals.
- Continue monitoring of benzene in MW-5, MW-8, and MW-10 to evaluate trends in groundwater concentrations.

- Propose modifications of the Groundwater Monitoring Plan to focus groundwater monitoring at the site to specific well locations.

- 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 of 0.005 mg/L since 2011.

ARCADIS

Table 1. Water Sampling and Purging Methods, 2013 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-3S	6/12/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 2 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Peristaltic Pump	Approximately 2.5 gallons	BTEX
MW-3D	6/12/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 2 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX
MW-4	--*	--*	--*	--*	--*
MW-5	3/13/2013	Low Flow Purge	Peristaltic Pump	Approximately 2.5 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Peristaltic Pump	Approximately 2.5 gallons	BTEX
MW-6S	6/12/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 2 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX
MW-6D	6/12/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 2.5 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 2.5 gallons	BTEX
MW-7	--*	--*	--*	--*	--*
MW-8	6/13/2013	Low Flow Purge	Peristaltic Pump	Approximately 2 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Peristaltic Pump	Approximately 2.5 gallons	BTEX
MW-9S	6/12/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 3 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Dedicated Bladder Pump	Approximately 2.5 gallons	BTEX
MW-10	6/13/2013	Low Flow Purge	Peristaltic Pump	Approximately 2.5 gallons	BTEX, PAHs, Lead
	12/5/2013	Low Flow Purge	Peristaltic Pump	Approximately 2.5 gallons	BTEX
MW-11	6/11/2013	Low Flow Purge	Peristaltic Pump	Approximately 0.5 gallon	BTEX, PAHs, Lead
	12/3/2013	Low Flow Purge	Peristaltic Pump	Approximately 2.5 gallons	BTEX
MW-14	--*	--*	--*	--*	--*
MW-15	--*	--*	--*	--*	--*
MW-17	6/11/2013	Low Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX, PAHs, Lead
	12/4/2013	Low Flow Purge	Peristaltic Pump	Approximately 3 gallons	BTEX
River Upstream	6/13/2013	NA	Teflon Dipper	NA	BTEX, PAHs, Lead
	12/5/2013	NA	Teflon Dipper	NA	BTEX
River Downstream	6/13/2013	NA	Teflon Dipper	NA	BTEX, PAHs, Lead
	12/5/2013	NA	Teflon Dipper	NA	BTEX
Total volume purged during semiannual monitoring event in June 2013:					22.0 gallons
Total volume purged during annual monitoring event in December 2013:					26.5 gallons
Total volume purged during semiannual and annual monitoring events:					48.5 gallons

Notes:
--* = Not sampled during an odd-numbered year.
BTEX = Benzene, toluene, ethylbenzene, and xylenes.
NA = Not applicable.
PAHs = Polynuclear aromatic hydrocarbons.

ARCADIS

Table 2. Monitor Well Groundwater Elevations, 2013 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
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
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 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
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
MW-4	3728.86	3724.87	3722.86	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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)
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

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 sleeve.
(1) = Roots on probe.
Dry = Monitoring point was dry.
Plugged = Plugged and abandoned as of specified date.
TOC = Top of casing.

ARCADIS

Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2013 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well	Date	Benzene	Toluene	Ethylbenzene	Xylenes
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
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
MW-4	6/28/2002	**100, 87**	ND, ND	ND, ND	ND, ND
	12/6/2002	--	--	--	--
	6/19/2003	--*	--*	--*	--*
	12/17/2003	--*	--*	--*	--*
	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	--*	--*	--*	--*
	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	2.9	ND	ND	ND
	12/13/2012	ND	ND	ND	ND
	6/12/2013	--*	--*	--*	--*
	12/3/2013	--*	--*	--*	--*
MW-5[a]	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

ARCADIS

Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2013 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
	8/12/2013	ND, ND	ND, ND	ND, ND	ND, ND
	12/4/2013	ND, ND	ND, ND	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
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	0.82J
	6/12/2013	--*	--*	--*	--*
	12/3/2013	--*	--*	--*	--*
MW-6	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

ARCADIS

Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2013 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
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
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
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	--*	--*	--*	--*
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	--*	--*	--*	--*

ARCADIS

Table 3. BTEX Concentrations in Monitor Wells and River Surface Water Samples, 2013 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
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
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
NMWQCC Standard (µg/L)		**10**	**750**	**750**	**620**

Notes:
All units are micrograms per liter (µg/L).
[(a)] = MW-5 and MW-6S 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 th laboratory's reporting limit.
ND = Not detected.
NMWWQCC = New Mexico Water Quality Control Commission.
P = Dual column results percentage difference is > 40%.

ARCADIS

Table 4. Total PAH Concentrations in Monitor Wells and River Surface Water Samples, 2013 Annual Groundwater Monitoring Report, Former Brickland Refinery, Sunland Park, New Mexico, Huntsman International, LLC.

Well ID	12/6/1993	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
MW-1	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
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
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
MW-4	--	ND, ND	ND	ND	ND	--	--	--	--	--	--	--	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--
MW-5	--	**107**	**117**	**191**	**139**	**117**	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.67	0.42	--	1.73
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
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
MW-7	--	ND	ND	ND	ND	--	--	--	--	--	--	ND,ND	ND,ND	ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--
MW-8	--	**250**	**93**	**366**	**236**	**180**	--	**140**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.21	ND	--	**43.33**
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
MW-10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.13	1.66	--	4.42
MW-11	--	**29**	ND	**233**	**148**	ND	--	**140**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	0.06	--	0.50
MW-12	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
MW-14	--	--	**570**	**40**	ND	ND	**12**	ND	--	--	--	ND	ND	ND,ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--
MW-15	--	--	**117**	**126**	**84**	ND	ND	ND	--	--	--	ND	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND	--	ND	--
MW-16	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-17	--	--	--	**58, 37**	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	1.03	--	ND
River-Upstream	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
River-Downstream	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

June 2013 Data Detail							
Well	Acenaphthene	Acenaphthylene	Anthracene	Fluorene	Naphthalene	Phenanthrene	Pyrene
MW-3S	ND	ND	ND	ND	ND	ND	ND
MW-3D	ND	ND	ND	ND	ND	ND	ND
MW-5	0.114	ND	ND	0.26	1.36	ND	ND
MW-6S	ND, 0.391	ND	ND	ND	0.209, 0.306	ND	ND
MW-6D	ND	ND	ND	ND	ND	ND	ND
MW-8	0.386	ND	ND	0.402	**42.3**	0.245	ND
MW-9S	ND	ND	ND	ND	ND	ND	ND
MW-10	2.16	0.38	0.342	0.229	0.659	ND	0.647
MW-11	0.311	ND	ND	ND	ND	ND	0.184
MW-17	ND	ND	ND	ND	ND	ND	ND
River-Upstream	ND	ND	ND	ND	ND	ND	ND
River-Downstream	ND	ND	ND	ND	ND	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.
-- = Not sampled.
BOLD = Concentrations in bold type indicate levels exceed New Mexico Water Quality Control Commission standards for PAH concentrations (30 µg/L).
ND = Not detected.
P&A = Well has been plugged and abandoned.

ARCADIS

Table 5. Lead Concentrations in Monitor Wells and River Surface Water Samples, 2013 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
MW-3S	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
MW-4	0.018	ND, ND	--	ND	ND	--	ND	--*	ND	--*	ND	--*
MW-5	--	--*	--	--*	--	--*	--	--*	ND	0.00117J	--	ND
MW-6S	ND	ND	ND, ND	ND	ND, ND	ND, ND	ND	ND	ND	ND, 0.00274J	0.00152J, 0.00155J	ND
MW-6D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7	0.022	ND	--	0.19	ND	--*	ND	--*	ND	--*	ND	--*
MW-8	--	--*	--	--*	--	--*	--	--*	ND	0.00841	--	ND
MW-9S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10	--	--*	--	--*	--	--*	--	--*	ND	ND	--	ND
MW-11	--	--*	--	--*	--	--*	--	--*	ND	ND	--	ND
MW-14	0.015	ND	--	ND	ND	--*	ND	--*	ND	--*	ND	--*
MW-15	0.012	ND	--	ND	ND	--*	ND	--*	ND	--*	ND	--*
MW-17	--	--*	--	--*	--	--*	--	--*	ND	ND	--	ND
River Upstream	ND	ND	ND	ND	ND	0.0071	ND	ND	ND	0.00214J	0.00674	0.00546
River Downstream	ND	ND	ND	ND	ND	0.0057	ND	ND	ND	0.00216J	0.00536	ND

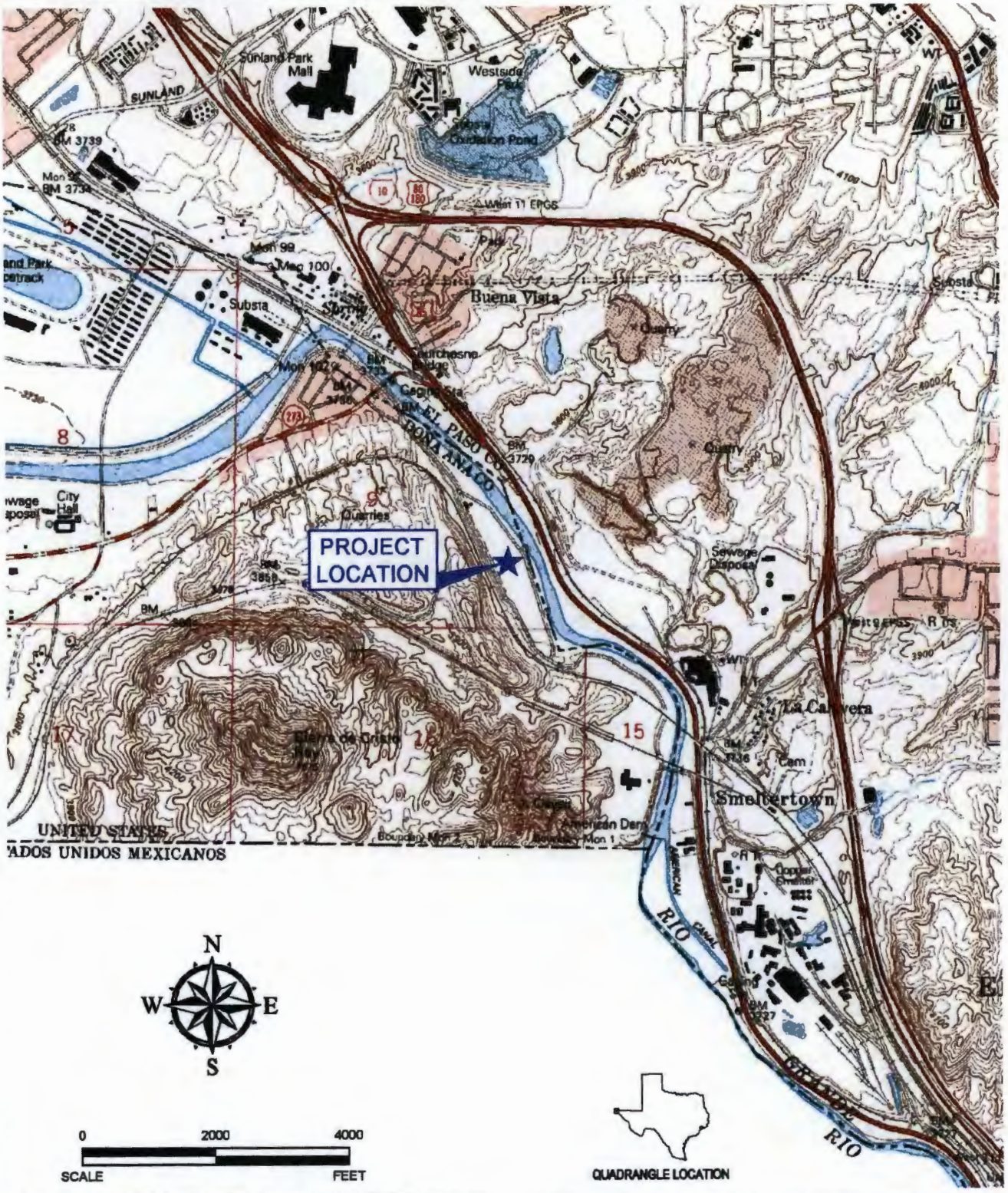
Notes:
All units are micrograms per liter (µg/L).
Duplicate result reported with MW-6S line, following the comma.
-- = Sample not collected/analyzed for this constituent.
--* = Sample not collected/analyzed for this constituent in odd-numbered years.
BOLD = Concentrations in bold type indicate levels exceed New Mexico Water Quality Control Commission standards for lead (0.05 mg/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.
mg/L = Milligrams per liter.
ND = Concentration was below laboratory detection limits.

ARCADIS

Table 6. LNAPL Thickness Measurements, 2013 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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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]
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
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
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
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
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
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
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
WP-26S	**0.35**	**0.60**	**0.63**	**0.66**	**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
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
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
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
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
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]
WP-32	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Trace	Dry	Dry	NM	NM	NM	NM	NM	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

Notes:
[1] = Roots on probe.
[2] = Cap could not be removed.
BOLD = Measurable amount of LNAPL observed.
Dry = Monitoring point was dry.
NM = Monitoring point was not measured.
P&A = Well has been plugged and abandoned.
Sheen = Small 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:\APROJECT\HUNTSMAN\LA003185.0001\Figures\3185-01-01.dwg PLOTTED: 3/7/2014 1:10 PM BY: MEN, SOTHON

0 200' 400'

W. PAISANO DR. (HWY. 85)

RIO GRANDE RIVER

ACCESS ROAD

FORMER BRICKLAND
REFINERY SITE

BRICKLAND RD.

DOWNSTREAM

UPSTREAM

MW-1
MW-3D
MW-3S
MW-4
MW-5
MW-6D
MW-6S
MW-7
MW-8
MW-9S
MW-10
MW-11
MW-12
MW-14
MW-15
MW-16
MW-17

WP-1
WP-2
WP-3
WP-7
WP-9
WP-14
WP-25
WP-27D
WP-27S
WP-30
WP-31
WP-32
WP-33

LEGEND

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

NOTES:

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

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

FORMER BRICKLAND REFINERY
HUNTSMAN CORPORATION
SUNLAND PARK, NEW MEXICO

SITE LAYOUT

ARCADIS

FIGURE
2

DRAWN BY: S. MEN CHECKED BY: TDR PROJECT MANAGER: DRE
G:\APROJECT\HUNTSMAN\LA003185.0001\Figures\3185-01-02.dwg PLOTTED: 3/7/2014 1:02 PM BY: MEN, SOTHON

0 200' 400'

W. PAISANO DR. (HWY. 85)

RIO GRANDE RIVER

ACCESS ROAD

FORMER BRICKLAND REFINERY SITE

BRICKLAND RD.

DOWNSTREAM

UPSTREAM

MW-1 3725.80

MW-3S 3724.68

MW-3D 3724.81

MW-4 3724.73

MW-5 3724.66

MW-6S 3724.50

MW-6D 3724.54

MW-7 3724.73

MW-8 3723.87

MW-9S 3723.98

MW-10 3724.56

MW-11 3723.80

MW-12 3726.00

MW-14 3724.70

MW-15 3724.19

MW-16 3724.12

MW-17 3724.80

WP-1

WP-2

WP-3

WP-7

WP-9

WP-14

WP-25

WP-27D

WP-27S

WP-30

WP-31

WP-32

WP-33

3724.0

3724.5

3725.0

3725.5

3726.0

LEGEND

MW-1 3725.80	MONITOR WELL LOCATION AND DESIGNATION / WATER LEVEL ELEVATION (FT, MEAN SEA LEVEL)
3725.5	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.

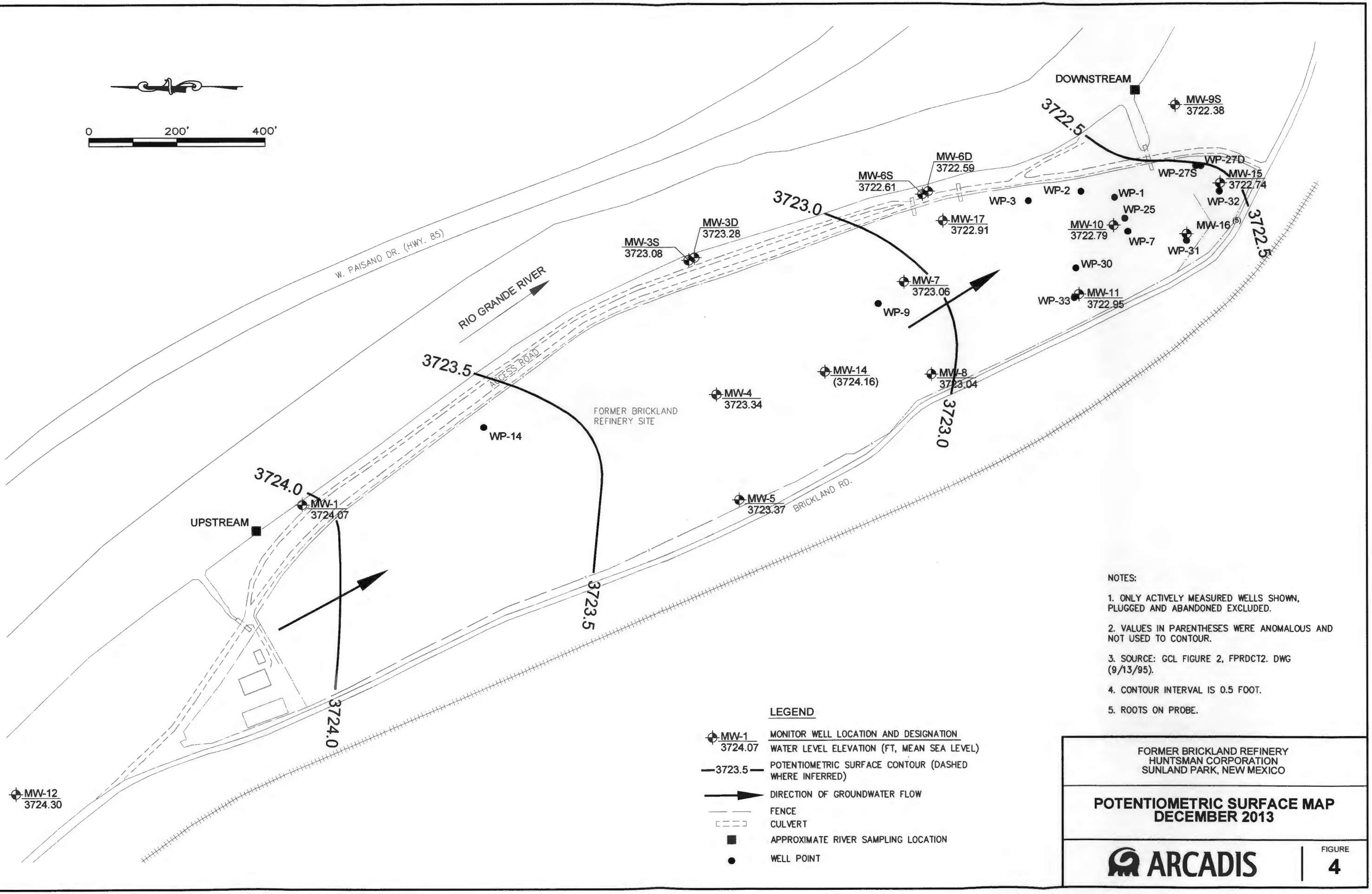
FORMER BRICKLAND REFINERY
HUNTSMAN CORPORATION
SUNLAND PARK, NEW MEXICO

POTENTIOMETRIC SURFACE MAP
JUNE 2013

ARCADIS

FIGURE 3

DRAWN BY: S. MEN CHECKED BY: TDR PROJECT MANAGER: DRE
G:\APROJECT\HUNTSMAN\LA003165.0001\Figures\3165-01-03.dwg PLOTTED: 3/14/2014 1:22 PM BY: MEN, SOTHON



LEGEND

MW-1 / 3724.07	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

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.
5. ROOTS ON PROBE.

FORMER BRICKLAND REFINERY
HUNTSMAN CORPORATION
SUNLAND PARK, NEW MEXICO

POTENTIOMETRIC SURFACE MAP DECEMBER 2013

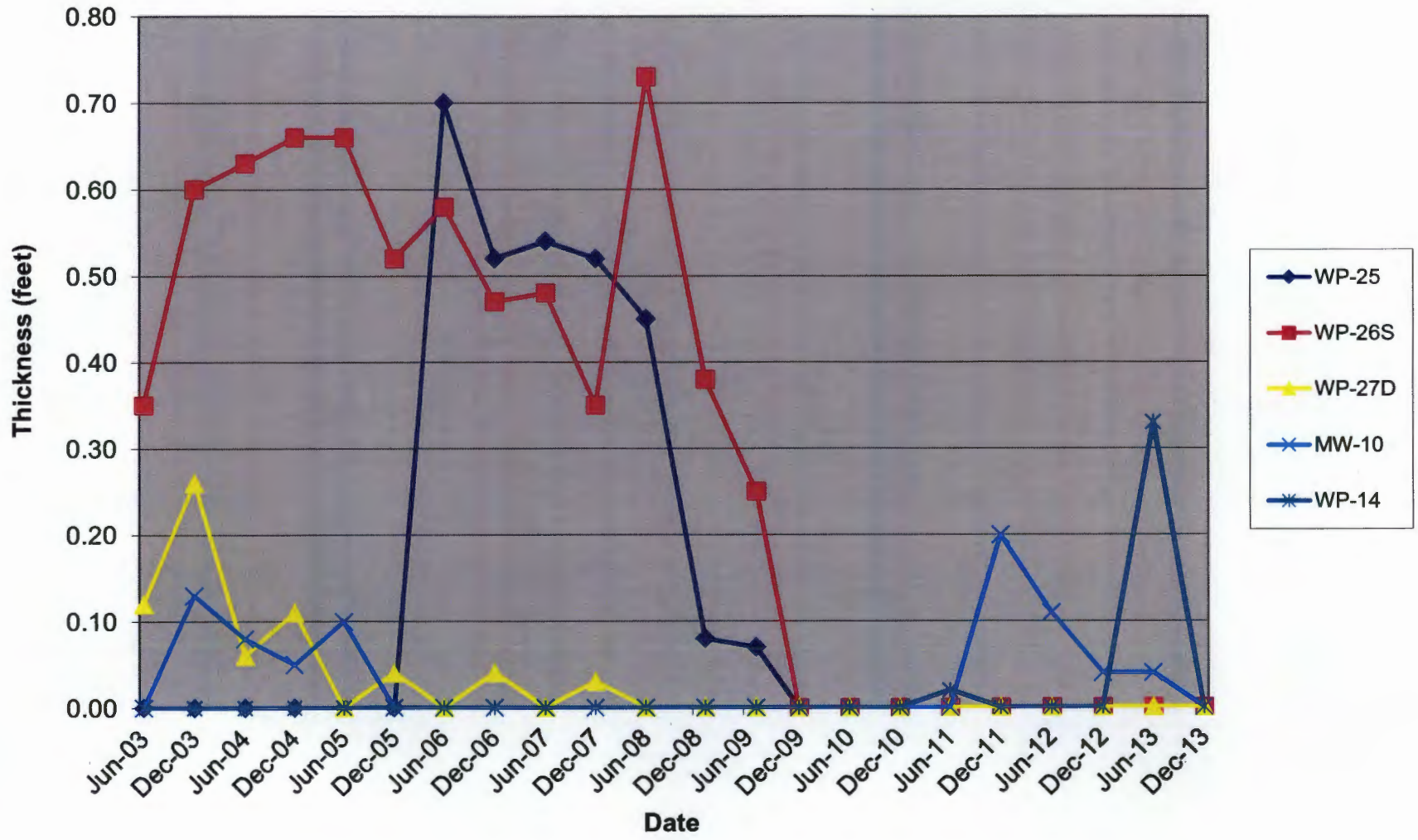
ARCADIS

FIGURE 4

DRAWN BY: S. MEN CHECKED BY: TDR PROJECT MANAGER: DRE
G:\APROJECT\HUNTSMAN\LA003185.0001\Figures\3185-01-04.dwg PLOTTED: 3/7/2014 12:59 PM BY: MEN, SOTHON

ARCADIS

Figure 5 - Historical LNAPL Thickness



ARCADIS

Appendix A

Field Data

Using oil & duct tape

ARCADIS
Infrastructure · Water · Environment · Buildings

WELL GAUGING LOG

Site Name: Huntsman
Project Number: LA003185.000
Date & Time: 6/11/13 0815

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 Reading 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
							PID Reading
MW-15			14.43				0.4 ppm
WP-32		DRY TD	11.52				[redacted] DRY
Sheen WP-27D			13.58				0.1ppm [redacted] Oxidation on probe
Sheen WP-27S			13.93				22.8 ppm
MW-16			12.66				0.0 ppm roots on probe
WP-31			[redacted]				
Sheen WP-07			11.82				0.0 ppm oxidation on probe
MW-10		7.97	8.01 - ?				51.9 ppm NAPL on Probe,
Sheen WP-26S			9.95				1.2 ppm Slight oxi. thick, reddish on probe
WP-25			8.82				3.2 ppm Duct taped
Sheen WP-01			9.41				84.1 ppm slight oxidation
Sheen 0939 WP-26D		[redacted]	8.73				13.2 ppm slight oxidation.
Sheen 0950 WP-02			7.29				0.4 ppm Oxidation on probe
Slight 1000 MW-11			7.60				0.0 ppm
Sheen 1002 WP-33			10.19				28.2 ppm slight oxidation
1006 WP-30			11.37				0.0 ppm
Sheen 1011 MW-08			5.35				51.5 ppm
Sheen 1020 MW-05 (Film)			5.04				130 ppm
1030 MW-04			4.13				0.0 ppm
1033 MW-14			5.76				32.0 ppm
1041 MW-19			7.18				0.2 ppm roots on probe
1049 MW-07			4.23				0.0 ppm
1058 ~~MW-11~~		Light Resistance	~~21.40~~				
→ MW-14		5.22	5.55				21.4 ppm
1114 WP-03		Root	Bound				0.0 ppm
[redacted]							[redacted]
1134 MW-01			4.97				0.0 ppm
1140 MW-03D			5.19				0.0 ppm
1140 MW-03S			5.32				0.0 ppm

Equipment and Decon Procedures

Gauging Equipment: Probe, PID,
Decon Procedures: ID H2O and ID H2O w/m Soap

Ink stamp

ARCADIS
Infrastructure · Water · Environment · Building

WELL GAUGING LOG

Site Name: Huntsman
Project Number: LA003195.000
Date & Time: 10/11/13 0815

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
1150 MW-06D			6.08				0.0 ppm
1150 MW-06S			6.15				1.4 ~~ppm~~ lifted well cap
1208 MW-09S			6.03				0.0 ppm
1215 MW-12			4.35				0.0 ppm

Equipment and Decon Procedures

Gauging Equipment

Decon Procedures

file stamp

ARCADIS (1)

WATER SAMPLING LOG

Page 1 of 1

Date 6/11/13

Project No	LA003185.000	Sample Personnel	Dan Sabin, Ana Gutierrez
Site Name	Hudsman	Sample ID	MW-17
Site Location	Hudsman	Duplicate ID	FB061113
Site/Well No.	MW-17	Start pump	1405 Stop pump 1450
Weather	99°F.	Start sampling	1440 Stop sampling 1455

EVACUATION DATA

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

Depth to Water before/after (ft)	7.18 / 7.24	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	250 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	LOW FLOW Purge

Time	Volume Purged (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	(ft) DTW	Appearance (Clarity, Color, Odor)
1410		6.80	12.84	25.41	1.80		10.6	-165.7		7.23	H2O stained artyellow, organic smell
1415		6.77	12.90	26.03	1.79		15.0	-174.8		7.23	
1420		6.77	12.86	25.67	-38.35		11.9	-173.9		7.23	
1425		6.74	12.83	25.39	-99.99		9.68	-183.4		7.23	
1430		6.60	12.83	25.13	-99.99		9.38	-182.3		7.24	
1435		6.49	12.87	24.96	-99.99		9.37	-190.1		7.24	
1440	3 Gal	6.51	12.91	24.75	-99.99		8.93	-191.3		7.24	Yellowish water
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 ~~HNO3~~ HCl	3	HCl
VOA - PAH	40ml ~~NaOH~~	3	Neat
~~500~~ Metals (Pb)	500 ml ~~HNO3~~	1	HNO_3
Field Blank - FB061113	40 ml	3	HCl
	40 ml	3	neat
	500ml	1	HNO_3

Remarks: ~250 mg/L, ~~Perasatic~~ Peristaltic pump
VOA(3) - BTEX VOA(3) - ~~BTEX~~ PAH, (1) 500 ml 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

C:\Users\dsabin\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\DKAL346\gwsmplg-VOCs-2008.xlsx

ARCADIS (2) **WATER SAMPLING LOG** Page 1 of 1

Date 06/11/13

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Hudsman	Sample ID	MW-11
Site Location	Hudsman	Duplicate ID	EQuipmentBlank-EB061113
Site/Well No.	MW-11	Start pump	1525 / Stop pump 1430
Weather	100°F, low winds.	Start sampling	1610 / Stop sampling 1430

EVACUATION DATA

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

Depth to Water before/after (ft) 7.60 / 9.83 — Casing Diameter (in) 4"

Water Column in Well [1] (ft) ____ — Evacuation Vol./Rate ~250 mg/L - 175 mg/L

Volume per foot in Well [2] ____ — Pump Intake Depth (ft) ____

Total Volume in Well [3] ____ — Evacuation Method Low Flow Purge

Time	Volume Purged (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)
1530		7.27	8.289	25.36	42.02		11.9	-177.8	8.12	Yellowish water organic smell
1535		7.22	8.150	24.90	4.19		8.53	-178.9	8.58	
1540		7.09	8.100	24.73	-3.90		6.84	-186.6	9.02	
1545		7.20	8.006	25.23	-99.99		7.86	-186.3	9.24	
1550		6.93	7.906	25.39	-99.99		6.98	-182.3	9.41	Adjusted flow Rate
1555		6.90	7.958	25.48	-99.99		7.26	-183.4	9.56	
1600		6.85	7.943	25.76	-99.99		6.44	-176.0	9.65	
1605		6.99	7.932	25.78	-99.99		5.60	-178.9	9.74	
1610	0.5 Gal	6.85	7.925	25.70	-99.99		4.92	-182.4	9.83	
Stabalization Criteria:		(+/- 0.1 su)	(+/- 3 %)	(+/- 3 %)	(+/- 10%)		(+/- 10% or <1)	(+/- 10 mV)	(n/a)	(n/a)

mg/L 175 I

[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
VOA - PAH	40 ml	3	Neat
Metals (Pb)	500 ml	1	HNO_3
EB EB061113	40 ml	3	HCL
	40 ml	3	neat
	500 ml	1	HNO_3

Remarks: Equipment Blank @ 1640 - EB061113

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 10/12/13

Project No	LA003185.000	Sample Personnel	DS & AG
Site Name	Hundsman	Sample ID	MW-3D
Site Location	Hundsman	Duplicate ID	FB061213
Site/Well No.	MW-3D	Start pump	0920 Stop pump 1005
Weather	88°F, Med winds	Start sampling	0955 Stop sampling ~~1005~~ 1010

EVACUATION DATA

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

Depth to Water before/after (ft)	5.07 / 5.08	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	~250 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 (ft)	Appearance (Clarity, Color, Odor)
0925		7.05	19.96	20.77	-0.18		7.99	-61.2	~~5.09~~	5.08
0930		7.01	19.99	20.80	-0.17		4.55	-61.4	5.08	
0935		7.01	20.02	20.74	-0.10		5.81	-59.4	5.08	
0940		6.99	20.01	20.72	-0.10		5.60	-58.9	5.08	
0945		7.00	~~19.99~~ 19.99	20.80	-0.05		10.6	-63.7	5.08	
0950		6.97	20.03	20.89	-0.07		5.52	-63.2	5.08	
0955	1.6 gal	6.98	19.98	20.79	-0.03		5.18	-61.9	5.08	
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	Neat
Metals (Pb)	500ml	1	HNO_3
FB061213	40 ml	3	HCl
	40 ml	3	neat
	500 ml	1	HNO_3

Remarks: 11 CPM, 4 flow, Field Blank Taken FB061213

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

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

(5)

Date 6/12/13

Project No	4A00 3186.000	Sample Personnel	Dana Solon, Ana Gutierrez
Site Name	Hundsman	Sample ID	MW-35
Site Location	Hundsman	Duplicate ID	Equipment EB061213
Site/Well No.	MW-35	Start pump	1025 Stop pump 1110
Weather	89°F, Med. Winds	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)	5.21 / 5.60	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	~250 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 (FT)	Appearance (Clarity, Color, Odor)
1030		7.16	12.23	20.50	-0.28		6.46	-153.3	5.62	Clear water
1035		7.12	12.20	20.28	-0.26		5.08	-160.1	5.75	
1040		7.14	12.15	21.37	-0.27		4.32	-158.0	5.61	
1045		7.12	12.17	22.48	-0.35		5.39	-150.4	5.60	
1050		7.19	12.19	22.11	-0.31		5.96	-147.2	5.60	
1055		7.17	12.18	22.05	-0.31		4.25	-149.1	5.60	
1100	2Gal	7.12	12.16	22.05	-0.32		4.96	-153.3	5.60	
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	Neat
Metals (Pb)	500ml	1	HNO_3
EB061213	40ml	3	HCl
	40ml	3	neat
	500ml	1	HNO_3

Remarks: 10 CPM, 2 flow Equipment Blank Taken on Interface Probe - EB061213

TUBING DIAMETER VOLUMES (In Milliliters per Feet)

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 (LG)

WATER SAMPLING LOG

Page 9 of 1

Date 6/12/13

Project No	LA003185.000	Sample Personnel	Doug Solon, Ana Gutierrez
Site Name	Huntsman	Sample ID	MW-6D
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-6D	Start pump 1315	Stop pump 1400
Weather	99°F, low winds	Start sampling 1350	Stop sampling 1400

EVACUATION DATA

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

Depth to Water before/after (ft)	5.94 / 5.96	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	~250mg/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 (ft)	Appearance (Clarity, Color, Odor)
1320		7.02	21.05	23.93	-0.05		8.20	-56.8	5.97	Clear water
1325		7.02	20.88	24.21	0.00		8.06	-38.9	5.97	
1330		7.01	20.96	23.36	-0.10		6.93	-33.7	5.96	
1335		7.01	20.88	22.94	0.00		7.04	-34.5	5.96	
1340		7.01	20.93	23.03	-0.02		5.89	-34.7	5.96	
1345		7.01	20.88	22.69	-0.04		5.06	-31.5	5.96	
1350	2.5gal	7.03	20.85	23.41	-0.03		5.33	-39.0	5.96	
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	Neat
Metals (Pb)	500ml	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 (7)

WATER SAMPLING LOG

Page 1 of 1

Date 6/12/13

Project No	LA003185.000	Sample Personnel	Doug Sdan, Ana Gutierrez
Site Name	Hundsman	Sample ID	MW-6S
Site Location	Hundsman	Duplicate ID	~~FD061213~~ DUP061213
Site/Well No.	MW-6S	Start pump	1410 Stop pump 1540
Weather	102°F, Low winds	Start sampling	1445 Stop sampling 1540

EVACUATION DATA

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

Depth to Water before/after (ft)	5.60 / 6.47	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	~250 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 (ft)	Appearance (Clarity, Color, Odor)
1415		7.00	12.02	22.59	-0.62		4.91	-121.0	6.36	yellowish water
1420		6.83	12.02	24.55	-0.36		7.98	-117.9	6.41	
1425		6.87	12.04	25.20	-0.31		11.7	-106.7	6.41	
1430		6.88	12.07	25.83	0.24		16.7	-99.1	6.42	
1435		6.89	12.06	26.15	-0.24		18.7	-108.7	6.47	
1440		6.88	12.06	26.00	-0.26		17.9	-109.3	6.47	
1445	2 Gal	6.86	12.06	25.78	-0.23		19.3	-89.1	6.47	
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	Neat
Metals (Pb)	500ml	1	HNO_3
DUP061213	40ml	9	HCl
MW6S MS	40ml	9	Neat
MW6S MSD	500ml	3	HNO_3

Remarks: ~~MS/DUP061213, MSD061213~~, DUP061213, ~~FD0~~ MW-6S MS, MW-6S ~~FD061213~~ MSD.

TUBING DIAMETER VOLUMES (In Milliliters per Foot)

0.25" = 9.65	0.5" = 38.61			
0.375" = 21.72	0.75" = 86.87	1.5" = 0.09	2.5" = 0.26	

WELL CASING DIAMETER VOLUMES (In Gallons per Foot)

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

ARCADIS

WATER SAMPLING LOG

Page 1 of 1

Date 6/13/13

8

Project No	LA0031 85.000	Sample Personnel	Dwg Solan, Awa Gutierrez
Site Name	Tundsman	Sample ID	MW-5
Site Location	Tundsman	Duplicate ID	FB061313
Site/Well No.	MW-5	Start pump	0740 Stop pump 0830
Weather	78°F, high winds	Start sampling	~~0753~~ 0820 Stop sampling 0830

EVACUATION DATA

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

Depth to Water before/after (ft) 4.76 / 10.14 Casing Diameter (in) 4"

Water Column in Well [1] (ft) _____ Evacuation Vol./Rate ~ 195 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)
~~0745~~			[redacted]	[redacted]						Hydrocarbon odor,
0750		6.46	20.13	24.66	-0.55		32.4	-137.1	5.31	lot of suspended
0755		6.47	20.08	24.38	-0.45		24.7	-144.6	5.51	solids.
0800		6.44	20.07	24.49	-0.42		20.9	-143.2	5.65	Sheen on water.
0805		6.41	20.03	24.46	-0.38		17.8	-149.3	5.79	
0810		6.40	20.05	24.54	-0.38		18.0	-155.2	5.91	
0815		6.39	20.03	24.76	-0.00		16.1	-171.0	6.03	
0820	2.56	6.36	20.02	24.86	-1.01		16.8	-179.9	6.14	
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	neat
Metals (Pb)	500ml	1	HNO3
FB061313	40ml	3	HCl
	40ml	3	neat
	500ml	1	HNO3

Remarks: Peristaltic pump is set at its lowest pump rate.
Field Blank - FB061313 -01 Hour

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 6/13/13

Project No	4.00 3185.000	Sample Personnel	DS/AG
Site Name	Hunsman	Sample ID	MW-8
Site Location	Hunsman	Duplicate ID	EB-060313 0955
Site/Well No.	MW-8	Start pump	0855 Stop pump 0950
Weather	82°F, Med winds	Start sampling	0935 Stop sampling 0950

EVACUATION DATA

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

Depth to Water before/after (ft)	5.071	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	~175 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Low pump 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)
0900		7.14	8.003	24.79	0.04		10.9	-152.9	5.07	Yellowish water,
0905		7.13	7.937	24.58	-0.12		8.02	-144.7	5.96	hydrocarbon odor.
0910		7.13	7.875	24.76	0.28		6.92	-145.0	6.18	
0915		7.09	7.760	24.80	0.30		8.71	-136.5	6.44	
0920		7.04	7.679	24.95	0.22		6.68	-139.9	6.63	
0925		7.03	7.600	25.03	-0.06		8.84	-142.0	6.77	
0930		7.03	7.560	25.21	-0.22		6.38	-140.6	6.86	
0935	2Gal	7.00	7.554	25.20	-0.20		6.78	-147.8	7.30	
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
VOA - PAH	40ml	3	Neat
Metals (Pb)	500 ml	1	HNO3
EB060313	40 ml	3	HCl
	40 ml	3	Neat
	500 ml	1	HNO3

Remarks: Perisatic pump is set at its lowest rate, Equipment Blank on Interface Probe - EB060313

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 _____

Date 6/13/13

Project No	4402 3185.000	Sample Personnel	Dara Solon, Anci Gutierrez
Site Name	Huckman	Sample ID	MW-10
Site Location	Huckman	Duplicate ID	
Site/Well No.	MW-10	Start pump	1025 Stop pump 1110
Weather	88°F, Mod. winds	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)	7.87 /	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	~ 175 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	Appearance (Clarity, Color, Odor)
1030		6.96	12.06	26.69	-1.05		11.3	-166.6	8.11	Layer of
1035		6.94	11.98	26.17	-0.16		9.40	-181.2	8.19	hydrocarbon
1040		6.98	11.75	25.97	-0.20		8.74	-191.3	8.29	sitting on top
1045		6.96	10.84	26.26	0.58		6.86	-180.8	8.35	of yellowish
1050		6.94	10.37	25.90	0.72		6.95	-173.5	8.34	water
1055		6.92	10.27	25.84	0.79		5.50	-171.0	8.42	hydrocarbon odor.
1100		6.98	10.22	25.86	0.86		5.88	-159.1	8.49	Pumped ½ gal of water before purging.
										hydrocarbon is
										thick, yellowish color.
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	NaOH
Metals (Pb)	500ml	1	HNO_3

Remarks: Peristic pump is set at its lowest rate.

TUBING DIAMETER VOLUMES (In Milliliters per Feet)

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

WELL CASING DIAMETER VOLUMES (In Gallons per Feet)

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 6/13/13

Project No	LA 003185.000	Sample Personnel	Dan Solan, Arcadis others
Site Name	Hudsman	Sample ID	upstream
Site Location	Rio Grande	Duplicate ID	~~[illegible]~~ EB-2-061313
Site/Well No.	Surf. sample (upstream	Start pump	Stop pump
Weather	91°F low winds	Start sampling	1320, 1330 Stop sampling

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)
1320		8.59	1.096	29.21	-0.65		286	-35.2		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
VOA - PAH	40ml	3	Neat
Metals (Pb)	500ml	1	HNO3
EB-2-061313	40ml	3	HCl
	40ml	3	neat
	500ml	1	HNO3

Remarks: Plastic sampler from river sampler for EB-2-061313

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 ____

Date 6/13/13

Project No	LA003185.000	Sample Personnel	Dan S. Ana G
Site Name	Huntsman	Sample ID	Downstream
Site Location	Rio Grande	Duplicate ID	
Site/~~Well No.~~	Downstream	Start pump	Stop pump
Weather		Start sampling 1345	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)	/	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)
1345		8.59	0.549	29.32	0.66		291	-12.8		
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	Neat
Metals (Pb)	500ml	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

Huntsman Semi-Sampling - June 2013

Doug Solon / Jane Gutterson

6/11/13 - 0715 - Calibrated PID = 100 ppm
- 0730 - Loaded Truck w/ gauging equipment - Left for Site
- 805 arrived at site
- 810 - Tailgate meeting
- 815 - Began Guaging work
- 1220 - Completed well Guaging
- 1225 - Lunch
- 1315 - Load sampling equipment
1330 - Returned to Huntsman Site
- 1400 - SETUP MW 17 for Sampling
- 1405 Began purging - 250 mg/L
- 1410 - Sampled MW-17
3 VOA's BTEX
3 VOA's PAH
1-500 METALS Pb
1-250 Field Dup Blank FB061113
1450 Set well sample Log for Parameters
- 1520 Poured purge H2O into BOLS @ MW 10 Location
- 1525 Setup to sample MW-11
- 1525 Begin Purging - 200 mg/L
- 1610 Sampled MW-11
3 - VOA's BTEX
3 VOA's PAH

(cont. 6/11/13)
= 1 500 mL - metals (Pb)
1640 - Did equipment Blank on E-Line probe - EB061113
1655 - Left site - Return to Austin

6-12-13
0725 - arrived at site
0730 - TAilgate meeting w/ DS/AG
0735 - SETup on MW 9S
0800 - Began Purging MW 9S
0835 - Sampled MW-9S - (3) VOA's BTEX, (3) VOA's PAH, (1) 500 ml metals (Pb) - purged 3 gal H2O
905 - SETup on MW 3D for Sample
920 - Began purging - 250 mg/L
925 - Valley Rock on Site
- Sampled MW-3D - (3) VOA's BTEX, (3) VOA's PAH, (1) 500 ml metals (Pb) - purged 2
- Collected Field Blank for day - FB061213 - 0935 - DI H2O
- Decon Equipment
1215 - ED leaving the site
- SETup on MW-3S for Sample
1225 - Began Purging MW-3S

[redacted]

Huntsman Semi-Sampling June 2013

Cont: 6-12-13 DS/AG

1100 - Sampled MW-33 - (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb) purged 2 gals

1120 Equipment Blank of interface probe EB061213

1130 - Dumped purge H2O into BBLS @ MW-10

1140 - Lunch - Back to office

1300 - On site - SETup on MW-60 for sampling

1315 Began purging well

1350 - Sampled MW-60D (3) VOA's BTEX (3) VOA's PAH 1 500ml Metals (Pb)

1400 - Decon pumps

1405 - SETup on MW-65

1410 - Began Purging on MW65

1445 - Sampled MW-65 sampled MW-65 as DS, MW-65MS, MSD Trip Blank DUP061213

1545 - Finished sample MW-65

1550 - Emptied purge H2O into BBLS

1555 - Left site - Return to office

1610 - Packaged Samples for FEDEX

1700 - Delivered Coolers to FEDEX

D. Stow

Huntsman Semi-Sampling June 2013

6-13-13 DS/AG

0725 Arrived on site - Began Tailgate meeting w/ DS/AG

0730 - setup on MW-5 for sampling

0750 - Began purging MW-5 - Hydrocarbon A lot of separated solids - very slow recovery - pump at its lowest setting

0820 - Sampled MW-5 - (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb)

- Field Blank - FB061313 DI H2O

0830 - Finished sample MW-5

0845 - setup on MW-08

0855 - Began Purging

0905 - Sampled MW-8 - (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb)

0955 - Performed equipment Blank on interface Probe - DI H2O over probe - EB061313

1000 - Setup on MW-10 - Pumped Hydrocarbon off top of H2O w/ Peristaltic pump - RED Hydrocarbon - thick (2) pictures taken

1005 - Began purging MW-10

1030 - Sampled MW-10 - (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb)

1040 - Decon equipment

1140 - Lunch - Return to office

D. Stow

[redacted]

6 Huntsman Semi-Con Sampling June 2013

6-13-13 Cont:

1305 - Back on site - Set up on Upstream River Sample

1320 - Sampled upstream River - (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml amber (Pb)

1330 - Equipment Blank on River sampler - 1 Liter Plastic Bottle. EB-2-061313 (2) VOA's BTEX, (2) VOA's PAH, (1) 500ml amber (Pb)

1345 - SETup + Sample Downstream River (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml amber (Pb)

1400 - Decon Equipment - Questa Valley Farms to show up

1415 - Valley arrived at 1415 - Left site - Returned to office

1430 - Packaged samples for shipping to ALS via FEDEX

[redacted]

ARCADIS

DAILY LOG

Project / No. Huntsman / LA 003185.000 Page 1 of 1

Site Location Sunland Park, NM Date 6-11-12

Subject GW Guaging / GW Sampling Prepared By D. Solon

Time	Description of Activities
0715	Calibrated PID = 100ppm
0730	Loaded Truck w/ guaging equipment - left for site
0805	Arrived at Huntsman site
0810	Tailgate meeting / JSA - AG
0815	Began Guaging wells *830 - ED w/ Huntsman on-site
1220	Completed well Guaging
1225	Lunch
1315	Loaded sampling equipment from ASARCO office
1330	Returned to Huntsman Site
1400	SETup on MW 17 for sampling
1405	Began purging
1440	Sampled MW-17 (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb)
1450	Field Dup (FD061113) (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb)
1500	Poured purge H2O into BBL located @ MW10 location
1515	SETup to sample MW-11 *1530 - ED w/ Huntsman on site
1525	Began Purging
1610	Sampled MW-11 (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb)
1640	Equipment Blank (EB061113) on Flow Interface probe.
1655	Left site - Return to office

ARCADIS

DAILY LOG

Project / No. Huntsman / LA003185.000 Page 1 of 1

Site Location Sunland Park, NM Date 6-12-13

Subject GW Sampling Prepared By D. Solon

Time	Description of Activities
0725	Arrived at site
0730	TA. Legato meeting w/ DS/AG
0735	Setup on MW 9S
0800	Began Purging MW 9S *830 - ED from Huntsman onsite
0835	Sampled MW-9S (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml metals (Pb)
0905	Setup on MW-3D for sampling
0920	Began purging .2 gpm/L - Valley Fence on site
0955	Sampled MW-3D (2) VOA's BTEX, (3) VOA's PAH, (1) 500ml metals (Pb)
	Collected Field Dup for the day - FD061213 (3) VOA's BTEX (3) VOA's PAH (1) 500ml metals (Pb)
	Decon Equipment
1015	ED leaving site - Setup on MW-3S for Sampling
1025	Began Purging MW-3S
1100	Sampled MW-3S (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml metals (Pb) (3) BTEX, (3) PAH (1) metal Pb
1120	Equipment Blank on Intafact probe - EB061213
1130	Dumped purged H2O into BBL @ MW-10 location
1140	Lunch - Back to office
1300	onsite - Setup on MW-6D for Sampling
1315	Began purging well
1350	Sampled MW-6D (3) BTEX (3) PAH (1) Metals (Pb)
1400	Decon Equipment
1405	Setup on MW-6S
1410	Began Purging on MW-6S
1445	Sampled MW-6S, DUP061213, MW-6S MS, MW-6S MSD
	(12) VOA's BTEX, (12) VOA's PAH, (4) metals (Pb)
1545	Finished sampling MW-6S
1550	Cooler to go to FEDEX
1555	Left site
1610	Packaged Samples for FEDEX
1700	Delivered Coolers to FEDEX

ARCADIS

DAILY LOG

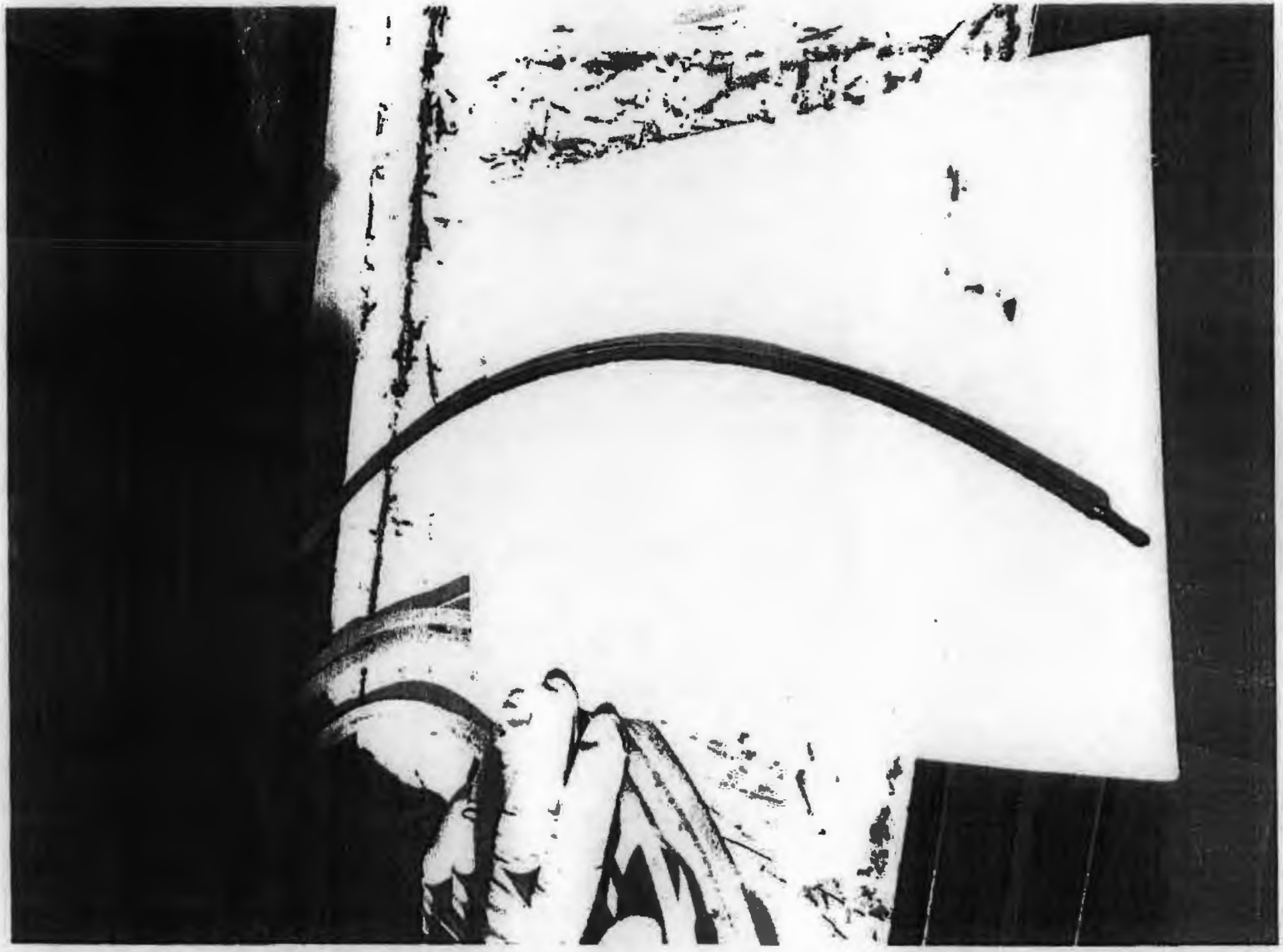
Project / No. Huntsman / LA000318S.000 Page ____ of ____

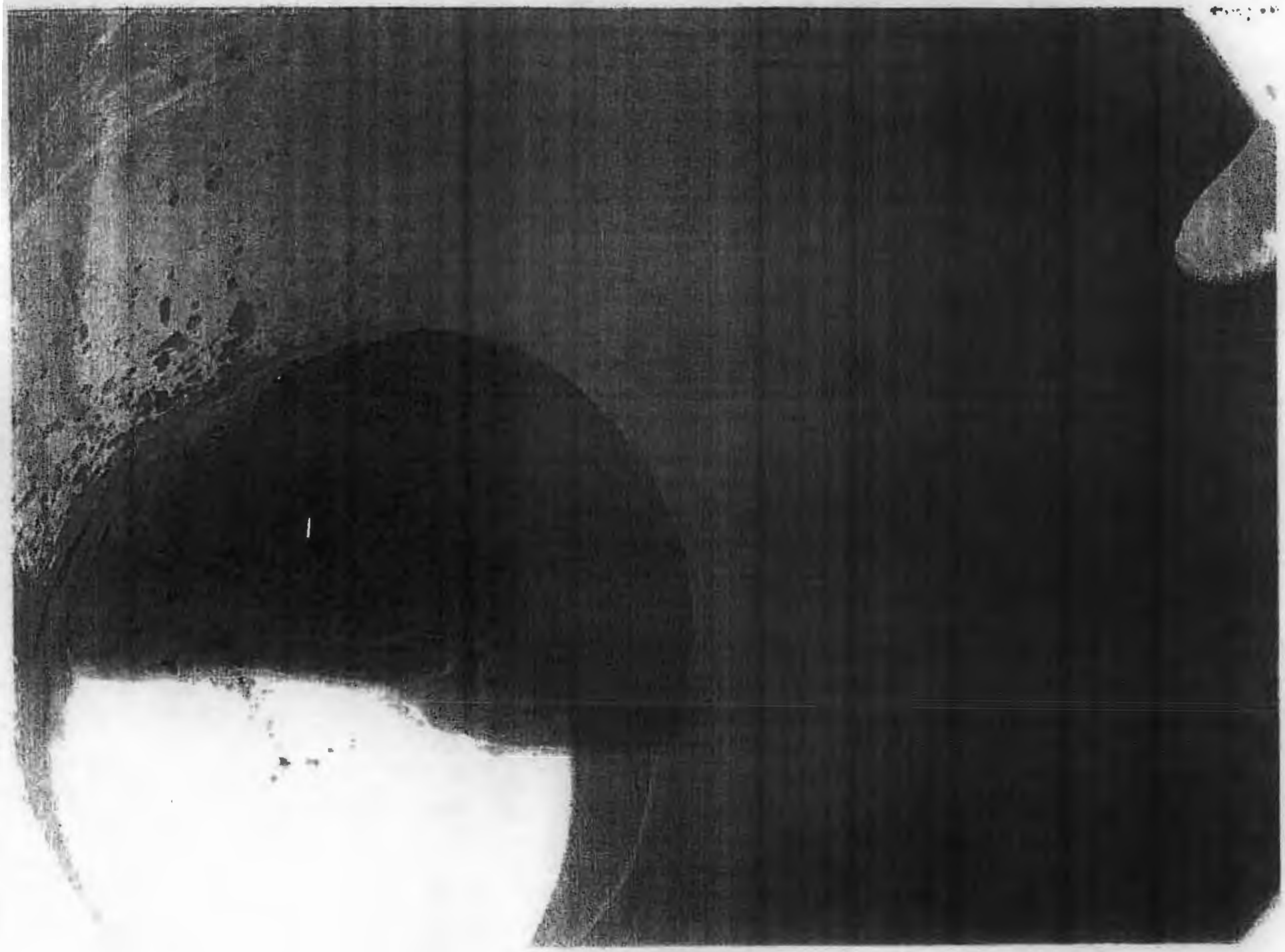
Site Location Sunland Park, NM Date 6-13-13

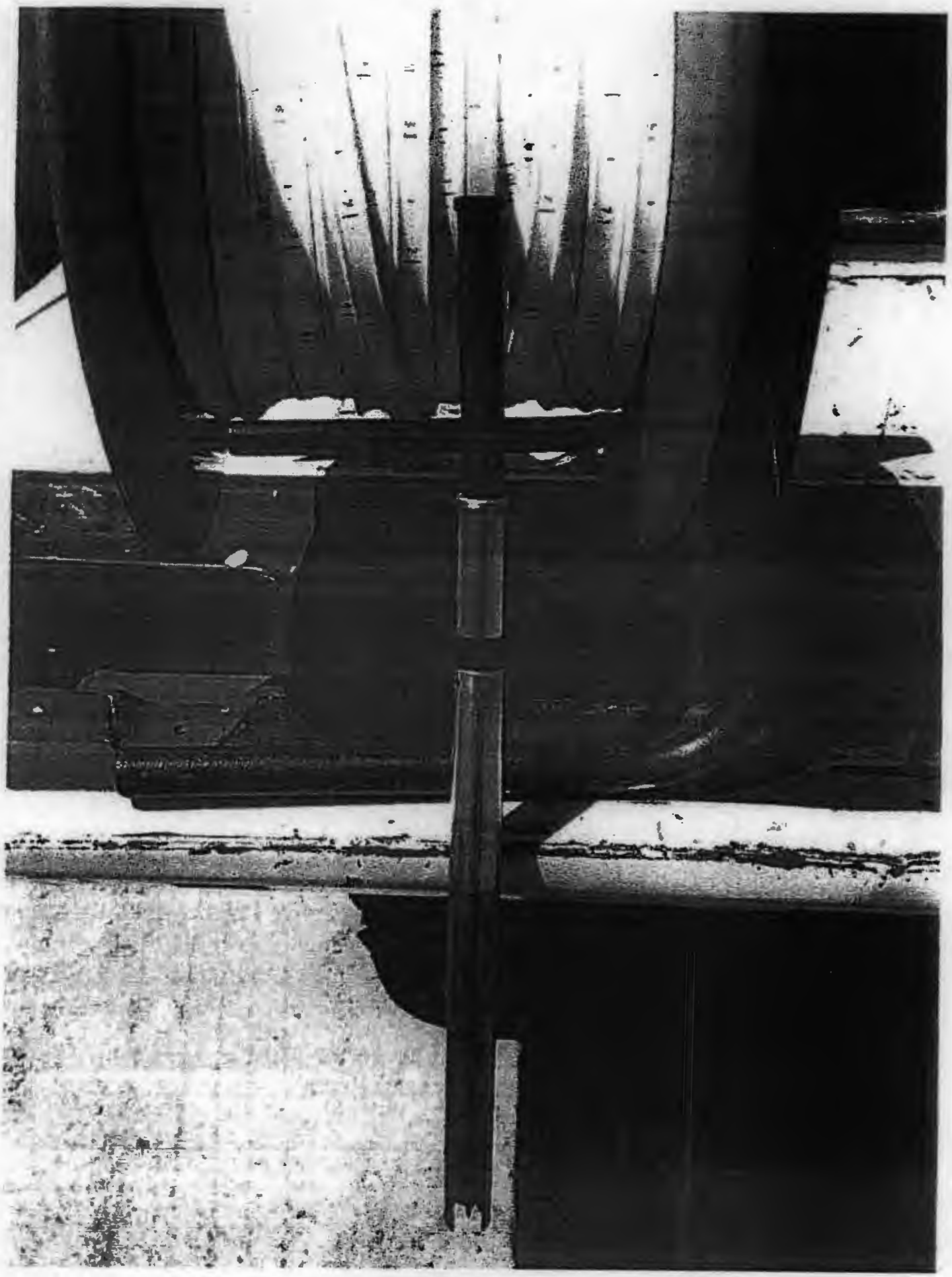
Subject GW Sampling / River sampling Prepared By DS

Time	Description of Activities
0725	Arrived on site - Began tailgate meeting w/ DS/AG
0730	Setup on MW-5 for sampling
0750	Began Purging MW-5 - Strong Hydro Odor - a lot of suspended solids - very slow recovery - pump at its lowest level setting
0820	Sampled MW-5 - (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml metals (Pb) - Field Blank taken - FB060313 - DI H2O
0830	- Decon equipment
0845	Setup on MW-08
0855	Began Purging MW-8
0935	Sampled MW-8 - (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml metals (Pb)
0955	Performed equipment blank on Interface Probe - DI H2O over probe - EB060313 - (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml metals (Pb)
1000	Setup on MW-10 ~~- SKI~~ Pumped hydrocarbon off top of H2O w/ peristaltic pump - RED Hydrocarbon - Thick - (3) pictures taken
1025	Began purging MW-10
1100	Sampled MW-10 (3) VOA's BTEX, (3) VOA's PAH
1130	Decon Equipment
1140	Lunch - Return to office
1305	Back on site - Setup on UPstream River Sample
1320	Sampled UPstream River Sample - (3) VOA's BTEX, (3) VOA's PAHs (1) 500ml metals (Pb)
1330	Equipment Blank on plastic River sampler - EB-2-060313 - DI (3) VOA's BTEX, (3) VOA's PAH (1) 500 ml
1345	Setup & Sampled Downstream River (3) VOA's BTEX, (3) VOA's PAH, (1) 500ml metals (Pb)
1400	Decon Equipment - Awaiting Valley Fence To show up
1415	- Valley fence Arrived - Returned to office
1430	- Packaged Samples for shipping to ALS via FEDEX

Our ref: C:\Users\dsolon\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\DKAL3464\Daily_log-fillin.doc







ARCADIS
Infrastructure, environment, buildings

Calibration Log

Project Number: LA003185.000
Date & Time: 6-11-13 0715
Personnel: DS
Barometric Pressure (mm/Hg):

Instrument Model: Mini RAE 3000
Instrument Serial #: 116492
Instrument Model: P
Instrument Serial #:

Equipment Inspection: Pass / Fail

Parameter	Temperature (°C)	Units	Standard	Initial Reading	Final Reading	Calibration Solution				End of the Day
						Brand	Date of Receipt	Lot #	Expiration Date	
pH 4		pH units								
pH 7		pH units								
pH 10		pH units								
Specific Conductivity		µS/cm at 25°C								
ORP		mV								
% Oxygen	---	%				---	---	---	---	
Turbidity	---	NTU								

Parameter	Temperature (°C)	Units	Standard	Final Reading	Acceptance Criteria		Calibration Solution				
							2nd Source?	Brand	Date of Receipt	Lot #	Expiration Date
pH 7 Check		pH units			± 0.1	Pass / Fail	Y / N				

Comments: Calibrated PID unit = 100ppm Reading 0715

Preferred temperature range: 25 ± 2 °C OR ±2 °C from expected sample temperature
Relevant Field Methods: SM 4500-H B (pH), USEPA 120.1 (Specific Conductance), SM 2550B (Temperature)

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.
10611 Harwin Drive, Suite 416
Houston, TX 77036
Toll-free: 866-981-PINE

Pine Environmental Services, Inc.

Instrument ID 5790
Description YSI 6920
Calibrated 6/6/2013 12:25:48PM

Group # 5 — **Range Acc %** 0.0000
Group Name Disolved Oxygen Span — **Reading Acc %** 3.0000
Stated Accy Pct of Reading — **Plus/Minus** 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	%	100.00	%	100.00	100.00	0.00%	Pass

Group # 6
Group Name Disolved Oxygen Zero
Test Performed: N/A — **As Found Result:** — **As Left Result:**

Test Instruments Used During the Calibration (As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
TX COND 1413 MS\CM #9405	TX COND 1413 mS/cm	Aurical	Conductivity Standard 1413 mS\cm	10216		3/8/2014
TX ORP	ORP 240 mV Lot#5100	Hanna	SL50005-500	4118		10/30/2017
TX PH 10 BUFFER	TX PH 10 BUFFER	VWR	SL10010-250	1208005		1/31/2014
TX PH 4 1110055	TX PH 4 1110055	VWR	SL10004-250	209097		8/30/2014
TX PH 7 1109529	TX PH 7 1109529	Aurical		1302031		1/30/2015
TX TURB 126 NTU	YSI 6073G TURBIDITY STND. 06\2013	YSI		12F253561		6/1/2013
VA AUTOCAL LOT# C255806	VA AUTO CAL #C250516	GFS	SL30005-5G	C255806		10/31/2013

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Gerry Timoney

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, LLC.
10611 Harwin Drive, Suite 416
Houston, TX 77036
Toll-free: 866-981-PINE

Pine Environmental Services, Inc.

Instrument ID 5790
Description YSI 6920
Calibrated 6/6/2013 12:25:48PM

Manufacturer YSI
Model Number 6920
Serial Number/ Lot Number 01J0214AA
Location Texas
Department

State Certified
Status Pass
Temp °C
Humidity %

Calibration Specifications

Group # 1
Group Name PH
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
7.00 / 7.00	PH	7.00	PH	7.00	7.00	0.00%	Pass
4.00 / 4.00	PH	4.00	PH	4.00	4.00	0.00%	Pass
10.00 / 10.00	PH	10.00	PH	10.00	10.00	0.00%	Pass

Group # 2
Group Name Turbidity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
0.00 / 0.00	NTU	0.00	NTU	0.00	0.00	0.00%	Pass
126.00 / 126.00	NTU	126.00	NTU	126.00	126.00	0.00%	Pass

Group # 3
Group Name Conductivity
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.000

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
1.413 / 1.413	ms/cm	1.413	ms/cm	1.413	1.413	0.00%	Pass

Group # 4
Group Name Redox (ORP)
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
240.00 / 240.00	mv	240.00	mv	240.00	240.00	0.00%	Pass

Group # 5
Group Name Disolved Oxygen Span
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | 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 1 of 1

COC ID: 83626

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Brickram NM	A	BTEX (8021)
Work Order		Project Number		B	Total Metals (6020/7000) Pb
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	LL PAHs (8270) LVI
Send Report To	Doug Salon	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) 471-3909	H	
Fax		Fax		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																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Doug Salon

Shipment Method: FedEx ON

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

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes: 10 Day TAT		
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp	QC Package: (Check One Box Below)
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			☐ Level 3 Std QC ☐ TRRP Checklist
						☐ Level III Std QC/Raw Data ☐ TRRP Level IV
						☐ Level V 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.

FedEx Express **NEW Package US Airbill** 8010 5630 6074

1 From *Please print and press hard.*

Date 6-13-13 Sender's FedEx Account Number 3552 [illegible] 9948 [illegible]

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

Company ARCADIS

Address 2301 W. PAN AM

Dept./Floor/Suite/Room

City EL PASO State TX ZIP 79922

2 Your Internal Billing Reference
First 24 characters will appear on invoice. LA 003185.0000

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.

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

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

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

City HOUSTON State TX ZIP 77099-4338

0455310327

The FedEx US Airbill has changed. See Section 4.
For shipments over 150 lbs., order the new FedEx Express Freight US Airbill.

Sender's Copy

4 Express Package Service
NOTE: Service order date changed. Please see back carefully.
Packages up to 150 lbs.

Next Business Day
- [X] 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.

2nd Business Day
- [ ] NEW! 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 — NOT available for 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.
- [X] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ x ____ in. ____ kg
- [ ] Cargo Aircraft Only

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

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. for Credit Card
Exp. Date

Total Packages: 1 Total Weight: ____ lbs. Total Declared Value*: $ 10 .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.

611

Rev. Date 11/10 • Part #150324 • ©1994-2010 FedEx • PRINTED IN U.S.A. SRS

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

4190N MESA ST
EL PASO, TX 79902

Location:	ELPKK
Device ID:	ELPKK-POS1
Employee:	2020672
Transaction:	78088261454

FIRST OVERNIGHT

801056306074	47.10 lb (S)	288.09

Scheduled Delivery Date 06/14/2013

Shipment subtotal:	288.09
Total Due:	288.09
FedEx Account: *****9486	288.09

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

June 13, 2013 4:21:27 PM

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 +1 304 356 5168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

Page 1 of 2

COC ID: 83622

ALS Environmental

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	/ Brickham NM	A	BTEX (8021)
Work Order		Project Number		B	Total Metals (6020/7000) Pb
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	LL PAHs (8270) LVI
Send Report To	Doug Solon	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) 471-3698	H	
Fax		Fax		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	NIW-17	6/11/13	1440	W		7	X	X	X								
2	FBC61113	6/11/13	1440	W		1	X	X	X								
3	NIW-11	6/11/13	1610	W		7	X	X	X								
4	LBC61113	6/11/13	1610	W		1	X	X	X								
5	MW-9S	6/12/13	0805	W		7	X	X	X								
6	NIW-3D	6/12/13	0955	W		7	X	X	X								
7	FBC61213	6/12/13	0955	W		7	X	X	X								
8	NIW-3S	6/12/13	1100	W		7	X	X	X								
9	LBC61213	6/12/13	1100	W		7	X	X	X								
10	NIW-6D	6/12/13	1350	W		7	X	X	X								

Sampler(s) Please Print & Sign

Shipment Method: Fedex GN

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

Results Due Date:

Relinquished by: DM Solon	Date: 6/12/13	Time: 1620	Received by:	Notes: 10 Day TAT	
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 I Std QC ☐ TRRP Checklist
☐ Level II Std QC/Raw Data ☐ TRRP Level IV
☐ Level V 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.

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
Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 266 7700 | York, PA +1 717 505 5280

Chain of Custody Form

Page 2 of 2

COC ID: 83625

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Brickham NM	A	BTEX (8021)
Work Order		Project Number		B	Total Metals (6020/7000) Pb
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	LL PAHs (8270) LVI
Send Report To	Doug Solon	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) 471-3698	H	
Fax		Fax		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-6S	6/12/13	1445	W		7	X	X	X								
2	DUP 061213	6/12/13		W		7	X	X	X								
3	MW-6S MS	6/12/13	1445	W		7	X	X	X								
4	MW-6S MSD	6/12/13	1445	W		7	X	X	X								
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign

Shipment Method: Fedex GN

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:
Tom Solon	6/13/13	1630	
Relinquished by:	Date:	Time:	Received by (Laboratory):
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

Notes: 10 Day TAT

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV 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.

FedEx Express **NEW Package US Airbill** FedEx Tracking Number 8010 5630 6122

Sender's Copy

1 From *Please print and press hard.*

Date 6-12-13 Sender's FedEx Account Number 3521-9948-6

Sender's Name D Solon Phone (915 603 1015

Company ARCADIS

Address 2301 W. PRISMO DR.

City EL PASO State TX ZIP 79922

2 Your Internal Billing Reference LA 00318 5TSNAL0000

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

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210 ☐ HOLD Weekday FedEx location address REQUIRED. for FedEx First Overnight.

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

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

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

City HOUSTON State TX ZIP 77099-4338

0455310327

The FedEx US Airbill has changed. See Section 4.

For air shipments over 150 lbs., order the new FedEx Express Freight US Airbill.

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.

Next Business Day

- [X] FedEx First Overnight — Earliest next business morning delivery to select locations. Saturday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Priority Overnight — Next business morning.* Priority shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2nd & 3rd Business Days

- [ ] NEW 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 NOT available for 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 delivery only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

[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:

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

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

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

Total Packages	Total Weight	Total Declared Value*
2	39 lbs.	$ 0 .00

*Your total 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.

611

Rev. Date 11/10 • Part #150824 • ©1994–2010 FedEx • PRINTED IN U.S.A. SRS

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

4190N MESA ST
EL PASO, TX 79902

Location:	ELPKK
Device ID:	ELPKK-POS1
Employee:	1883111
Transaction:	78088165656

FIRST OVERNIGHT

801056306122 795789187718	88.55 lb (S)	551.98

Scheduled Delivery Date 06/13/2013

Shipment subtotal:	551.98
Total Due:	551.98
FedEx Account: *****9486	551.98

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

June 12, 2013 5:16:38 PM

ARCADIS

Document Control Number:TGM - 1

TGM + *project number plus date as follows: xxxxxxx_xxxx.xxxx - 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:** El Paso/Sunland Park
Date: 6-11-13	**Time:** 0805	**Conducted by:** Doug Sodon	**Signature/Title:** Doug Sodon Field Supervisor
Client: Huntsman		**Client Contact:**	**Subcontractor companies:**

TRACKing the Tailgate Meeting

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

1 Gauging wells 3 Sampling River 5

2 Sampling wells 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: None

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 (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)	☐ 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	
☒ Chemical (i.e., fuel, acid, paint) (L M H) Hydrocarbons in GW	☒ Biological (i.e., ticks, poison ivy) (L M H) snakes / spiders	☐ Radiation (i.e., alpha, xrm, laser) (L M H)	
☐ 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)	

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	[ ] 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	0810		DS
Ana Gutierrez / ARCADIS / AG	0810		AG
Edward Gunderson / Huntsman / Edward E Gunderson	08:45		EEG

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
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 - 1.800.455.9155**

ARCADIS

Document Control Number:TGM - _____
TGM + *project number plus date as follows: xxxxxxx.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: Gilbert / Sunland Park, NM
Date: 6-12-13	Time: 0725	Conducted by: Doug Solom	Signature/Title: Senior Field Supervisor
Client: Huntsman		Client Contact:	Subcontractor companies:

TRACKing the Tailgate Meeting

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

1 Gauging WELLS 3 Sampling River 5 _____
2 Sampling WELLS 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: None

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 same review previous day's past 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 (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)	☐ 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
☒ Chemical (i.e., fuel, acid paint) (L M H) Hydrocarbons in GW	☒ Biological (i.e., ticks, poison ivy) (L M H) Spiders - Snakes	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☐ 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)

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	[ ] 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 /	0730		DS
Ana Gutierrez / Arcadis /	0730		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 1.678.373.9556 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: x.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:** 9915 / Sunbelt Rubber Ave
Date: 6-13-13	**Time:**	**Conducted by:** Doug Sober	**Signature/Title:** Field Supervisor
Client: Huntsman	**Client Contact:**		**Subcontractor companies:**

TRACKing the Tailgate Meeting

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

1 Sampling Wells 3 _____ 5 _____
2 Sampling Rivers 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 port 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)	☐ 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	
☒ Chemical (i.e., fuel, acid paint) (L M H) Hydrocarbons in GW	☒ Biological (i.e., ticks, poison ivy) (L M H) Snakes / Spiders	☐ Radiation (i.e., alpha, sun, laser) (L M H)	
☐ Sound (i.e., machinery, generators) (L M H)	☐ Personal (i.e. illness, night, not fit) (L M H)	☐ Driving (i.e. car, ATV, boat, dozer) (L M H)	

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	[ ] 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 Sohn / Arcadis /	0725		DS
Ana Gutierrez / Arcadis /	0725		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 1.720.344.3755.

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

MALCOLM PIRNIE

Page 1 of 1
Report No.

DAILY REPORT

Project No.: LA003185.003
Contract: Huntsman Qrtly Guaging
Location: El Paso, Tx

Date: 9-27-13
Weather: am:
pm:
Temperature: am: °F pm: °F

Contractor and Personnel:	Work Performed:
Doug Solon Garett Ferguson	- 9:25 arrived on site - 9:45 observed MW-14 - Used water/ Interface probe to get reading - DTW = 15.40 - Probe showed Black tar substance - Asphalt type smell - Appeared to be a very thin layer - unable to pump. 10:15 - Observed MW-10 - DTW = 9.85 Heavy RED Sheen - Thickness would not record on interface probe - Purged well of 2 Liters and recovered no product - RED Sheen seen on tubing. - Note: Heavy Rain recorded in Sept. - placed purged H2O in waste BBL. - Will make to place Rig sock absorbents into MW-14 and MW-10. 1100 - offsite
Material Received:	
Equipment: water / Interface Probe peristaltic pump Tubing	Subcontractor Work Comments:

Visitors:

c: Field Office
Project File

Signature: DM Solon

Huntsman Qrtly Gauging
SEPT 2013

DS / GP
9-27-13
925 - on site
945 - Observed MW 14 - Gauged w/ water interface probe DTW = 5.40
Black tar substance on end of probe - Asphalt smell - unable to pump - too thick

1015 - observed MW-10 DTW - 9.65
- Heavy Red sheen - thickness would would record on probe.
- purged well of 2 Liters - no product recovered - RED sheen seen on tubing.

- Placed purged H2O in onsite BBL

- Will order P.g socks to replace in wells.

1100 - off site

ARCADIS
Infrastructure · Water · Environment · Building

WELL GAUGING LOG

Site Name: Huntsman

Project Number: LA 003185.003

Date & Time: 9/27/13 945

Gauging Equations (before removal 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-10		Heavy Sheen	9.65		Heavy Sheen	2 Gal H2O	Heavy Red sheen
WP-14		Thick TAR	5.40		TAR		Black tar substance thin layer

Equipment and Decon Procedures

Gauging Equipment _____

Decon Procedures _____

file stamp

New Pig

1-800-HOT-HOGS® (468-4647)

Order Confirmation

Thank you for your order!

Your web order confirmation number is 1603652.

Your order has been received and is being processed. Your receipt has been emailed to you. Within one business day, you will receive an email with the status of your order. You will also receive an email when your product ships. If you have questions about your order, please call us at 1-800-HOT-HOGS (468-4647) or email us at hothogs@newpig.com.

Shipping Address	Billing Address	Payment Method
Arcadis	Arcadis	Credit Card AMEX
2301 West Paisano Dr.	2301 West Paisano Dr.	Credit Card # **********2005
El Paso, TX 79922	El Paso, TX 79922	Exp. Date 02/2015
ATTN: Douglas Solon		

Shipping Method(s)

Warehouse	Carrier	Est. Delivery
TIPTON, PA 16684	UPS GROUND	5-6 Days

Special Shipping Instructions

Please place "Former Asarco Smelter" on shipping label.

Order Messages

All items are in stock and will ship as requested.

Order Details

Item #	Qty	Description	Ships Within	Unit Price	Total Price
SKM401	1	PIG® Monitoring Well Skimming Sock 1.5" x 18" Absorbs up to 17 oz. per sock 30 socks	24 Hours	$74.00	$74.00

PRODUCT SUBTOTAL:	**$74.00**
Total freight charges:	$9.78
Tax:	$0.00
TOTAL:	**$83.78**

100% Money-Back Guarantee

If you're not happy with a product, for any reason, we'll refund every penny of your purchase price. That means we'll refund all sales taxes, shipping costs, and any other incidentals -- without tacking on a restocking fee or any other surprise charges. You get ALL your money back. Period.

One Pork Avenue, Tipton, PA 16684-0304 • 1-800-HOT-HOGS (468-4647)
Fax: 1-800-621-PIGS (621-7447) • Email: hothogs@newpig.com • Web: newpig.com

ARCADIS
Infrastructure · Water · Environment · Buildings

WELL GAUGING LOG

Site Name: Huntsman
Project Number: LA003185.000
Date & Time: 12/3/13 1010

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 Reading 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 Recovered (gallons)	Comments PID Reading (PPM)
✓1015	MW-15			15.88.				0.0 ppm
1019	WP-32	11.52		Dry				0.0 ppm
1023	WP-29D		Sheen	14.29				2.3 ppm Oxidation on Pick
1024	WP-29S		Sheen	14.37				52.3 ppm Oxidation on probe
✓1020	MW-16			~~Dry~~ Root Bound				0.1 ppm Roots on probe
1028	WP-31		Cap didn't come off					
1030	WP-07		Sheen	10.75				4.2 ppm Oxidation on probe
✓1348	MW-10		Sheen	9.75	Pig saturated with hydrocarbon			24.4 ppm
1346	WP-26S		Sheen	9.07				5.6 ppm
1033	WP-25		Odor	8.05				4.2 ppm Dick tapped, Oxidation
1035	WP-01		Sheen	10.57				72.3 ppm Slight oxidation
1040	WP-26D		Sheen	10.48				16.8 ppm Oxidation on Probe
1045	WP-02			8.87				0.5 ppm Oxidation on Probe
✓1047	MW-11			8.45				0.0 ppm
1049	WP-33			9.82				26.7 ppm Oxidation on Probe
1055	WP-30			11.12				0.0 ppm Slight oxidation
	~~WP-08~~							
✓1112	MW-05		Sheen	6.33				128.3 ppm Odor
-1330	MW-04			5.52				0.0 ppm Lock will not open
✓1127	MW-14			6.30				0.0 ppm Roots on probe
✓1146	MW-17			4.07				0.0 ppm Roots on probe
✓1108	MW-09			5.90				0.0 ppm Lock will not open
1134	WP-14		Unable	to read.	(Pig saturated with tar)		replace pig	1.0 ppm tar substance (thick)
1152	WP-03			dry				0.0 ppm
✓1310	MW-01			6.50				0.0 ppm
✓1315	MW-03D			6.72				0.0 ppm
✓1315	MW-03S			6.92				0.0 ppm
✓1107	MW-08			6.18				3.6 ppm
✓1320	MW-06D			8.03				0.0 ppm
✓1320	MW-06S		Slight odor	8.04				6.7 ppm

Equipment and Decon Procedures

Gauging Equipment: Probe, PID
Decon Procedures: ID H2O & ID H2O with Soap

File stamp

ARCADIS
Infrastructure · Water · Environment · Buildings

WELL GAUGING LOG

Site Name: Huntsman
Project Number: LA003185.000
Date & Time: 12/3/13 1010

Gauging Equations (before pumping) 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
✓1326 MW-09S			7.63				0.0ppm
✓1303 MW-12			6.05				0.0ppm

Equipment and Decon Procedures

Gauging Equipment: Prize, PID

Decon Procedures:

file stamp

ARCADIS (1)

WATER SAMPLING LOG

Page 1 of 1

Date 12/4/13

Project No	LA003855.000	Sample Personnel	Doug Solon, Ana Gutierrez
Site Name	Huntsman	Sample ID	MW-17
Site Location	Huntsman	Duplicate ID	FB120413
Site/Well No.	MW-17	Start pump	0755 / Stop pump 0833
Weather	59°F, windy	Start sampling	0830 / Stop sampling 0833

EVACUATION DATA

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

Depth to Water before/after (ft)	9.13 / 9.13	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	250 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)
0800		7.03	11.84	22.28	0.77		4.31	-92.2	9.13	organic smell,
0805		7.14	12.18	22.72	0.37		2.85	-119.6	9.13	yellowish H2O
0810		7.15	12.31	22.82	0.43		3.49	-91.7	9.13	
0815		7.14	12.45	22.85	0.30		2.85	-97.4	9.13	
0820		7.15	12.52	22.87	0.56		2.61	-104.8	9.13	
0825		7.14	12.57	22.92	0.17		2.52	-110.5	9.13	
0830	3 Gal	7.13	12.62	23.05	0.28		2.73	-124.4	9.13	
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
1 VOA - BTEX	40ml	3	HCl
2 VOA - BTEX	40 ml	3	HCl

Remarks: FB120413 (Field Blank) @ 0810
DI water

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 12/3/13

Project No	LA003185000	Sample Personnel	Dany Solon, Ana Gutierrez
Site Name	Huntsman	Sample ID	MW-11
Site Location	Huntsman	Duplicate ID	FB120313
Site/Well No.	MW-11	Start pump	1415 / Stop pump 1457
Weather	72 ~~68~~°F, Low winds	Start sampling	1450 / Stop sampling 1457

EVACUATION DATA

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

Depth to Water before/after (ft)	9.35 / 11.10	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	~250 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)
1405		7.25	8.281	~~24.73~~ 24.84	0.49		2.49	-174.8	9.35	yellowish, organic odor
1425		7.32	8.037	24.82	0.35		2.41	-199.7	9.82	
1430		7.22	8.141	24.74	0.36		3.07	-193.6	10.17	
1435		7.27	7.784	24.78	0.29		2.29	-212.4	10.60	
1440		7.55	7.550	24.69	0.19		2.58	-174.0	10.84	
1445		7.66	7.448	24.62	0.13		2.07	-130.3	11.00	
1450		7.70	7.409	24.57	0.14		2.06	-96.8	11.10	
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
3	VOA - BTEX	40ml	3	HCl
4	VOA - BTEX	40ml	3	HCl
5	VOA - BTEX	40ml	3	HCl

Remarks: Field Blank FB120313, 1430 (DI water)
Equipment Blank EB120313 1605 (DI water over probe)

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 12/4/13

Project No	LA003185.000	Sample Personnel	DS, AG		
Site Name	HUNTSMAN	Sample ID	MW-3D		
Site Location	HUNTSMAN	Duplicate ID			
Site/Well No.	MW-3D	Start pump	1014	Stop pump	1053
Weather	103°F, HOT WINDY	Start sampling	1050	Stop sampling	1053

EVACUATION DATA

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

Depth to Water before/after (ft)	7.06 / 7.07	Casing Diameter (in)	4 11
Water Column in Well [1] (ft)		Evacuation Vol./Rate	250 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 or °F)	DO [4] (mg/L)	DO [4] (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW (ft.)	Appearance (Clarity, Color, Odor)
1020		7.10	18.84	20.12	0.31		5.12	-50.1	7.06	Organic odor.
1025		7.09	18.98	20.08	0.28		3.88	-52.6	7.06	
1030		7.08	19.12	20.06	0.29		4.42	-59.9	7.07	
1035		7.09	19.17	20.35	0.41		3.96	-58.3	7.07	
1040		7.10	19.21	20.36	0.26		2.56	-51.0	7.07	
1045		7.09	19.26	20.28	0.25		1.68	-50.1	7.07	
1050	3 Gal	7.09	19.25	20.42	0.23		1.47	-51.8	7.07	
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" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

ARCADIS (5) **WATER SAMPLING LOG** Page 1 of 1

Project No LA003185.000 Sample Personnel DS, AG Date 12/4/13
Site Name Huntsman Sample ID MW-35
Site Location Huntsman Duplicate ID
Site/Well No. MW-35 Start pump ~~1058~~ 1122 Stop pump 1200
Weather 66°F, Strong winds Start sampling 1155 Stop sampling 1200

EVACUATION DATA

Description of Measuring Point (MP) North-end top of well casing MP Elevation (ft)
Depth to Water before/after (ft) 7.34 / 7.74 Casing Diameter (in) 4"
Water Column in Well [1] (ft) Evacuation Vol./Rate 250 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	Appearance (Clarity, Color, Odor)
1125		7.16	9.960	21.14	0.43		11.3	-113.5	7.34	Clear water
1130		7.09	10.01	20.84	0.18		12.7	-102.4	7.45	Organic odor
1135		7.11	10.02	20.95	0.19		16.6	-98.4	7.53	Flecks of organic
1140		7.10	10.14	20.91	0.10		16.9	-81.4	7.65	material in water
1145		7.15	10.21	20.91	0.10		15.1	-84.2	7.74	
1150		7.13	10.40	20.61	0.09		14.8	-86.2	7.74	
1155		7.13	10.68	20.98	0.10		6.15	-82.3	7.74	
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: Blader pump is INOP, replaced with 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 12/4/13

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-60D
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-60D	Start pump 1300	Stop pump 1338
Weather	60°F, very strong winds	Start sampling 1335	Stop sampling 1338

EVACUATION DATA

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

Depth to Water before/after (ft)	8.07 / 8.07	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	250 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 (ft)	Appearance (Clarity, Color, Odor)
1305		7.14	21.52	21.79	0.99	2.89	-57.6	8.07	Clear water
1310		7.17	21.76	21.78	0.19	2.00	-78.9	8.06	
1315		7.20	21.76	21.86	0.11	1.59	-80.8	8.07	
1320		7.20	21.75	21.57	0.10	1.33	-82.8	8.07	
1325		7.20	21.72	21.45	0.10	2.04	-83.9	8.07	
1330		7.20	21.68	21.48	0.11	1.76	-88.6	8.07	
1335		7.20	21.68	21.65	0.55	2.20	-74.3	8.07	
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" = 0.26 3.5" = 0.50 5" = 1.04 8" = 2.66

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

Date 12/4/13

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-65
Site Location	Huntsman	Duplicate ID	DUP120413
Site/Well No.	MW-65	Start pump	1340 Stop pump 1420
Weather	Cool, very strong winds	Start sampling	1415 Stop sampling 1430

EVACUATION DATA

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

Depth to Water before/after (ft)	8.62 / 9.23	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	250 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 (ft)	Appearance (Clarity, Color, Odor)
1345		6.98	12.57	22.50	0.32		3.40	-104.2	8.62	yellow water
1350		6.98	12.48	22.32	0.72		4.51	-90.6	8.93	Organic odor
1355		7.00	12.41	22.16	1.35		2.96	-81.2	8.93	
1400		6.99	12.35	22.07	1.51		3.16	-80.1	9.14	
1405		7.00	12.33	22.00	2.02		7.47	-59.5	9.20	
1410		7.02	12.31	21.87	2.52		9.88	-51.3	9.22	
1415	2 gal	7.04	12.29	21.74	2.83		14.0	-48.4	9.23	
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
1.	VOA - BTEX	40 ml	3	HCL
2.	VOA - BTEX	40 ml	3	HCL
3.	VOA - BTEX	40 ml	3	HCL
4.	VOA - BTEX	40 ml	3	HCL

Remarks: DUP120413, MW-65 MS, MW-65 MSD

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 12/4/13

Project No	LA003185.00	Sample Personnel	DS, AG
Site Name	~~Alton~~ Huntsman	Sample ID	MW-5
Site Location	Huntsman	Duplicate ID	
Site/Well No.	MW-5	Start pump 1450	Stop pump 1528
Weather	60°F, Very Strong Winds	Start sampling 1525	Stop sampling 1528

EVACUATION DATA

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

Depth to Water before/after (ft)	6.62 / 7.23	Casing Diameter (in)	4"
Water Column in Well [1] (ft)		Evacuation Vol./Rate	250 mg/L
Volume per foot in Well [2]		Pump Intake Depth (ft)	
Total Volume in Well [3]		Evacuation Method	Low flow purging

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)
1455		6.63	20.12	23.37	0.26		49.8	-117.8	6.62	hydrocarbon odo
1500		6.77	20.22	6.76	0.11		31.9	-130.4	6.75	gray water.
1505		6.76	20.23	23.2	0.02		21.8	-134.0	6.87	lots of suspended
1510		6.77	20.24	23.24	0.02		16.2	-144.4	7.01	solids
1515		6.77	20.24	23.26	0.01		16.0	-147.8	7.08	
1520		6.74	20.24	23.22	-0.01		13.3	-198.7	9.15	
1525	2.5G	6.76	20.24	23.21	-0.01		11.9	-213.3	7.23	
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: Peristaltic pump set at its lowest level

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 12/4/13

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-8
Site Location	Huntsman	~~Duplicate ID~~	FB120413
Site/Well No.	MW-8	Start pump	1540 Stop pump 1620
Weather	100°F, Very strong winds	Start sampling	1615 Stop sampling 1620

EVACUATION DATA

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

Depth to Water before/after (ft)	6.57 / 7.82	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	250 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	Appearance (Clarity, Color, Odor)
1545		7.14	8.715	23.22	0.35		8.35	-114.8	6.59	Hydrocarbon odor
1550		7.16	8.815	23.21	0.19		7.26	-114.5	6.77	Suspended solids
1555		7.19	8.835	23.22	0.18		6.92	-103.2	6.97	on water, yellowish
1600		7.18	8.842	23.23	0.09		8.22	-97.7	7.18	
1605		7.17	8.848	23.30	0.08		9.33	-99.7	7.42	
1610		7.16	8.852	23.30	0.09		8.08	-110.8	7.63	
1615		7.17	8.846	23.35	0.08		8.43	-101.9	7.82	
~~1620~~										
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
15 VOA - BTEX	40 ml	3	HCl
VOA - BTEX	40 ml	3	HCl

Remarks: Peristaltic pump set at its lowest rate.
Equipment Blank at 1625 FB120413

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 12/5/13

Project No	LA003185 000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	MW-10
Site Location	Huntsman	Duplicate ID	FB120513 EB120513
Site/Well No.	MW-10	Start pump 0858	Stop pump 0940
Weather	46°F, Showers, Cloudy	Start sampling 0935	Stop sampling 0940

EVACUATION DATA

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

Depth to Water before/after (ft)	10.07 / 10.78	Casing Diameter (in)	4"
Water Column in Well [1] (ft)	_____	Evacuation Vol./Rate	250 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) (%)	Turbidity (NTU)	ORP [4] (mV)	Other DTW (ft)	Appearance (Clarity, Color, Odor)
0905		7.15	11.18	21.15	0.59	4.83	-175.3	10.07	yellowish
0910		7.16	10.51	22.25	0.38	6.13	-160.8	10.29	hydrocarbon odor.
0915		7.16	10.36	22.61	0.26	5.09	-159.0	10.40	
0920		7.15	9.997	22.74	0.23	6.66	-157.3	10.52	
0925		7.15	9.826	22.69	0.21	5.73	-156.2	10.60	
0930		7.15	9.626	22.93	0.18	8.97	-162.4	10.70	
0935		7.14	9.503	22.94	0.16	4.58	-174.3	10.78	
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
1. VOA - BTEX	40ml	3	HCL
2. VOA - BTEX	40ml	3	HCL
VOA - BTEX	40ml	3	HCL

Remarks: Field Blank at 0935 (FB120513)
Equipment Blank at 0945 (EB120513)

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

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

ARCADIS (11)

WATER SAMPLING LOG

Page 1 of 1

Project No
Site Name Huntsman
Site Location Rio Grande
Site/Well No. Surf. Samp. (Upstream)
Weather

Sample Personnel DS, AG
Date 12/5/13
Sample ID Upstream
Duplicate ID EB-2-120513
Start pump
Stop pump
Start sampling 1010
Stop sampling

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)
1010		8.01	4.6660	13.66	8.72	46.9	-12.5		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
VOA - BTEX	40ml	3	HCl

Remarks: Equipment Blank (EB-2-120513) at 1015

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 12/5/13

Project No	LA003185.000	Sample Personnel	DS, AG
Site Name	Huntsman	Sample ID	Downstream
Site Location	Rio Grande	Duplicate ID	
Site/Well No.	Surf. Sample (Downstream)	Start pump	1030 — Stop pump
Weather		Start sampling	1030 — Stop sampling

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)
1030		8.30	4.762	11.69	11.06		10.70	20.1		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	40 ml	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" = 0.26	3.5" = 0.50	5" = 1.04	8" = 2.66	

(9) Huntsman Semi-Sampling - DEC 20

Doug Solon, Ana Gutierrez

12-3-13 10:10 - Arrived on site
10:15 - Tailgate meeting
10:25 - Began gauging wells
12:00 - Broke for Lunch
12:30 - Flat tire on PU Truck - Replaced
12:50 - Back on-site - Cont. Guaging wells
13:30 - on MW-17 to sample - well Root bound will attempt to with weights tomorrow
14:15 - setup on MW-11 and began purging
14:50 - Sampled MW-11 for BTEX - Field blank at MW-11 at 1430 FD120313
1500 - Decon Equipment - noticed 2nd tire Leaking air - Side wall cut
1505 - Left site - Took truck to Firestone for tire repairs.
1605 - Performed equipment Blank back at shop - all tires repaired. EB120313 Doug Solon

CONT: 12-4-13 (10)

7:45 - on site - Tailgate MEETING
1:55 - Set up on MW-17 and attempt to break thru Roots bound around well.
820 - Began purging on MW-17 - 250ml/m
830 - Sampled Field Blank for the day - ~~FB~~ EB120413 - 3 VOA's - DI - BTEX
830 - Sampled MW-17: 3 VOA's - BTEX
835 - Decon Equipment
845 - Returned to office - another flat tire
915 - Setup on MW-95
925 - Began Purging well 95
955 - Sampled MW-95 - 3 VOA's - BTEX
1000 - Decon Equipment
1010 - Setup on MW-30
1020 - Began Purging MW-30
1050 - Sampled MW-30 - 3 VOA's - BTEX
1055 - Decon Equipment - Setup on MW-35
1115 - Bladder Pump in MW-35 Inop Replaced w/ Peristaltic pump
1125 - Began purging MW-35
11:55 - Sampled MW-35 - 3 VOA's - BTEX
12:10 - Decon Equipment
12:05 - Broke for Lunch

DSolon

- monitoring event - 12-7-05

12 1250 - Back on site - setup on MW-6D
1305 - Began Purging MW-6D
1335 - Sampled MW-6D . 3 VOA's BTEX
1340 - Decon Equipment setup on MW-6S
1345 - Began purging MW-6S
1415 - Sampled MW-6S - 3 VOA's BTEX
- Dup on MW-6S - EB 120413 - 3 VOA's BTEX
- QA/QC MW-6SMS - 3 VOA's BTEX
- MW 6SMSD - 3 VOA's BTEX
1430 - Decon Equipment
- on site to dump purge H2O into DRUMS
1450 - setup on MW-05
1455 - Began purging MW-05
1525 - Sampled MW-05 - 3 VOA's BTEX
1530 - Decon Equipment
1540 - Set up on MW-08
1545 - Began Purging MW-08
1615 - Sampled MW-08 - 3 VOA's BTEX
1620 - Decon Equipment
1625 - Field Equipment Blank - EB120413 3 VOA's BTEX
1630 - Dumped purged H2O into DRUMS
1640 - off site - Returned to office

D Sailor

8:20 - on site - TAILGATE meeting
915 - setup on MW-10
925 - Began purging MW-10
930 - sampled MW-10 - 3 VOA's - BTEX
- Field Blank - EB120513 - 3 VOA's - BTEX
940 - DECON Equipment
945 - Equipment Blank - EB120513 - 3 VOA's
1000 - Setup on upstream surface H2O sample
1010 - Sampled upstream - 3 VOA's - BTEX
1015 - Equipment Blank on Sampler - EB-2-120513 - 3 VOA's - BTEX
1025 - Setup on Downstream Location
1030 - Sampled Downstream - 3 VOA's - BTEX
1035 - Decon Equipment
1040 - Returned to office

D Sailor

ARCADIS

DAILY LOG

Project / No. LA003185.001.0002 Page 1 of 1

Site Location Huntsman - Sunland Park Date 12-3-13

Subject _____ Prepared By Doug Solon

Time	Description of Activities
1010	Arrived on site
1015	Tailgate w/ Doug Solon / Ana Gutierrez
1025	Began ~~set~~ guaging wells
1200	Lunch
1230	Flat tire on P.U. Truck - Replaced w/ spare
1250	Back on site - Continued guaging wells
1350	Set up on MW-17 - well Rod bound - will attempt to add weights to tubing in order to break thru.
1415	Setup on mw-11 - Began Purging
1430	Field Blank - FB120313 - 3 VOA's BTEX
1450	Sampled MW-11 - 3 VOA's BTEX
1500	Decon Equipment - noticed 2nd Tire Leaking air on side wall - Tire cut
1505	Left site - Took truck to Firestone for tire repairs.
1605	Back at office - Performed equipment Blank

ARCADIS

DAILY LOG

Project / No. LA 003185.001.0002 Page 1 of 2

Site Location Huntsman - Sunland Park, NM Date 12-4-13

Subject _____ Prepared By Dan Solan

Time	Description of Activities
745	onsite - Tailgate meeting
755	Setup on MW-17 and attempt to break thru roots in casing
800	Began Purging on MW-17
810	Sampled Field Blank - FB120413 - 3 VOA's - DI - BTEX
830	Sampled MW-17 3 VOA's BTEX
835	Decon Equipment
845	Returned to office - Another Flat tire - replaced w/ spare
915	Setup on MW-9S
925	Began Purging well 9S
955	Sampled MW-9S 3 VOA's - BTEX
1000	Decon Equipment
1010	Setup on MW-3D
1020	Began Purging MW-3D
1050	Sampled MW-3D - 3 VOA's - BTEX
1055	Decon equipment - Setup on MW-3S
1115	Bladder Pump in MW-3S INOP - Replaced + used Peristaltic pump
1125	Began purging MW-3S
1155	Sampled MW-3S - 3 VOA's - BTEX
1200	Decon equipment
1205	Lunch
1250	Back on site - setup on MW-6D
1305	Began Purging MW-6D
1335	Sampled MW-6D - 3 VOA's - BTEX
1340	Decon Equipment Setup on MW-6S
1348	Began Purging MW-6S

ARCADIS

DAILY LOG

Project / No. LA003105.001.0002 Page 2 of 2

Site Location Huntsman - Sunland Park Date 12-4-13

Subject _____ Prepared By D. Solon

Time	Description of Activities
1415	Sampled MW-65 - 3 VOA's BTEX, DUP on MW-65 - FD120413
	3 VOA's - BTEX, RADC MW-65 MS - 3 VOA's BTEX, MW-65 MSD -
	3 VOA's - BTEX
1430	Decon Equipment - Back on site to dump ~~barge~~ purge H2O
	into BBLS
1450	Set up on MW-5
1455	Began Purging MW-05
1525	Sampled MW-05 - 3 VOA's - BTEX
1530	Decon Equipment
1540	Set up on MW-08
1545	Began Purging MW-08
1615	Sampled MW-08 3 VOA's - BTEX
1620	Decon Equipment
1625	Equipment Blank on o/w Probe - EB120413 - 3 VOA's - BTEX
1630	Dumped purge H2O into BBLS
1640	offsite - Returned to office

Our ref: C:\Users\dsolon\AppData\Local\Microsoft Windows\Temporary Internet Files\Content Outlook\DKAL3464\Daily_log-fil...

ARCADIS

DAILY LOG

Project / No. LA 003185.001.0002 Page ____ of ____

Site Location Huntsman - Sunland Park Date 12-5-13

Subject ____ Prepared By D. Solo

Time	Description of Activities
820	on Site - Tailgate meeting
825	Setup on MW-10
905	Began Purging MW-10
935	Sampled MW-10 - 3 VOA's - BTEX
	- Field Blank - FB 120513 - 3 VOA's - BTEX
940	Decon Equipment
945	Equipment Blank - EB 120513 - 3 VOA's - BTEX
1000	Setup on UPSTREAM Surface H2O Sample
1010	Sampled UPSTREAM SURFACE - 3 VOA's BTEX
1015	Equipment Blank on Sampler - EB-2-1205 13 - 3 VOA's BTEX
1025	SETUP on Downstream Location
1030	Sampled Downstream SURFACE 3 VOA's - BTEX
1035	Decon Equipment
1040	Returned to office
1300	Packaged samples for shipment to ALS/GEOTECH Equipment
1410	Delivered Samples to FEDEX & GEOTECH Equipment

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | 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 1 of 3

COC ID: 86753

ALS Project Manager: | ALS Work Order #:

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.001	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@arcad	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-11	12-3-13	1450	W	HCl	3-VOA	X										
2	FB120313	12-3-13	1430	W	HCl	3-VOA	X										
3	EB120313	12-3-13	1605	W	HCl	3-VOA	X										
4	FB120413	12-4-13	810	W	HCl	3-VOA	X										
5	MW-17	12-4-13	830	W	HCl	3-VOA	X										
6	MW-9S	12-4-13	955	W	HCl	3-VOA	X										
7	MW-3D	12-4-13	1055	W	HCl	3-VOA	X										
8	MW-3S	12-4-13	1155	W	HCl	3-VOA	X										
9	MW-6D	12-4-13	1335	W	HCl	3-VOA	X										
10	MW-6S	12-4-13	1415	W	HCl	3-VOA	X										

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

Shipment Method: FEDEX

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

Results Due Date:

Relinquished by:	Date:	Time:	Received by:
Doug Solon	12/5/13	1300	
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 II Std QC ☐ TRRP Check_list
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV 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.

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 266 7700 | York, PA +1 717 505 5288

ALS Environmental

Chain of Custody Form

COC ID: 86752

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.001	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) 471-3698	H	
Fax		Fax		I	
e-Mail Address	chad.DGerolamo@arcadis-us.com	e-Mail Address	accountspayable.administration@arcad	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	FD120413	12-4-13	1415	W	HCl	3-VOA	X										
2	MW-65 MS	12-4-13	1415	W	HCl	3-VOA	X										
3	MW-65 MSD	12-4-13	1415	W	HCl	3-VOA	X										
4	MW-05	12-4-13	1525	W	HCl	3-VOA	X										
5	MW-08	12-4-13	1615	W	HCl	3-VOA	X										
6	EB120413	12-4-13	1625	W	HCl	3-VOA	X										
7	~~MW-10~~ MW-10	12-5-13	935	W	HCl	3-VOA	X										
8	FB122513	12-5-13	935	W	HCl	3-VOA	X										
9	EB120513	12-5-13	945	W	HCl	3-VOA	X										
10																	

Sampler(s) Please Print & Sign: Doug Solar Douglas M. Solar

Shipment Method: FEDEX

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

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
DM Tom	12/5/13	1300		
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 II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV 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.

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 268 7700 | York, PA +1 717 505 5280

ALS Environmental

Chain of Custody Form

COC ID: 86751

ALS Project Manager:		ALS Work Order #:	

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.001	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@arcad	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	UPSTREAM	12-5-13	1010	W	HCl	3-VOA	X										
2	EB-2-120513	12-5-13	1015	W	HCl	3-VOA	X										
3	Downstream	12-5-13	1030	W	HCl	3-VOA	X										
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: Doug Solon, Douglas M Solon

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:	Notes:
DM Solon	12/05/13	1300		
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 II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other / EDD
- ☐ TRRP CheckList
- ☐ TRRP Level IV

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 Express Package US Airbill

FedEx Tracking Number 8996 7018 1007

1 From Please print and press hard.

Date 12-5-13 Sender's FedEx Account Number 3521 [illegible] 6

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

Company ARCADIS

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

City EL PASO State TX ZIP 79922

2 Your Internal Billing Reference LA003185.0004

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

Sender's Copy

4 Express Package Service * To most locations.

Packages up to 150 lbs. For packages over 150 lbs., use the appropriate FedEx Express Freight service.

- ☐ 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. Not applicable.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Not applicable.

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 ____ by

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 — FedEx Acct. No. or Credit Card No. ____ Exp. Date ____ ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

Total Packages	Total Weight	Total Declared Value*
1	31 lbs.	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.

611

Rev. Date 11/13 • Part #163334 • ©1994–2013 FedEx • PRINTED IN U.S.A. SRS

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

ARCADIS

Document Control Number:TGM - _____
TGM + *project number plus date as follows: xxxxxxx.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:** EIP/Scotland Park	
Date: 12/3/13	**Time:** 1015	**Conducted by:** P. Salon	**Signature/Title:** P. Salon / Field Supervisor
Client:		**Client Contact:**	**Subcontractor companies:**

TRACKing the Tailgate Meeting

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

1 WELL Gauging 3 _____ 5 _____

2 WELL Sampling 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 :**

☐ 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., ladder, scaffold, trips) (L M H)	☐ Motion (i.e., traffic, moving water) (L M H)	☐ Mechanical (i.e. augers, motors) (L M H)
☒ Electrical (i.e. utilities, lightning) (L M H) trips, slips, Falls	☐ Pressure (i.e. gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) (L M H) cold
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☒ Biological (i.e. ticks, poison ivy) (L M H) snakes / Bugs/spiders	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☐ Sound (i.e. machinery, generators) (L M H)	☐ Personal (i.e. alone, night, no 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
Doug Sorlen ARCADIS	1017	1610	DMS
Ana Gutierrez ARCADIS	1017	1610	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 1.678.373.9556 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

Document Control Number:TGM - _____
TGM + *project number plus date as follows: xxxxxxx.xx.xx.xxxx - 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:** EIP / Sonland Park
Date: 12/4/13	**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 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 :**

☐ 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 (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)	☐ Mechanical (i.e. augers, motors) (L M H)
☒ Electrical (i.e. utilities, lightning) Trips / Slips / Fall (L M H)	☐ Pressure (i.e. gas cylinders, wells) (L M H)	☒ Environment (i.e., heat, cold, ice) Cold (L M H)
☐ Chemical (i.e., fuel, acid, paint) (L M H)	☒ Biological (i.e. ticks, poison ivy) Spiders / Insects (L M H)	☐ Radiation (i.e., alpha, sun, laser) (L M H)
☐ Sound (i.e. machinery, generators) (L M H)	☐ Personal (i.e. alone, night, no fit) (L M H)	☒ Driving (i.e. car, ATV, 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 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	[ ] Respirstory 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 DSolon	7.30		DS
Ana Gutierrez ARCADIS	750		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 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 1.678.371.9515 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

Document Control Number:TGM - _____
TGM + *project number plus date as follows: xxxxxxx xx.x.xxxx - 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: Hinkley			**Project Location:** EIP/Scotland Park, Am
Date: 12/5/13	**Time:**	**Conducted by:** D. Solan	**Signature/Title:** 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 :**

☐ 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 (**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)	☐ Mechanical (i.e. augers, motors) (L M H)
☒ Electrical (i.e. utilities, lightning) (L M H) Trips, slips, Falls	☐ Pressure (i.e. gas cylinders, wells) (L M H)	☒ Environment (i.e. heat, cold, ice) (L M H) Rain / cold
☐ Chemical (i.e., fuel, acid paint) (L M H)	☒ Biological (i.e. ticks poison ivy) (L M H) insects	☐ Radiation (i.e. alpha, sun, laser) (L M H)
☐ Sound (i.e. machinery, generators) (L M H)	☐ Personal (i.e. alone, tight, not fit) (L M H)	☒ Driving (i.e. car, ATV, boat, dozer) (L M H) of 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
- [ ] Engineering controls
- [X] General PPE Usage
- [ ] Personal Hygiene
- [X] Emergency Action Plan (EAP)
- [ ] JLA to be developed/used *(specify)*
- [ ] Substitution
- [ ] Administrative controls
- [ ] Hearing Conservation
- [ ] Exposure Guidelines
- [ ] Fall Protection
- [ ] LPO conducted *(specify job/JLA)*
- [ ] Isolation
- [Y] Monitoring
- [ ] Respiratory Protection
- [ ] Decon Procedures
- [ ] Work Zones/Site Control
- [ ] 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	820		DMS
Ana Gutierrez ARCADIS			

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 1.678.373.8556 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

Appendix B

Laboratory Analytical Reports

ALS Environmental

21-Jun-2013

Tim Ratchford
ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge, LA 70816

Tel: (225) 292-1004
Fax:

Re: Brickham NM Semi Annual GW Sampling Work Order: **1306546**

Dear Tim,

ALS Environmental received 13 samples on 13-Jun-2013 07:20 AM for the analyses 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.

The total number of pages in this report is 37.

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

Sincerely,

Bethany McDaniel

Electronically approved by: Dayna.Fisher

Bethany McDaniel
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 21-Jun-13

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: **1306546**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1306546-01	MW-17	Water		6/11/2013 14:40	6/13/2013 07:20	☐
1306546-02	FB061113	Water		6/11/2013 14:40	6/13/2013 07:20	☐
1306546-03	MW-11	Water		6/11/2013 16:10	6/13/2013 07:20	☐
1306546-04	EB061113	Water		6/11/2013 16:10	6/13/2013 07:20	☐
1306546-05	MW-9S	Water		6/12/2013 08:05	6/13/2013 07:20	☐
1306546-06	MW-3D	Water		6/12/2013 09:55	6/13/2013 07:20	☐
1306546-07	FB061213	Water		6/12/2013 09:55	6/13/2013 07:20	☐
1306546-08	MW-3S	Water		6/12/2013 11:00	6/13/2013 07:20	☐
1306546-09	EB061213	Water		6/12/2013 11:00	6/13/2013 07:20	☐
1306546-10	MW-6D	Water		6/12/2013 13:50	6/13/2013 07:20	☐
1306546-11	MW-6S	Water		6/12/2013 14:45	6/13/2013 07:20	☐
1306546-12	DUP061213	Water		6/12/2013	6/13/2013 07:20	☐
1306546-13	Trip Blank 053013-19	Water		6/12/2013	6/13/2013 07:20	☐

Client:	ARCADIS U.S., Inc.
Project:	Brickham NM Semi Annual GW Sampling
Work Order:	1306546

Case Narrative

Batch R149341, Total BTEX by Method SW8021, Sample 1306553-30: MS is for an unrelated sample.

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: MW-17
Lab ID: 1306546-01
Collection Date: 6/11/2013 02:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	**6.8**		**1.0**	**µg/L**	1	6/19/2013 11:04 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 11:04 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 11:04 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 11:04 AM
Surr: 4-Bromofluorobenzene	*115*		*75-129*	*%REC*	1	6/19/2013 11:04 AM
Surr: Trifluorotoluene	*106*		*75-130*	*%REC*	1	6/19/2013 11:04 AM
METALS			**SW6020**		Prep Date: **6/17/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/17/2013 06:30 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Acenaphthylene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Anthracene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Benz(a)anthracene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Benzo(a)pyrene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Benzo(b)fluoranthene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Benzo(g,h,i)perylene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Benzo(k)fluoranthene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Chrysene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Dibenz(a,h)anthracene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Fluoranthene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Fluorene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Indeno(1,2,3-cd)pyrene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Naphthalene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Phenanthrene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Pyrene	ND		0.101	µg/L	1	6/18/2013 03:40 AM
Surr: 2-Fluorobiphenyl	*61.0*		*40-125*	*%REC*	1	6/18/2013 03:40 AM
Surr: 4-Terphenyl-d14	*61.5*		*40-135*	*%REC*	1	6/18/2013 03:40 AM
Surr: Nitrobenzene-d5	*113*		*41-120*	*%REC*	1	6/18/2013 03:40 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: FB061113
Lab ID: 1306546-02
Collection Date: 6/11/2013 02:40 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 01:30 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 01:30 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 01:30 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 01:30 AM
Surr: 4-Bromofluorobenzene	*112*		*75-129*	*%REC*	1	6/19/2013 01:30 AM
Surr: Trifluorotoluene	*100*		*75-130*	*%REC*	1	6/19/2013 01:30 AM
METALS			**SW6020**		Prep Date: **6/17/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/17/2013 06:45 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Acenaphthylene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Anthracene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Benz(a)anthracene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Benzo(a)pyrene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Benzo(b)fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Benzo(g,h,i)perylene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Benzo(k)fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Chrysene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Dibenz(a,h)anthracene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Fluorene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Indeno(1,2,3-cd)pyrene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Naphthalene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Phenanthrene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Pyrene	ND		0.102	µg/L	1	6/18/2013 04:00 AM
Surr: 2-Fluorobiphenyl	*89.6*		*40-125*	*%REC*	1	6/18/2013 04:00 AM
Surr: 4-Terphenyl-d14	*82.9*		*40-135*	*%REC*	1	6/18/2013 04:00 AM
Surr: Nitrobenzene-d5	*93.9*		*41-120*	*%REC*	1	6/18/2013 04:00 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: MW-11
Lab ID: 1306546-03
Collection Date: 6/11/2013 04:10 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 11:22 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 11:22 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 11:22 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 11:22 AM
Surr: 4-Bromofluorobenzene	*115*		*75-129*	*%REC*	1	6/19/2013 11:22 AM
Surr: Trifluorotoluene	*107*		*75-130*	*%REC*	1	6/19/2013 11:22 AM
METALS			**SW6020**		Prep Date: **6/17/2013**	Analyst: **ALR**
Lead	ND		0.0100	mg/L	2	6/18/2013 12:19 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	**0.311**		**0.102**	**µg/L**	1	6/18/2013 04:19 AM
Acenaphthylene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Anthracene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Benz(a)anthracene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Benzo(a)pyrene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Benzo(b)fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Benzo(g,h,i)perylene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Benzo(k)fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Chrysene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Dibenz(a,h)anthracene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Fluorene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Indeno(1,2,3-cd)pyrene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Naphthalene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Phenanthrene	ND		0.102	µg/L	1	6/18/2013 04:19 AM
Pyrene	**0.184**		**0.102**	**µg/L**	1	6/18/2013 04:19 AM
Surr: 2-Fluorobiphenyl	*111*		*40-125*	*%REC*	1	6/18/2013 04:19 AM
Surr: 4-Terphenyl-d14	*77.3*		*40-135*	*%REC*	1	6/18/2013 04:19 AM
Surr: Nitrobenzene-d5	*89.6*		*41-120*	*%REC*	1	6/18/2013 04:19 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: EB061113
Lab ID: 1306546-04
Collection Date: 6/11/2013 04:10 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 01:12 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 01:12 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 01:12 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 01:12 AM
Surr: 4-Bromofluorobenzene	*113*		*75-129*	*%REC*	1	6/19/2013 01:12 AM
Surr: Trifluorotoluene	*101*		*75-130*	*%REC*	1	6/19/2013 01:12 AM
METALS			**SW6020**		Prep Date: **6/17/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/17/2013 06:55 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Acenaphthylene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Anthracene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Benz(a)anthracene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Benzo(a)pyrene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Benzo(b)fluoranthene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Benzo(g,h,i)perylene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Benzo(k)fluoranthene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Chrysene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Dibenz(a,h)anthracene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Fluoranthene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Fluorene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Indeno(1,2,3-cd)pyrene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Naphthalene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Phenanthrene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Pyrene	ND		0.104	µg/L	1	6/18/2013 04:39 AM
Surr: 2-Fluorobiphenyl	*78.5*		*40-125*	*%REC*	1	6/18/2013 04:39 AM
Surr: 4-Terphenyl-d14	*83.4*		*40-135*	*%REC*	1	6/18/2013 04:39 AM
Surr: Nitrobenzene-d5	*107*		*41-120*	*%REC*	1	6/18/2013 04:39 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: MW-9S
Lab ID: 1306546-05
Collection Date: 6/12/2013 08:05 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 11:40 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 11:40 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 11:40 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 11:40 AM
Surr: 4-Bromofluorobenzene	*107*		*75-129*	*%REC*	1	6/19/2013 11:40 AM
Surr: Trifluorotoluene	*105*		*75-130*	*%REC*	1	6/19/2013 11:40 AM
METALS			**SW6020**		Prep Date: **6/17/2013**	Analyst: **ALR**
Lead	ND		0.0250	mg/L	5	6/18/2013 12:24 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Acenaphthylene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Anthracene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Benz(a)anthracene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Benzo(a)pyrene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Benzo(b)fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Benzo(g,h,i)perylene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Benzo(k)fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Chrysene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Dibenz(a,h)anthracene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Fluoranthene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Fluorene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Indeno(1,2,3-cd)pyrene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Naphthalene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Phenanthrene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Pyrene	ND		0.102	µg/L	1	6/18/2013 04:59 AM
Surr: 2-Fluorobiphenyl	*103*		*40-125*	*%REC*	1	6/18/2013 04:59 AM
Surr: 4-Terphenyl-d14	*76.0*		*40-135*	*%REC*	1	6/18/2013 04:59 AM
Surr: Nitrobenzene-d5	*79.2*		*41-120*	*%REC*	1	6/18/2013 04:59 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: MW-3D
Lab ID: 1306546-06
Collection Date: 6/12/2013 09:55 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 01:48 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 01:48 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 01:48 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 01:48 AM
Surr: 4-Bromofluorobenzene	*108*		*75-129*	*%REC*	1	6/19/2013 01:48 AM
Surr: Trifluorotoluene	*97.3*		*75-130*	*%REC*	1	6/19/2013 01:48 AM
METALS			**SW6020**		Prep Date: **6/17/2013**	Analyst: **ALR**
Lead	ND		0.0250	mg/L	5	6/18/2013 12:29 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Acenaphthylene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Anthracene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Benz(a)anthracene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Benzo(a)pyrene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Benzo(b)fluoranthene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Benzo(g,h,i)perylene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Benzo(k)fluoranthene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Chrysene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Dibenz(a,h)anthracene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Fluoranthene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Fluorene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Indeno(1,2,3-cd)pyrene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Naphthalene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Phenanthrene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Pyrene	ND		0.105	µg/L	1	6/18/2013 05:19 AM
Surr: 2-Fluorobiphenyl	*76.8*		*40-125*	*%REC*	1	6/18/2013 05:19 AM
Surr: 4-Terphenyl-d14	*84.9*		*40-135*	*%REC*	1	6/18/2013 05:19 AM
Surr: Nitrobenzene-d5	*100*		*41-120*	*%REC*	1	6/18/2013 05:19 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: FB061213
Lab ID: 1306546-07
Collection Date: 6/12/2013 09:55 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 09:53 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 09:53 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 09:53 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 09:53 AM
Surr: 4-Bromofluorobenzene	*106*		*75-129*	*%REC*	1	6/19/2013 09:53 AM
Surr: Trifluorotoluene	*97.1*		*75-130*	*%REC*	1	6/19/2013 09:53 AM
METALS			**SW6020**		Prep Date: **6/17/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/17/2013 07:09 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Acenaphthylene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Anthracene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Benz(a)anthracene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Benzo(a)pyrene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Benzo(b)fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Benzo(g,h,i)perylene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Benzo(k)fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Chrysene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Dibenz(a,h)anthracene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Fluorene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Indeno(1,2,3-cd)pyrene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Naphthalene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Phenanthrene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Pyrene	ND		0.104	µg/L	1	6/18/2013 05:38 AM
Surr: 2-Fluorobiphenyl	*81.6*		*40-125*	*%REC*	1	6/18/2013 05:38 AM
Surr: 4-Terphenyl-d14	*85.9*		*40-135*	*%REC*	1	6/18/2013 05:38 AM
Surr: Nitrobenzene-d5	*89.3*		*41-120*	*%REC*	1	6/18/2013 05:38 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.

Project: Brickham NM Semi Annual GW Sampling **Work Order:** 1306546

Sample ID: MW-3S **Lab ID:** 1306546-08

Collection Date: 6/12/2013 11:00 AM **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 10:11 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 10:11 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 10:11 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 10:11 AM
Surr: 4-Bromofluorobenzene	*107*		*75-129*	*%REC*	1	6/19/2013 10:11 AM
Surr: Trifluorotoluene	*96.6*		*75-130*	*%REC*	1	6/19/2013 10:11 AM
METALS			**SW6020**		Prep Date: **6/18/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/19/2013 10:12 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Acenaphthylene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Anthracene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Benz(a)anthracene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Benzo(a)pyrene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Benzo(b)fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Benzo(g,h,i)perylene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Benzo(k)fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Chrysene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Dibenz(a,h)anthracene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Fluorene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Indeno(1,2,3-cd)pyrene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Naphthalene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Phenanthrene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Pyrene	ND		0.104	µg/L	1	6/18/2013 05:58 AM
Surr: 2-Fluorobiphenyl	*81.8*		*40-125*	*%REC*	1	6/18/2013 05:58 AM
Surr: 4-Terphenyl-d14	*79.5*		*40-135*	*%REC*	1	6/18/2013 05:58 AM
Surr: Nitrobenzene-d5	*95.4*		*41-120*	*%REC*	1	6/18/2013 05:58 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: EB061213
Lab ID: 1306546-09
Collection Date: 6/12/2013 11:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 09:35 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 09:35 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 09:35 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 09:35 AM
Surr: 4-Bromofluorobenzene	*108*		*75-129*	*%REC*	1	6/19/2013 09:35 AM
Surr: Trifluorotoluene	*96.6*		*75-130*	*%REC*	1	6/19/2013 09:35 AM
METALS			**SW6020**		Prep Date: **6/18/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/19/2013 10:16 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Acenaphthylene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Anthracene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Benz(a)anthracene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Benzo(a)pyrene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Benzo(b)fluoranthene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Benzo(g,h,i)perylene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Benzo(k)fluoranthene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Chrysene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Dibenz(a,h)anthracene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Fluoranthene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Fluorene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Indeno(1,2,3-cd)pyrene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Naphthalene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Phenanthrene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Pyrene	ND		0.102	µg/L	1	6/18/2013 06:18 AM
Surr: 2-Fluorobiphenyl	*87.1*		*40-125*	*%REC*	1	6/18/2013 06:18 AM
Surr: 4-Terphenyl-d14	*72.5*		*40-135*	*%REC*	1	6/18/2013 06:18 AM
Surr: Nitrobenzene-d5	*103*		*41-120*	*%REC*	1	6/18/2013 06:18 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: MW-6D
Lab ID: 1306546-10
Collection Date: 6/12/2013 01:50 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 10:29 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 10:29 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 10:29 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 10:29 AM
Surr: 4-Bromofluorobenzene	*108*		*75-129*	*%REC*	1	6/19/2013 10:29 AM
Surr: Trifluorotoluene	*95.8*		*75-130*	*%REC*	1	6/19/2013 10:29 AM
METALS			**SW6020**		Prep Date: **6/18/2013**	Analyst: **ALR**
Lead	ND		0.0250	mg/L	5	6/20/2013 01:39 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Acenaphthylene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Anthracene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Benz(a)anthracene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Benzo(a)pyrene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Benzo(b)fluoranthene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Benzo(g,h,i)perylene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Benzo(k)fluoranthene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Chrysene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Dibenz(a,h)anthracene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Fluoranthene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Fluorene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Indeno(1,2,3-cd)pyrene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Naphthalene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Phenanthrene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Pyrene	ND		0.103	µg/L	1	6/18/2013 06:38 AM
Surr: 2-Fluorobiphenyl	*78.5*		*40-125*	*%REC*	1	6/18/2013 06:38 AM
Surr: 4-Terphenyl-d14	*76.5*		*40-135*	*%REC*	1	6/18/2013 06:38 AM
Surr: Nitrobenzene-d5	*59.5*		*41-120*	*%REC*	1	6/18/2013 06:38 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: MW-6S
Lab ID: 1306546-11
Collection Date: 6/12/2013 02:45 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 10:47 AM
Toluene	ND		1.0	µg/L	1	6/19/2013 10:47 AM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 10:47 AM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 10:47 AM
Surr: 4-Bromofluorobenzene	*119*		*75-129*	*%REC*	1	6/19/2013 10:47 AM
Surr: Trifluorotoluene	*105*		*75-130*	*%REC*	1	6/19/2013 10:47 AM
METALS			**SW6020**		Prep Date: **6/18/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/19/2013 08:10 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Acenaphthylene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Anthracene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Benz(a)anthracene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Benzo(a)pyrene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Benzo(b)fluoranthene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Benzo(g,h,i)perylene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Benzo(k)fluoranthene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Chrysene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Dibenz(a,h)anthracene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Fluoranthene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Fluorene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Indeno(1,2,3-cd)pyrene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Naphthalene	**0.209**		**0.103**	**µg/L**	1	6/18/2013 02:40 AM
Phenanthrene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Pyrene	ND		0.103	µg/L	1	6/18/2013 02:40 AM
Surr: 2-Fluorobiphenyl	*60.1*		*40-125*	*%REC*	1	6/18/2013 02:40 AM
Surr: 4-Terphenyl-d14	*77.6*		*40-135*	*%REC*	1	6/18/2013 02:40 AM
Surr: Nitrobenzene-d5	*98.6*		*41-120*	*%REC*	1	6/18/2013 02:40 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
Work Order: 1306546
Sample ID: DUP061213
Lab ID: 1306546-12
Collection Date: 6/12/2013
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/20/2013 01:27 PM
Toluene	ND		1.0	µg/L	1	6/20/2013 01:27 PM
Ethylbenzene	ND		1.0	µg/L	1	6/20/2013 01:27 PM
Xylenes, Total	ND		3.0	µg/L	1	6/20/2013 01:27 PM
Surr: 4-Bromofluorobenzene	*112*		*75-129*	*%REC*	1	6/20/2013 01:27 PM
Surr: Trifluorotoluene	*96.1*		*75-130*	*%REC*	1	6/20/2013 01:27 PM
METALS			**SW6020**		Prep Date: **6/18/2013**	Analyst: **ALR**
Lead	ND		0.00500	mg/L	1	6/19/2013 10:26 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	**0.391**		**0.105**	**µg/L**	1	6/18/2013 06:57 AM
Acenaphthylene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Anthracene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Benz(a)anthracene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Benzo(a)pyrene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Benzo(b)fluoranthene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Benzo(g,h,i)perylene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Benzo(k)fluoranthene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Chrysene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Dibenz(a,h)anthracene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Fluoranthene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Fluorene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Indeno(1,2,3-cd)pyrene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Naphthalene	**0.306**		**0.105**	**µg/L**	1	6/18/2013 06:57 AM
Phenanthrene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Pyrene	ND		0.105	µg/L	1	6/18/2013 06:57 AM
Surr: 2-Fluorobiphenyl	*74.1*		*40-125*	*%REC*	1	6/18/2013 06:57 AM
Surr: 4-Terphenyl-d14	*75.3*		*40-135*	*%REC*	1	6/18/2013 06:57 AM
Surr: Nitrobenzene-d5	*91.5*		*41-120*	*%REC*	1	6/18/2013 06:57 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.

Project: Brickham NM Semi Annual GW Sampling **Work Order:** 1306546

Sample ID: Trip Blank 053013-19 **Lab ID:** 1306546-13

Collection Date: 6/12/2013 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 06:56 PM
Toluene	ND		1.0	µg/L	1	6/19/2013 06:56 PM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 06:56 PM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 06:56 PM
Surr: 4-Bromofluorobenzene	*109*		*75-129*	*%REC*	1	6/19/2013 06:56 PM
Surr: Trifluorotoluene	*93.0*		*75-130*	*%REC*	1	6/19/2013 06:56 PM

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

Batch ID: **R149151** Instrument ID **BTEX1** Method: **SW8021B**

MBLK Sample ID: **BBLKW-130618-R149151** Units: **µg/L** Analysis Date: **6/18/2013 06:29 PM**

Client ID: Run ID: **BTEX1_130618A** SeqNo: **3258760** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	34.53	1.0	*30*	*0*	*115*	*75-129*	*0*			
Surr: Trifluorotoluene	30.57	1.0	*30*	*0*	*102*	*75-130*	*0*			

LCS Sample ID: **BLCSW-130618-R149151** Units: **µg/L** Analysis Date: **6/18/2013 06:11 PM**

Client ID: Run ID: **BTEX1_130618A** SeqNo: **3258759** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.94	1.0	20	0	99.7	75-126				
Toluene	19.96	1.0	20	0	99.8	75-125				
Ethylbenzene	20.33	1.0	20	0	102	75-125				
Xylenes, Total	61.18	3.0	60	0	102	75-125				
Surr: 4-Bromofluorobenzene	34.17	1.0	*30*	*0*	*114*	*75-129*	*0*			
Surr: Trifluorotoluene	31.31	1.0	*30*	*0*	*104*	*75-130*	*0*			

MS Sample ID: **1306674-01AMS** Units: **µg/L** Analysis Date: **6/18/2013 11:41 PM**

Client ID: Run ID: **BTEX1_130618A** SeqNo: **3258775** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.69	1.0	20	0	103	75-126				
Toluene	24.9	1.0	20	1.555	117	75-125				
Ethylbenzene	20.79	1.0	20	0	104	75-125				
Xylenes, Total	69.71	3.0	60	10.13	99.3	75-125				
Surr: 4-Bromofluorobenzene	36.26	1.0	*30*	*0*	*121*	*75-129*	*0*			
Surr: Trifluorotoluene	35.09	1.0	*30*	*0*	*117*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **R149151** Instrument ID **BTEX1** Method: **SW8021B**

MSD Sample ID: **1306674-01AMSD** Units: **µg/L** Analysis Date: **6/18/2013 11:59 PM**

Client ID: Run ID: **BTEX1_130618A** SeqNo: **3258776** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.92	1.0	20	0	110	75-126	20.69	5.8	20	
Toluene	25.81	1.0	20	1.555	121	75-125	24.9	3.6	20	
Ethylbenzene	20.9	1.0	20	0	105	76-125	20.79	0.558	20	
Xylenes, Total	72.76	3.0	60	10.13	104	75-125	69.71	4.27	20	
Surr: 4-Bromofluorobenzene	35.92	1.0	*30*	*0*	*120*	*75-129*	*36.26*	*0.932*	*20*	
Surr: Trifluorotoluene	34.87	1.0	*30*	*0*	*116*	*75-130*	*35.09*	*0.636*	*20*	

The following samples were analyzed in this batch: 1306546-02A 1306546-04A 1306546-06A

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **R149215** Instrument ID **BTEX1** Method: **SW8021B**

MBLK Sample ID: **BBLKW2-130618-R149215** Units: **µg/L** Analysis Date: **6/19/2013 04:13 AM**
Client ID: Run ID: **BTEX1_130618B** SeqNo: **3259834** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	32.54	1.0	*30*	*0*	*108*	*75-129*	*0*			
Surr: Trifluorotoluene	29.66	1.0	*30*	*0*	*98.9*	*75-130*	*0*			

LCS Sample ID: **BLCSW2-130618-R149215** Units: **µg/L** Analysis Date: **6/19/2013 03:55 AM**
Client ID: Run ID: **BTEX1_130618B** SeqNo: **3259833** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.1	1.0	20	0	101	75-126				
Toluene	19.99	1.0	20	0	100	75-125				
Ethylbenzene	20.45	1.0	20	0	102	75-125				
Xylenes, Total	60.55	3.0	60	0	101	75-125				
Surr: 4-Bromofluorobenzene	33.28	1.0	*30*	*0*	*111*	*75-129*	*0*			
Surr: Trifluorotoluene	30.47	1.0	*30*	*0*	*102*	*75-130*	*0*			

MS Sample ID: **1306546-11AMS** Units: **µg/L** Analysis Date: **6/19/2013 08:24 AM**
Client ID: **MW-6S** Run ID: **BTEX1_130618B** SeqNo: **3259847** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1112	50	1000	0	111	75-126				
Toluene	1012	50	1000	0	101	75-125				
Ethylbenzene	1116	50	1000	0	112	75-125				
Xylenes, Total	3059	150	3000	0	102	75-125				
Surr: 4-Bromofluorobenzene	1800	50	*1500*	*0*	*120*	*75-129*	*0*			
Surr: Trifluorotoluene	1599	50	*1500*	*0*	*107*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **R149215** Instrument ID **BTEX1** Method: **SW8021B**

MSD Sample ID: **1306546-11AMSD** Units: **µg/L** Analysis Date: **6/19/2013 08:42 AM**

Client ID: **MW-6S** Run ID: **BTEX1_130618B** SeqNo: **3259848** Prep Date: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1022	50	1000	0	102	75-126	1112	8.42	20	
Toluene	1007	50	1000	0	101	75-125	1012	0.468	20	
Ethylbenzene	1012	50	1000	0	101	76-125	1116	9.78	20	
Xylenes, Total	3053	150	3000	0	102	75-125	3059	0.198	20	
Surr: 4-Bromofluorobenzene	1648	50	*1500*	*0*	*110*	*75-129*	*1800*	*8.8*	*20*	
Surr: Trifluorotoluene	1512	50	*1500*	*0*	*101*	*75-130*	*1599*	*5.59*	*20*	

The following samples were analyzed in this batch:

1306546-01A	1306546-03A	1306546-05A
1306546-07A	1306546-08A	1306546-09A
1306546-10A	1306546-11A	

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **R149217** Instrument ID **BTEX1** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-130619-R149217** Units: **µg/L** Analysis Date: **6/19/2013 12:57 PM**
Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259863** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	30.95	1.0	*30*	*0*	*103*	*75-129*	*0*			
Surr: Trifluorotoluene	27.83	1.0	*30*	*0*	*92.8*	*75-130*	*0*			

LCS Sample ID: **BLCSW1-130619-R149217** Units: **µg/L** Analysis Date: **6/19/2013 12:36 PM**
Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259862** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	22.33	1.0	20	0	112	75-126				
Toluene	22.24	1.0	20	0	111	75-125				
Ethylbenzene	22.49	1.0	20	0	112	75-125				
Xylenes, Total	66.95	3.0	60	0	112	75-125				
Surr: 4-Bromofluorobenzene	32.71	1.0	*30*	*0*	*109*	*75-129*	*0*			
Surr: Trifluorotoluene	29.92	1.0	*30*	*0*	*99.7*	*75-130*	*0*			

MS Sample ID: **1306545-01AMS** Units: **µg/L** Analysis Date: **6/19/2013 05:45 PM**
Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259871** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.55	1.0	20	0	108	75-126				
Toluene	21.5	1.0	20	0	107	75-125				
Ethylbenzene	21.71	1.0	20	0	109	75-125				
Xylenes, Total	64.45	3.0	60	0	107	75-125				
Surr: 4-Bromofluorobenzene	32.9	1.0	*30*	*0*	*110*	*75-129*	*0*			
Surr: Trifluorotoluene	29.22	1.0	*30*	*0*	*97.4*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **R149217** Instrument ID **BTEX1** Method: **SW8021B**

MSD Sample ID: **1306545-01AMSD** Units: **µg/L** Analysis Date: **6/19/2013 06:03 PM**

Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259872** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.3	1.0	20	0	102	75-126	21.55	5.98	20	
Toluene	20.07	1.0	20	0	100	75-125	21.5	6.86	20	
Ethylbenzene	20.31	1.0	20	0	102	76-125	21.71	6.69	20	
Xylenes, Total	60.18	3.0	60	0	100	75-125	64.45	6.85	20	
Surr: 4-Bromofluorobenzene	32.16	1.0	*30*	*0*	*107*	*75-129*	*32.9*	*2.27*	*20*	
Surr: Trifluorotoluene	28.69	1.0	*30*	*0*	*95.6*	*75-130*	*29.22*	*1.81*	*20*	

The following samples were analyzed in this batch: 1306546-13A

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **R149341** Instrument ID **BTEX1** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-130620-R149341** Units: **µg/L** Analysis Date: **6/20/2013 11:57 AM**
Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261896** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	32.34	1.0	*30*	*0*	*108*	*75-129*		*0*		
Surr: Trifluorotoluene	26.57	1.0	*30*	*0*	*88.6*	*75-130*		*0*		

LCS Sample ID: **BLCSW1-130620-R149341** Units: **µg/L** Analysis Date: **6/20/2013 11:39 AM**
Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261895** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.96	1.0	20	0	105	75-126				
Toluene	20.79	1.0	20	0	104	75-125				
Ethylbenzene	21.08	1.0	20	0	105	75-125				
Xylenes, Total	63.74	3.0	60	0	106	75-125				
Surr: 4-Bromofluorobenzene	30.84	1.0	*30*	*0*	*103*	*75-129*		*0*		
Surr: Trifluorotoluene	27.93	1.0	*30*	*0*	*93.1*	*75-130*		*0*		

MS Sample ID: **1306553-30AMS** Units: **µg/L** Analysis Date: **6/20/2013 04:26 PM**
Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261906** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	665	10	200	501.9	81.6	75-126				
Toluene	177	10	200	0	88.5	75-125				
Ethylbenzene	427.5	10	200	278.8	74.4	75-125				S
Xylenes, Total	550	30	600	39.76	85	75-125				
Surr: 4-Bromofluorobenzene	356.9	10	*300*	*0*	*119*	*75-129*		*0*		
Surr: Trifluorotoluene	348.7	10	*300*	*0*	*116*	*75-130*		*0*		

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **R149341** Instrument ID **BTEX1** Method: **SW8021B**

MSD Sample ID: **1306553-30AMSD** Units: **µg/L** Analysis Date: **6/20/2013 04:44 PM**

Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261907** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	669.8	10	200	501.9	84	75-126	665	0.713	20	
Toluene	178.2	10	200	0	89.1	75-125	177	0.67	20	
Ethylbenzene	431.2	10	200	278.8	76.2	76-125	427.5	0.856	20	
Xylenes, Total	553.9	30	600	39.76	85.7	75-125	550	0.701	20	
Surr: 4-Bromofluorobenzene	357.8	10	*300*	*0*	*119*	*75-129*	*356.9*	*0.256*	*20*	
Surr: Trifluorotoluene	352.6	10	*300*	*0*	*118*	*75-130*	*348.7*	*1.12*	*20*	

The following samples were analyzed in this batch: 1306546-12A

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **70832** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW2-061713-70832** Units: **mg/L** Analysis Date: **6/17/2013 03:50 PM**
Client ID: Run ID: **ICP7500_130617A** SeqNo: **3255919** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	ND	0.0050								

LCS Sample ID: **MLCSW2-061713-70832** Units: **mg/L** Analysis Date: **6/17/2013 03:55 PM**
Client ID: Run ID: **ICP7500_130617A** SeqNo: **3255920** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.0513	0.0050	0.05	0	103	80-120				

MS Sample ID: **1306538-02DMS** Units: **mg/L** Analysis Date: **6/17/2013 04:24 PM**
Client ID: Run ID: **ICP7500_130617A** SeqNo: **3255927** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05319	0.0050	0.05	0.00311	100	80-120				

MSD Sample ID: **1306538-02DMSD** Units: **mg/L** Analysis Date: **6/17/2013 04:29 PM**
Client ID: Run ID: **ICP7500_130617A** SeqNo: **3255928** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05351	0.0050	0.05	0.00311	101	80-120	0.05319	0.6	15	

DUP Sample ID: **1306538-02DDUP** Units: **mg/L** Analysis Date: **6/17/2013 04:14 PM**
Client ID: Run ID: **ICP7500_130617A** SeqNo: **3255924** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	ND	0.0050					0.00311	0	25	

The following samples were analyzed in this batch:

1306546-01C	1306546-02C	1306546-03C
1306546-04C	1306546-05C	1306546-06C
1306546-07C		

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **70852** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW2-061813-70852** Units: **mg/L** Analysis Date: **6/19/2013 08:16 AM**
Client ID: Run ID: **ICP7500_130618A** SeqNo: **3258508** Prep Date: **6/18/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	ND	0.0050								

LCS Sample ID: **MLCSW2-061813-70852** Units: **mg/L** Analysis Date: **6/19/2013 08:21 AM**
Client ID: Run ID: **ICP7500_130618A** SeqNo: **3258509** Prep Date: **6/18/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04881	0.0050	0.05	0	97.6	80-120				

MS Sample ID: **1306546-11CMS** Units: **mg/L** Analysis Date: **6/19/2013 08:25 PM**
Client ID: **MW-6S** Run ID: **ICP7500_130619A** SeqNo: **3260308** Prep Date: **6/18/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05121	0.0050	0.05	0.001333	99.8	80-120				

MSD Sample ID: **1306546-11CMSD** Units: **mg/L** Analysis Date: **6/19/2013 08:29 PM**
Client ID: **MW-6S** Run ID: **ICP7500_130619A** SeqNo: **3260309** Prep Date: **6/18/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05244	0.0050	0.05	0.001333	102	80-120	0.05121	2.37	15	

DUP Sample ID: **1306546-11CDUP** Units: **mg/L** Analysis Date: **6/19/2013 08:15 PM**
Client ID: **MW-6S** Run ID: **ICP7500_130619A** SeqNo: **3260306** Prep Date: **6/18/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	ND	0.0050					0.001333	0	25	

The following samples were analyzed in this batch:

1306546-08C	1306546-09C	1306546-10C
1306546-11C	1306546-12C	

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

MBLK Sample ID: **SBLKL1-130617-70846** Units: **µg/L** Analysis Date: **6/18/2013 01:22 AM**

Client ID: Run ID: **SV-6_130617B** SeqNo: **3261620** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	0.10								
Acenaphthylene	ND	0.10								
Anthracene	ND	0.10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(g,h,i)perylene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Fluoranthene	ND	0.10								
Fluorene	ND	0.10								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Naphthalene	ND	0.10								
Phenanthrene	ND	0.10								
Pyrene	ND	0.10								
Surr: 2-Fluorobiphenyl	2.648	0.10	*3.03*	*0*	*87.4*	*40-125*	*0*			
Surr: 4-Terphenyl-d14	2.419	0.10	*3.03*	*0*	*79.8*	*40-135*	*0*			
Surr: Nitrobenzene-d5	2.767	0.10	*3.03*	*0*	*91.3*	*41-120*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

LCS Sample ID: **SLCSL1-130617-70846** Units: **µg/L** Analysis Date: **6/18/2013 01:41 AM**
Client ID: Run ID: **SV-6_130617B** SeqNo: **3261621** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	2.283	0.10	3.03	0	75.3	40-140				
Acenaphthylene	2.688	0.10	3.03	0	88.7	40-140				
Anthracene	2.559	0.10	3.03	0	84.4	40-140				
Benz(a)anthracene	2.439	0.10	3.03	0	80.5	40-140				
Benzo(a)pyrene	2.197	0.10	3.03	0	72.5	40-140				
Benzo(b)fluoranthene	1.926	0.10	3.03	0	63.5	40-140				
Benzo(g,h,i)perylene	1.998	0.10	3.03	0	65.9	40-140				
Benzo(k)fluoranthene	2.463	0.10	3.03	0	81.3	40-140				
Chrysene	2.677	0.10	3.03	0	88.3	40-140				
Dibenz(a,h)anthracene	2.01	0.10	3.03	0	66.3	40-140				
Fluoranthene	2.374	0.10	3.03	0	78.3	40-140				
Fluorene	2.129	0.10	3.03	0	70.3	40-140				
Indeno(1,2,3-cd)pyrene	2.252	0.10	3.03	0	74.3	40-140				
Naphthalene	2.143	0.10	3.03	0	70.7	40-140				
Phenanthrene	2.193	0.10	3.03	0	72.4	40-140				
Pyrene	2.442	0.10	3.03	0	80.6	40-140				
Surr: 2-Fluorobiphenyl	2.322	0.10	*3.03*	*0*	*76.6*	*40-125*		*0*		
Surr: 4-Terphenyl-d14	2.464	0.10	*3.03*	*0*	*81.3*	*40-135*		*0*		
Surr: Nitrobenzene-d5	2.568	0.10	*3.03*	*0*	*84.7*	*41-120*		*0*		

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

LCSD Sample ID: **SLCSDL1-130617-70846** Units: **µg/L** Analysis Date: **6/18/2013 02:01 AM**
Client ID: Run ID: **SV-6_130617B** SeqNo: **3261622** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	2.336	0.10	3.03	0	77.1	40-140	2.283	2.3	25	
Acenaphthylene	2.754	0.10	3.03	0	90.9	40-140	2.688	2.43	25	
Anthracene	2.593	0.10	3.03	0	85.6	40-140	2.559	1.33	25	
Benz(a)anthracene	2.336	0.10	3.03	0	77.1	40-140	2.439	4.32	25	
Benzo(a)pyrene	1.975	0.10	3.03	0	65.2	40-140	2.197	10.6	25	
Benzo(b)fluoranthene	1.758	0.10	3.03	0	58	40-140	1.926	9.12	25	
Benzo(g,h,i)perylene	1.783	0.10	3.03	0	58.8	40-140	1.998	11.4	25	
Benzo(k)fluoranthene	2.231	0.10	3.03	0	73.6	40-140	2.463	9.86	25	
Chrysene	2.59	0.10	3.03	0	85.5	40-140	2.677	3.31	25	
Dibenz(a,h)anthracene	1.769	0.10	3.03	0	58.4	40-140	2.01	12.8	25	
Fluoranthene	2.473	0.10	3.03	0	81.6	40-140	2.374	4.1	25	
Fluorene	2.178	0.10	3.03	0	71.9	40-140	2.129	2.28	25	
Indeno(1,2,3-cd)pyrene	2.019	0.10	3.03	0	66.6	40-140	2.252	10.9	25	
Naphthalene	2.169	0.10	3.03	0	71.6	40-140	2.143	1.19	25	
Phenanthrene	2.303	0.10	3.03	0	76	40-140	2.193	4.93	25	
Pyrene	2.515	0.10	3.03	0	83	40-140	2.442	2.93	25	
Surr: 2-Fluorobiphenyl	2.804	0.10	*3.03*	*0*	*92.5*	*40-125*	*2.322*	*18.8*	*25*	
Surr: 4-Terphenyl-d14	2.339	0.10	*3.03*	*0*	*77.2*	*40-135*	*2.464*	*5.2*	*25*	
Surr: Nitrobenzene-d5	2.373	0.10	*3.03*	*0*	*78.3*	*41-120*	*2.568*	*7.9*	*25*	

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

MS Sample ID: **1306546-11BMS** Units: **µg/L** Analysis Date: **6/18/2013 03:00 AM**
Client ID: **MW-6S** Run ID: **SV-6_130617B** SeqNo: **3261624** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	2.001	0.10	3.078	0	65	40-140				
Acenaphthylene	2.771	0.10	3.078	0	90	40-140				
Anthracene	2.45	0.10	3.078	0	79.6	40-140				
Benz(a)anthracene	2.353	0.10	3.078	0	76.4	40-140				
Benzo(a)pyrene	1.864	0.10	3.078	0	60.6	40-140				
Benzo(b)fluoranthene	2.055	0.10	3.078	0	66.8	40-140				
Benzo(g,h,i)perylene	1.556	0.10	3.078	0	50.6	40-140				
Benzo(k)fluoranthene	1.74	0.10	3.078	0	56.5	40-140				
Chrysene	2.25	0.10	3.078	0	73.1	40-140				
Dibenz(a,h)anthracene	1.362	0.10	3.078	0	44.2	40-140				
Fluoranthene	2.292	0.10	3.078	0	74.5	40-140				
Fluorene	1.444	0.10	3.078	0	46.9	40-140				
Indeno(1,2,3-cd)pyrene	2.135	0.10	3.078	0	69.4	40-140				
Naphthalene	2.488	0.10	3.078	0.2093	74	40-140				
Phenanthrene	2.316	0.10	3.078	0	75.2	40-140				
Pyrene	2.572	0.10	3.078	0	83.6	40-140				
Surr: 2-Fluorobiphenyl	1.954	0.10	*3.078*	*0*	*63.5*	*40-125*		*0*		
Surr: 4-Terphenyl-d14	2.261	0.10	*3.078*	*0*	*73.4*	*40-135*		*0*		
Surr: Nitrobenzene-d5	2.895	0.10	*3.078*	*0*	*94.1*	*41-120*		*0*		

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

Client: ARCADIS U.S., Inc.
Work Order: 1306546
Project: Brickham NM Semi Annual GW Sampling

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

MSD Sample ID: **1306546-11BMSD** Units: **µg/L** Analysis Date: **6/18/2013 03:20 AM**
Client ID: **MW-6S** Run ID: **SV-6_130617B** SeqNo: **3261625** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1.876	0.10	3.067	0	61.2	40-140	2.001	6.43	25	
Acenaphthylene	2.644	0.10	3.067	0	86.2	40-140	2.771	4.69	25	
Anthracene	2.486	0.10	3.067	0	81	40-140	2.45	1.45	25	
Benz(a)anthracene	2.382	0.10	3.067	0	77.7	40-140	2.353	1.25	25	
Benzo(a)pyrene	1.868	0.10	3.067	0	60.9	40-140	1.864	0.235	25	
Benzo(b)fluoranthene	1.769	0.10	3.067	0	57.7	40-140	2.055	14.9	25	
Benzo(g,h,i)perylene	1.469	0.10	3.067	0	47.9	40-140	1.556	5.78	25	
Benzo(k)fluoranthene	1.935	0.10	3.067	0	63.1	40-140	1.74	10.6	25	
Chrysene	2.197	0.10	3.067	0	71.6	40-140	2.25	2.4	25	
Dibenz(a,h)anthracene	1.255	0.10	3.067	0	40.9	40-140	1.362	8.12	25	
Fluoranthene	2.3	0.10	3.067	0	75	40-140	2.292	0.334	25	
Fluorene	1.392	0.10	3.067	0	45.4	40-140	1.444	3.69	25	
Indeno(1,2,3-cd)pyrene	2.047	0.10	3.067	0	66.7	40-140	2.135	4.2	25	
Naphthalene	3.009	0.10	3.067	0.2093	91.3	40-140	2.488	19	25	
Phenanthrene	2.311	0.10	3.067	0	75.3	40-140	2.316	0.213	25	
Pyrene	2.561	0.10	3.067	0	83.5	40-140	2.572	0.448	25	
Surr: 2-Fluorobiphenyl	1.904	0.10	*3.067*	*0*	*62.1*	*40-125*	*1.954*	*2.56*	*25*	
Surr: 4-Terphenyl-d14	2.176	0.10	*3.067*	*0*	*70.9*	*40-135*	*2.261*	*3.83*	*25*	
Surr: Nitrobenzene-d5	2.97	0.10	*3.067*	*0*	*96.8*	*41-120*	*2.895*	*2.55*	*25*	

The following samples were analyzed in this batch:

1306546-01B	1306546-02B	1306546-03B
1306546-04B	1306546-05B	1306546-06B
1306546-07B	1306546-08B	1306546-09B
1306546-10B	1306546-11B	1306546-12B

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

Client: ARCADIS U.S., Inc.
Project: Brickham NM Semi Annual GW Sampling
WorkOrder: 1306546

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

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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: **ARCADIS-BATON ROUGE** Date/Time Received: **13-Jun-13 07:20**

Work Order: **1306546** Received by: **JBA**

Checklist completed by Bernadette A. Fini 14-Jun-13 Reviewed by: Bethany McDaniel 17-Jun-13
eSignature Date eSignature Date

Matrices: Water
Carrier name: FedEx First Overnight

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):	1.4c/1.4c/0.8c/0.8c c/u	IR1	
Cooler(s)/Kit(s):	4224/4833		
Date/Time sample(s) sent to storage:	6/14/13 11:30		
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: Client sample ID changed to FB instead of FD as listed on the coc per client email request

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

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 2

COC ID: 83622

1306546

ARCADIS-BATON ROUGE: ARCADIS U.S., Inc.

Project: Brickham NM Semi Annual GW Sampling

ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	Brickham NM	A	BTEX (8021)
Work Order		Project Number		B	Total Metals (6020/7000) Pb
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	LL PAHs (8270) LVI
Send Report To	Doug Solon	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		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	6/11/13	1440	W		7	X	X	X								
2	FD061113	6/11/13	1440	W		7	X	X	X								
3	MW-11	6/11/13	1610	W		7	X	X	X								
4	EB061113	6/11/13	1610	W		7	X	X	X								
5	MW-9S	6/12/13	0805	W		7	X	X	X								
6	MW-3D	6/12/13	0955	W		7	X	X	X								
7	FD061213	6/12/13	0955	W		7	X	X	X								
8	MW-3S	6/12/13	1100	W		7	X	X	X								
9	EB061213	6/12/13	1100	W		7	X	X	X								
10	MW-6D	6/12/13	1350	W		7	X	X	X								

Sampler(s) Please Print & Sign

Shipment Method: Fedex ON

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

Results Due Date:

Notes: 10 Day TAT

Relinquished by: DM Solon	Date: 6/12/13	Time: 1620	Received by:	6/13/13	0730	
Relinquished by:	Date:	Time:	Received by (Laboratory):		Cooler ID	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		9824	

QC Package: (Check One Box Below)

☑ Level II Std QC ☐ Level III Std QC/Raw Data ☐ Level IV SW846/CLP ☐ Other / EDD ☐ TRRP CheckLis ☐ TRRP Level IV

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

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

Chain of Custody Form

Page 2 of 2

COC ID: 83625

ALS Project Manager: | ALS Work Order #: 1306546

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Brickham NM	A	BTEX (8021)
Work Order		Project Number		B	Total Metals (6020/7000) Pb
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	LL PAHs (8270) LVI
Send Report To	Doug Solon	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		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-6S	6/12/13	1445	W		7	X	X	X								
2	DUP 061213	6/12/13		W		7	X	X	X								
3	MW-6S MS	6/12/13	1445	W		7	X	X	X								
4	MW-6S MSD	6/12/13	1445	W		7	X	X	X								
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign:

Shipment Method: FedEx ON

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

Results Due Date:

Relinquished by: [signature]	Date: 6/12/13	Time: 1620	Received by: [signature] 6/13/13 0940
Relinquished by:	Date:	Time:	Received by (Laboratory):
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):

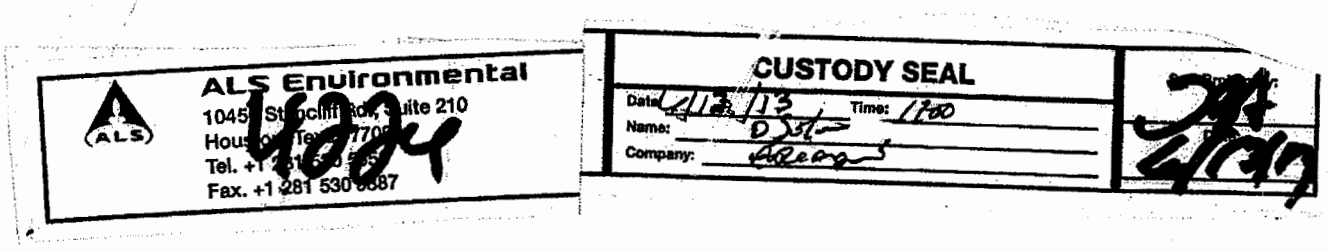
Notes: 10 Day TAT

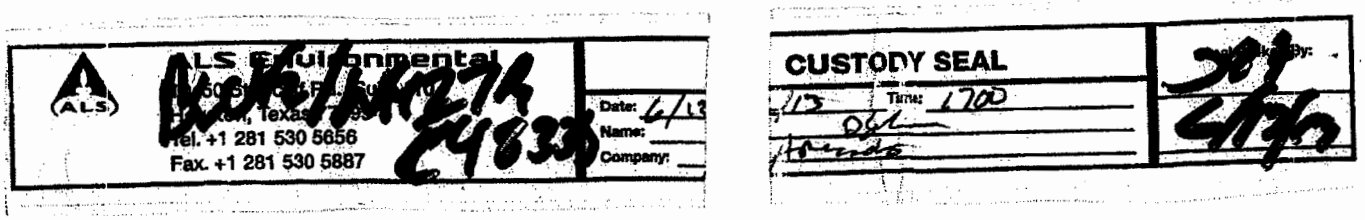
Cooler ID	Cooler Temp.
4229	
[illegible]	
C4833	

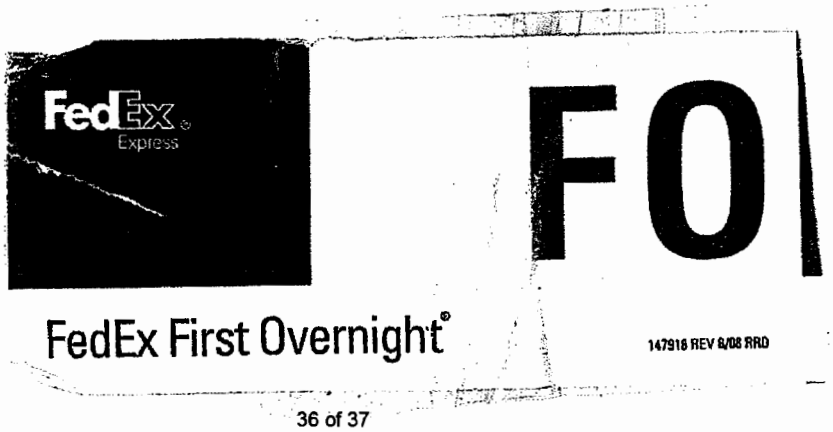
QC Package: (Check One Box Below)
☑ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other / EDD
☐ TRRP CheckList
☐ TRRP Level IV

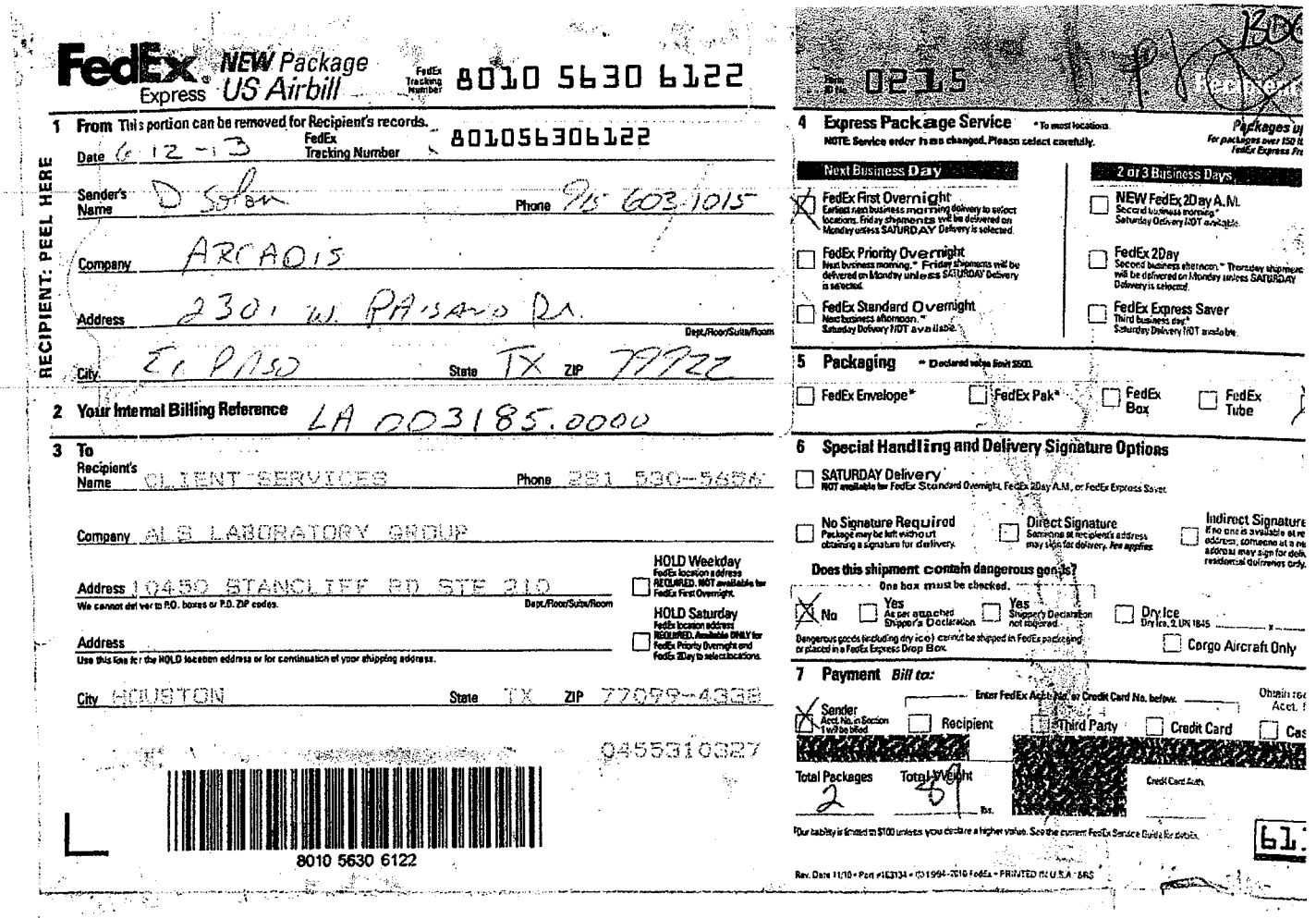
Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

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
Fax. +1 281 530 5887
CUSTODY SEAL
Date: 4/12/13
Time: 1700
Name:
Company:


Tel. +1 281 530 5656
Fax. +1 281 530 5887
Date: 4/13
Name:
Company:
CUSTODY SEAL
Time: 1700


FedEx
Express
FedEx First Overnight®
147918 REV 8/08 RRD



FedEx Express NEW Package US Airbill

FedEx Tracking Number 8010 5630 6122

0215

RECIPIENT: PEEL HERE

1 From This portion can be removed for Recipient's records.

Date 6/12/13 FedEx Tracking Number 801056306122

Sender's Name D Solan Phone 915 603-1015

Company ARCADIS

Address 2301 W. PARSANO DR. Dept./Room/Suite/Room

City El Paso State TX ZIP 79922

2 Your Internal Billing Reference LA 003185.0000

3 To

Recipient's Name CLIENT SERVICES Phone 281 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210 Dept./Room/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. NOT available for FedEx First Overnight.

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

0455310327

8010 5630 6122

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lb. For packages over 150 lb, use FedEx Express Freight.

Next Business Day

- [X] 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.

2 or 3 Business Days

- [ ] NEW 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

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — NOT available for 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. Fee applies.

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

- [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. Obtain rate Acct.

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

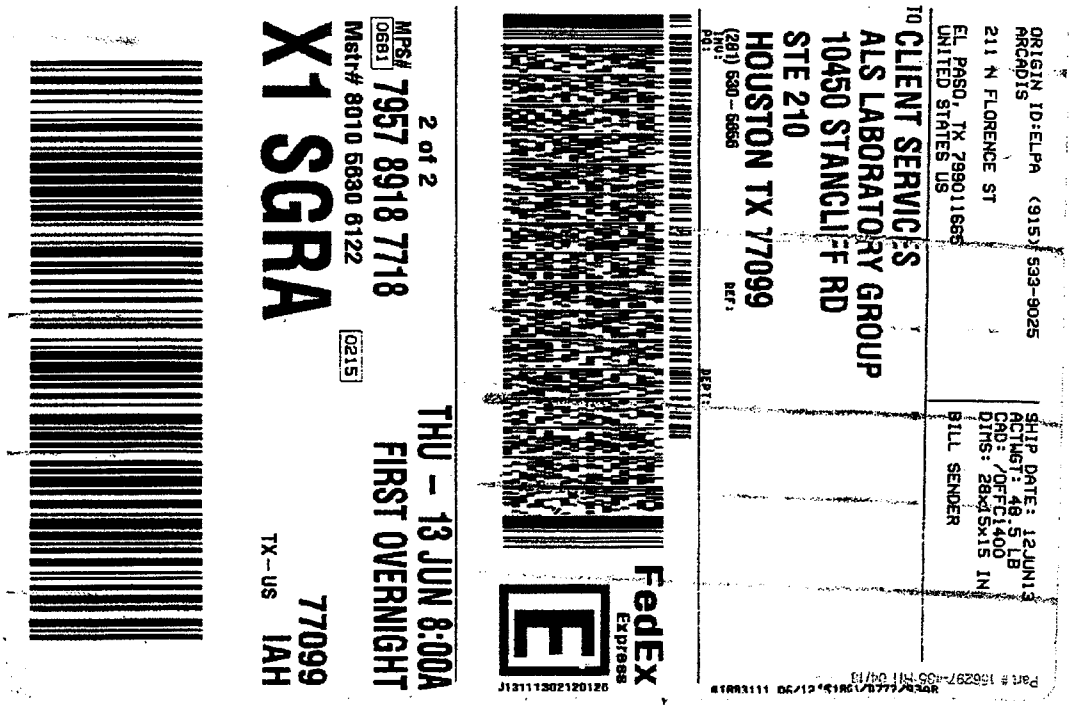
Total Packages 2 Total Weight 45 lbs.

Credit Card Auth.

Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 11/10 • Part #163134 • ©1994-2010 FedEx • PRINTED IN U.S.A. • SRS

61.



ORIGIN ID:ELPA (915) 533-9025
ARCADIS
211 N FLORENCE ST
EL PASO, TX 799011669
UNITED STATES US

SHIP DATE: 12JUN13
ACTWGT: 48.5 LB
CAD: /OFFC1400
DIMS: 28x15x15 IN

BILL SENDER

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099
(281) 530-5656
INV:
PO:
DEPT:

FedEx Express

J13111302120126

2 of 2
MPS# 0681 7957 8918 7718
Mstr# 8010 5630 6122

0215

X1 SGRA

THU - 13 JUN 8:00A
FIRST OVERNIGHT

77099
TX-US IAH

ALS Environmental

21-Jun-2013

Tim Ratchford
ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge, LA 70816

Tel: (225) 292-1004
Fax:

Re: Brickham NM Work Order: **1306635**

Dear Tim,

ALS Environmental received 9 samples on 14-Jun-2013 07:10 AM for the analyses 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.

The total number of pages in this report is 26.

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

Sincerely,

Bethany McDaniel

Electronically approved by: Dayna.Fisher

Bethany McDaniel
Project Manager

Certificate No: T104704231-13-12

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Work Order: **1306635**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1306635-01	MW-5	Water		6/13/2013 08:20	6/14/2013 07:10	☐
1306635-02	FB 061313	Water		6/13/2013 08:20	6/14/2013 07:10	☐
1306635-03	MW-8	Water		6/13/2013 09:35	6/14/2013 07:10	☐
1306635-04	EB 061313	Water		6/13/2013 09:55	6/14/2013 07:10	☐
1306635-05	MW-10	Water		6/13/2013 11:00	6/14/2013 07:10	☐
1306635-06	Upstream	Water		6/13/2013 13:20	6/14/2013 07:10	☐
1306635-07	EB-2-061313	Water		6/13/2013 13:30	6/14/2013 07:10	☐
1306635-08	Downstream	Water		6/13/2013 13:45	6/14/2013 07:10	☐
1306635-09	Trip Blank 053013-14	Water		6/13/2013	6/14/2013 07:10	☐

Client:	ARCADIS U.S., Inc.
Project:	Brickham NM
Work Order:	1306635

Case Narrative

Low Level PAHs, Sample 1306635-03: Lowest practical dilution run due to high concentration of non-target compounds.

Batch R149341, Total BTEX, Sample 1306553-30: MSD is for an unrelated sample.

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Sample ID: MW-5
Collection Date: 6/13/2013 08:20 AM

Work Order: 1306635
Lab ID: 1306635-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	**1,200**		**50**	**µg/L**	50	6/20/2013 07:24 PM
Toluene	**9.5**		**1.0**	**µg/L**	1	6/19/2013 07:14 PM
Ethylbenzene	**7.0**		**1.0**	**µg/L**	1	6/19/2013 07:14 PM
Xylenes, Total	**32**		**3.0**	**µg/L**	1	6/19/2013 07:14 PM
Surr: 4-Bromofluorobenzene	*102*		*75-129*	*%REC*	50	6/20/2013 07:24 PM
Surr: 4-Bromofluorobenzene	*100*		*75-129*	*%REC*	1	6/19/2013 07:14 PM
Surr: Trifluorotoluene	*93.1*		*75-130*	*%REC*	50	6/20/2013 07:24 PM
Surr: Trifluorotoluene	*108*		*75-130*	*%REC*	1	6/19/2013 07:14 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	ND		0.00500	mg/L	1	6/19/2013 10:59 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	**0.114**		**0.101**	**µg/L**	1	6/18/2013 07:17 AM
Acenaphthylene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Anthracene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Benz(a)anthracene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Benzo(a)pyrene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Benzo(b)fluoranthene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Benzo(g,h,i)perylene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Benzo(k)fluoranthene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Chrysene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Dibenz(a,h)anthracene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Fluoranthene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Fluorene	**0.260**		**0.101**	**µg/L**	1	6/18/2013 07:17 AM
Indeno(1,2,3-cd)pyrene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Naphthalene	**1.36**		**0.101**	**µg/L**	1	6/18/2013 07:17 AM
Phenanthrene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Pyrene	ND		0.101	µg/L	1	6/18/2013 07:17 AM
Surr: 2-Fluorobiphenyl	*89.4*		*40-125*	*%REC*	1	6/18/2013 07:17 AM
Surr: 4-Terphenyl-d14	*67.8*		*40-135*	*%REC*	1	6/18/2013 07:17 AM
Surr: Nitrobenzene-d5	*69.9*		*41-120*	*%REC*	1	6/18/2013 07:17 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Sample ID: FB 061313
Collection Date: 6/13/2013 08:20 AM

Work Order: 1306635
Lab ID: 1306635-02
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 09:21 PM
Toluene	ND		1.0	µg/L	1	6/19/2013 09:21 PM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 09:21 PM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 09:21 PM
Surr: 4-Bromofluorobenzene	*99.7*		*75-129*	*%REC*	1	6/19/2013 09:21 PM
Surr: Trifluorotoluene	*89.2*		*75-130*	*%REC*	1	6/19/2013 09:21 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	ND		0.00500	mg/L	1	6/19/2013 11:04 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Acenaphthylene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Anthracene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Benz(a)anthracene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Benzo(a)pyrene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Benzo(b)fluoranthene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Benzo(g,h,i)perylene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Benzo(k)fluoranthene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Chrysene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Dibenz(a,h)anthracene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Fluoranthene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Fluorene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Indeno(1,2,3-cd)pyrene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Naphthalene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Phenanthrene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Pyrene	ND		0.102	µg/L	1	6/18/2013 07:37 AM
Surr: 2-Fluorobiphenyl	*83.4*		*40-125*	*%REC*	1	6/18/2013 07:37 AM
Surr: 4-Terphenyl-d14	*79.7*		*40-135*	*%REC*	1	6/18/2013 07:37 AM
Surr: Nitrobenzene-d5	*88.3*		*41-120*	*%REC*	1	6/18/2013 07:37 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Work Order: 1306635
Sample ID: MW-8
Lab ID: 1306635-03
Collection Date: 6/13/2013 09:35 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	**4,700**		**50**	**µg/L**	50	6/20/2013 07:06 PM
Toluene	**7.6**		**1.0**	**µg/L**	1	6/19/2013 07:32 PM
Ethylbenzene	**8.7**		**1.0**	**µg/L**	1	6/19/2013 07:32 PM
Xylenes, Total	**13**		**3.0**	**µg/L**	1	6/19/2013 07:32 PM
Surr: 4-Bromofluorobenzene	*101*		*75-129*	*%REC*	50	6/20/2013 07:06 PM
Surr: 4-Bromofluorobenzene	*94.3*		*75-129*	*%REC*	1	6/19/2013 07:32 PM
Surr: Trifluorotoluene	*96.5*		*75-130*	*%REC*	50	6/20/2013 07:06 PM
Surr: Trifluorotoluene	*90.0*		*75-130*	*%REC*	1	6/19/2013 07:32 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	ND		0.00500	mg/L	1	6/19/2013 11:08 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	**0.386**		**0.104**	**µg/L**	1	6/18/2013 07:57 AM
Acenaphthylene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Anthracene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Benz(a)anthracene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Benzo(a)pyrene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Benzo(b)fluoranthene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Benzo(g,h,i)perylene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Benzo(k)fluoranthene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Chrysene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Dibenz(a,h)anthracene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Fluoranthene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Fluorene	**0.402**		**0.104**	**µg/L**	1	6/18/2013 07:57 AM
Indeno(1,2,3-cd)pyrene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Naphthalene	**42.3**		**1.04**	**µg/L**	10	6/18/2013 04:39 PM
Phenanthrene	**0.245**		**0.104**	**µg/L**	1	6/18/2013 07:57 AM
Pyrene	ND		0.104	µg/L	1	6/18/2013 07:57 AM
Surr: 2-Fluorobiphenyl	*98.9*		*40-125*	*%REC*	10	6/18/2013 04:39 PM
Surr: 2-Fluorobiphenyl	*83.1*		*40-125*	*%REC*	1	6/18/2013 07:57 AM
Surr: 4-Terphenyl-d14	*54.0*		*40-135*	*%REC*	1	6/18/2013 07:57 AM
Surr: 4-Terphenyl-d14	*49.9*		*40-135*	*%REC*	10	6/18/2013 04:39 PM
Surr: Nitrobenzene-d5	*84.0*		*41-120*	*%REC*	1	6/18/2013 07:57 AM
Surr: Nitrobenzene-d5	*68.9*		*41-120*	*%REC*	10	6/18/2013 04:39 PM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Sample ID: EB 061313
Collection Date: 6/13/2013 09:55 AM

Work Order: 1306635
Lab ID: 1306635-04
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 09:03 PM
Toluene	ND		1.0	µg/L	1	6/19/2013 09:03 PM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 09:03 PM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 09:03 PM
Surr: 4-Bromofluorobenzene	*103*		*75-129*	*%REC*	1	6/19/2013 09:03 PM
Surr: Trifluorotoluene	*90.5*		*75-130*	*%REC*	1	6/19/2013 09:03 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	ND		0.00500	mg/L	1	6/19/2013 11:13 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Acenaphthylene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Anthracene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Benz(a)anthracene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Benzo(a)pyrene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Benzo(b)fluoranthene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Benzo(g,h,i)perylene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Benzo(k)fluoranthene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Chrysene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Dibenz(a,h)anthracene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Fluoranthene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Fluorene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Indeno(1,2,3-cd)pyrene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Naphthalene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Phenanthrene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Pyrene	ND		0.105	µg/L	1	6/18/2013 08:16 AM
Surr: 2-Fluorobiphenyl	*82.5*		*40-125*	*%REC*	1	6/18/2013 08:16 AM
Surr: 4-Terphenyl-d14	*79.7*		*40-135*	*%REC*	1	6/18/2013 08:16 AM
Surr: Nitrobenzene-d5	*77.2*		*41-120*	*%REC*	1	6/18/2013 08:16 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Work Order: 1306635
Sample ID: MW-10
Lab ID: 1306635-05
Collection Date: 6/13/2013 11:00 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	**2.8**		**1.0**	**µg/L**	1	6/20/2013 12:51 PM
Toluene	ND		1.0	µg/L	1	6/20/2013 12:51 PM
Ethylbenzene	ND		1.0	µg/L	1	6/20/2013 12:51 PM
Xylenes, Total	ND		3.0	µg/L	1	6/20/2013 12:51 PM
Surr: 4-Bromofluorobenzene	*107*		*75-129*	*%REC*	1	6/20/2013 12:51 PM
Surr: Trifluorotoluene	*102*		*75-130*	*%REC*	1	6/20/2013 12:51 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	ND		0.00500	mg/L	1	6/19/2013 11:18 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	**2.16**		**0.102**	**µg/L**	1	6/18/2013 08:36 AM
Acenaphthylene	**0.380**		**0.102**	**µg/L**	1	6/18/2013 08:36 AM
Anthracene	**0.342**		**0.102**	**µg/L**	1	6/18/2013 08:36 AM
Benz(a)anthracene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Benzo(a)pyrene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Benzo(b)fluoranthene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Benzo(g,h,i)perylene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Benzo(k)fluoranthene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Chrysene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Dibenz(a,h)anthracene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Fluoranthene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Fluorene	**0.229**		**0.102**	**µg/L**	1	6/18/2013 08:36 AM
Indeno(1,2,3-cd)pyrene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Naphthalene	**0.659**		**0.102**	**µg/L**	1	6/18/2013 08:36 AM
Phenanthrene	ND		0.102	µg/L	1	6/18/2013 08:36 AM
Pyrene	**0.647**		**0.102**	**µg/L**	1	6/18/2013 08:36 AM
Surr: 2-Fluorobiphenyl	*90.6*		*40-125*	*%REC*	1	6/18/2013 08:36 AM
Surr: 4-Terphenyl-d14	*78.4*		*40-135*	*%REC*	1	6/18/2013 08:36 AM
Surr: Nitrobenzene-d5	*80.6*		*41-120*	*%REC*	1	6/18/2013 08:36 AM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Sample ID: Upstream
Collection Date: 6/13/2013 01:20 PM

Work Order: 1306635
Lab ID: 1306635-06
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/20/2013 12:33 PM
Toluene	ND		1.0	µg/L	1	6/20/2013 12:33 PM
Ethylbenzene	ND		1.0	µg/L	1	6/20/2013 12:33 PM
Xylenes, Total	ND		3.0	µg/L	1	6/20/2013 12:33 PM
Surr: 4-Bromofluorobenzene	*101*		*75-129*	*%REC*	1	6/20/2013 12:33 PM
Surr: Trifluorotoluene	*90.7*		*75-130*	*%REC*	1	6/20/2013 12:33 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	**0.00546**		**0.00500**	**mg/L**	1	6/19/2013 11:22 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Acenaphthylene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Anthracene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Benz(a)anthracene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Benzo(a)pyrene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Benzo(b)fluoranthene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Benzo(g,h,i)perylene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Benzo(k)fluoranthene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Chrysene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Dibenz(a,h)anthracene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Fluoranthene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Fluorene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Indeno(1,2,3-cd)pyrene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Naphthalene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Phenanthrene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Pyrene	ND		0.103	µg/L	1	6/18/2013 05:01 PM
Surr: 2-Fluorobiphenyl	*72.3*		*40-125*	*%REC*	1	6/18/2013 05:01 PM
Surr: 4-Terphenyl-d14	*62.7*		*40-135*	*%REC*	1	6/18/2013 05:01 PM
Surr: Nitrobenzene-d5	*97.7*		*41-120*	*%REC*	1	6/18/2013 05:01 PM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Sample ID: EB-2-061313
Collection Date: 6/13/2013 01:30 PM

Work Order: 1306635
Lab ID: 1306635-07
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 09:39 PM
Toluene	ND		1.0	µg/L	1	6/19/2013 09:39 PM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 09:39 PM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 09:39 PM
Surr: 4-Bromofluorobenzene	*102*		*75-129*	*%REC*	1	6/19/2013 09:39 PM
Surr: Trifluorotoluene	*91.3*		*75-130*	*%REC*	1	6/19/2013 09:39 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	ND		0.00500	mg/L	1	6/19/2013 11:27 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Acenaphthylene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Anthracene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Benz(a)anthracene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Benzo(a)pyrene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Benzo(b)fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Benzo(g,h,i)perylene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Benzo(k)fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Chrysene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Dibenz(a,h)anthracene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Fluoranthene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Fluorene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Indeno(1,2,3-cd)pyrene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Naphthalene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Phenanthrene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Pyrene	ND		0.104	µg/L	1	6/18/2013 05:21 PM
Surr: 2-Fluorobiphenyl	*93.1*		*40-125*	*%REC*	1	6/18/2013 05:21 PM
Surr: 4-Terphenyl-d14	*81.3*		*40-135*	*%REC*	1	6/18/2013 05:21 PM
Surr: Nitrobenzene-d5	*78.3*		*41-120*	*%REC*	1	6/18/2013 05:21 PM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Sample ID: Downstream
Collection Date: 6/13/2013 01:45 PM

Work Order: 1306635
Lab ID: 1306635-08
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/19/2013 09:57 PM
Toluene	ND		1.0	µg/L	1	6/19/2013 09:57 PM
Ethylbenzene	ND		1.0	µg/L	1	6/19/2013 09:57 PM
Xylenes, Total	ND		3.0	µg/L	1	6/19/2013 09:57 PM
Surr: 4-Bromofluorobenzene	*103*		*75-129*	*%REC*	1	6/19/2013 09:57 PM
Surr: Trifluorotoluene	*91.6*		*75-130*	*%REC*	1	6/19/2013 09:57 PM
METALS			**SW6020**		Prep Date: **6/19/2013**	Analyst: **JCJ**
Lead	ND		0.00500	mg/L	1	6/19/2013 11:32 PM
LOW-LEVEL PAHS			**SW8270**		Prep Date: **6/17/2013**	Analyst: **LG**
Acenaphthene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Acenaphthylene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Anthracene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Benz(a)anthracene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Benzo(a)pyrene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Benzo(b)fluoranthene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Benzo(g,h,i)perylene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Benzo(k)fluoranthene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Chrysene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Dibenz(a,h)anthracene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Fluoranthene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Fluorene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Indeno(1,2,3-cd)pyrene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Naphthalene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Phenanthrene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Pyrene	ND		0.103	µg/L	1	6/18/2013 05:41 PM
Surr: 2-Fluorobiphenyl	*85.4*		*40-125*	*%REC*	1	6/18/2013 05:41 PM
Surr: 4-Terphenyl-d14	*58.0*		*40-135*	*%REC*	1	6/18/2013 05:41 PM
Surr: Nitrobenzene-d5	*96.6*		*41-120*	*%REC*	1	6/18/2013 05:41 PM

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

ALS Environmental

Date: *21-Jun-13*

Client: ARCADIS U.S., Inc.
Project: Brickham NM
Work Order: 1306635
Sample ID: Trip Blank 053013-14
Lab ID: 1306635-09
Collection Date: 6/13/2013
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **KKP**
Benzene	ND		1.0	µg/L	1	6/20/2013 01:09 PM
Toluene	ND		1.0	µg/L	1	6/20/2013 01:09 PM
Ethylbenzene	ND		1.0	µg/L	1	6/20/2013 01:09 PM
Xylenes, Total	ND		3.0	µg/L	1	6/20/2013 01:09 PM
Surr: 4-Bromofluorobenzene	*99.4*		*75-129*	*%REC*	1	6/20/2013 01:09 PM
Surr: Trifluorotoluene	*89.2*		*75-130*	*%REC*	1	6/20/2013 01:09 PM

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

Batch ID: **R149217** Instrument ID **BTEX1** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-130619-R149217** Units: **µg/L** Analysis Date: **6/19/2013 12:57 PM**

Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259863** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	30.95	1.0	*30*	*0*	*103*	*75-129*	*0*			
Surr: Trifluorotoluene	27.83	1.0	*30*	*0*	*92.8*	*75-130*	*0*			

LCS Sample ID: **BLCSW1-130619-R149217** Units: **µg/L** Analysis Date: **6/19/2013 12:36 PM**

Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259862** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	22.33	1.0	20	0	112	75-126				
Toluene	22.24	1.0	20	0	111	75-125				
Ethylbenzene	22.49	1.0	20	0	112	75-125				
Xylenes, Total	66.95	3.0	60	0	112	75-125				
Surr: 4-Bromofluorobenzene	32.71	1.0	*30*	*0*	*109*	*75-129*	*0*			
Surr: Trifluorotoluene	29.92	1.0	*30*	*0*	*99.7*	*75-130*	*0*			

MS Sample ID: **1306545-01AMS** Units: **µg/L** Analysis Date: **6/19/2013 05:45 PM**

Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259871** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.55	1.0	20	0	108	75-126				
Toluene	21.5	1.0	20	0	107	75-125				
Ethylbenzene	21.71	1.0	20	0	109	75-125				
Xylenes, Total	64.45	3.0	60	0	107	75-125				
Surr: 4-Bromofluorobenzene	32.9	1.0	*30*	*0*	*110*	*75-129*	*0*			
Surr: Trifluorotoluene	29.22	1.0	*30*	*0*	*97.4*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **R149217** Instrument ID **BTEX1** Method: **SW8021B**

MSD Sample ID: **1306545-01AMSD** Units: **µg/L** Analysis Date: **6/19/2013 06:03 PM**

Client ID: Run ID: **BTEX1_130619A** SeqNo: **3259872** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.3	1.0	20	0	102	75-126	21.55	5.98	20	
Toluene	20.07	1.0	20	0	100	75-125	21.5	6.86	20	
Ethylbenzene	20.31	1.0	20	0	102	76-125	21.71	6.69	20	
Xylenes, Total	60.18	3.0	60	0	100	75-125	64.45	6.85	20	
Surr: 4-Bromofluorobenzene	32.16	1.0	*30*	*0*	*107*	*75-129*	*32.9*	*2.27*	*20*	
Surr: Trifluorotoluene	28.69	1.0	*30*	*0*	*95.6*	*75-130*	*29.22*	*1.81*	*20*	

The following samples were analyzed in this batch:

1306635-01A	1306635-02A	1306635-03A
1306635-04A	1306635-05A	1306635-06A
1306635-07A	1306635-08A	

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **R149341** Instrument ID **BTEX1** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-130620-R149341** Units: **µg/L** Analysis Date: **6/20/2013 11:57 AM**
Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261896** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	32.34	1.0	*30*	*0*	*108*	*75-129*	*0*			
Surr: Trifluorotoluene	26.57	1.0	*30*	*0*	*88.6*	*75-130*	*0*			

LCS Sample ID: **BLCSW1-130620-R149341** Units: **µg/L** Analysis Date: **6/20/2013 11:39 AM**
Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261895** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	20.96	1.0	20	0	105	75-126				
Toluene	20.79	1.0	20	0	104	75-125				
Ethylbenzene	21.08	1.0	20	0	105	75-125				
Xylenes, Total	63.74	3.0	60	0	106	75-125				
Surr: 4-Bromofluorobenzene	30.84	1.0	*30*	*0*	*103*	*75-129*	*0*			
Surr: Trifluorotoluene	27.93	1.0	*30*	*0*	*93.1*	*75-130*	*0*			

MS Sample ID: **1306553-30AMS** Units: **µg/L** Analysis Date: **6/20/2013 04:26 PM**
Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261906** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	665	10	200	501.9	81.6	75-126				
Toluene	177	10	200	0	88.5	75-125				
Ethylbenzene	427.5	10	200	278.8	74.4	75-125				S
Xylenes, Total	550	30	600	39.76	85	75-125				
Surr: 4-Bromofluorobenzene	356.9	10	*300*	*0*	*119*	*75-129*	*0*			
Surr: Trifluorotoluene	348.7	10	*300*	*0*	*116*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **R149341** Instrument ID **BTEX1** Method: **SW8021B**

MSD Sample ID: **1306553-30AMSD** Units: **µg/L** Analysis Date: **6/20/2013 04:44 PM**

Client ID: Run ID: **BTEX1_130620A** SeqNo: **3261907** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	669.8	10	200	501.9	84	75-126	665	0.713	20	
Toluene	178.2	10	200	0	89.1	75-125	177	0.67	20	
Ethylbenzene	431.2	10	200	278.8	76.2	76-125	427.5	0.856	20	
Xylenes, Total	553.9	30	600	39.76	85.7	75-125	550	0.701	20	
Surr: 4-Bromofluorobenzene	357.8	10	*300*	*0*	*119*	*75-129*	*356.9*	*0.256*	*20*	
Surr: Trifluorotoluene	352.6	10	*300*	*0*	*118*	*75-130*	*348.7*	*1.12*	*20*	

The following samples were analyzed in this batch: 1306635-01A, 1306635-03A, 1306635-05A, 1306635-06A, 1306635-09A

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **70891** Instrument ID **ICPMS04** Method: **SW6020**

MBLK Sample ID: **MBLKW3-061913-70891** Units: **mg/L** Analysis Date: **6/20/2013 09:17 PM**
Client ID: Run ID: **ICPMS04_130620A** SeqNo: **3261943** Prep Date: **6/19/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	ND	0.0050								

LCS Sample ID: **MLCSW3-061913-70891** Units: **mg/L** Analysis Date: **6/20/2013 09:22 PM**
Client ID: Run ID: **ICPMS04_130620A** SeqNo: **3261944** Prep Date: **6/19/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04852	0.0050	0.05	0	97	80-120				

MS Sample ID: **1306640-02BMS** Units: **mg/L** Analysis Date: **6/20/2013 10:19 PM**
Client ID: Run ID: **ICPMS04_130620A** SeqNo: **3261964** Prep Date: **6/19/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04956	0.0050	0.05	0.000279	98.6	80-120				

MSD Sample ID: **1306640-02BMSD** Units: **mg/L** Analysis Date: **6/20/2013 10:23 PM**
Client ID: Run ID: **ICPMS04_130620A** SeqNo: **3261965** Prep Date: **6/19/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.04566	0.0050	0.05	0.000279	90.8	80-120	0.04956	8.19	15	

DUP Sample ID: **1306640-02BDUP** Units: **mg/L** Analysis Date: **6/20/2013 10:14 PM**
Client ID: Run ID: **ICPMS04_130620A** SeqNo: **3261961** Prep Date: **6/19/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	ND	0.0050					0.000279	0	25	

The following samples were analyzed in this batch:

1306635-01C	1306635-02C	1306635-03C
1306635-04C	1306635-05C	1306635-06C
1306635-07C	1306635-08C	

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

MBLK Sample ID: **SBLKL1-130617-70846** Units: **µg/L** Analysis Date: **6/18/2013 01:22 AM**

Client ID: Run ID: **SV-6_130617B** SeqNo: **3261620** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	0.10								
Acenaphthylene	ND	0.10								
Anthracene	ND	0.10								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(g,h,i)perylene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Fluoranthene	ND	0.10								
Fluorene	ND	0.10								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Naphthalene	ND	0.10								
Phenanthrene	ND	0.10								
Pyrene	ND	0.10								
Surr: 2-Fluorobiphenyl	2.648	0.10	*3.03*	*0*	*87.4*	*40-125*	*0*			
Surr: 4-Terphenyl-d14	2.419	0.10	*3.03*	*0*	*79.8*	*40-135*	*0*			
Surr: Nitrobenzene-d5	2.767	0.10	*3.03*	*0*	*91.3*	*41-120*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

LCS Sample ID: **SLCSL1-130617-70846** Units: **µg/L** Analysis Date: **6/18/2013 01:41 AM**
Client ID: Run ID: **SV-6_130617B** SeqNo: **3261621** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	2.283	0.10	3.03	0	75.3	40-140				
Acenaphthylene	2.688	0.10	3.03	0	88.7	40-140				
Anthracene	2.559	0.10	3.03	0	84.4	40-140				
Benz(a)anthracene	2.439	0.10	3.03	0	80.5	40-140				
Benzo(a)pyrene	2.197	0.10	3.03	0	72.5	40-140				
Benzo(b)fluoranthene	1.926	0.10	3.03	0	63.5	40-140				
Benzo(g,h,i)perylene	1.998	0.10	3.03	0	65.9	40-140				
Benzo(k)fluoranthene	2.463	0.10	3.03	0	81.3	40-140				
Chrysene	2.677	0.10	3.03	0	88.3	40-140				
Dibenz(a,h)anthracene	2.01	0.10	3.03	0	66.3	40-140				
Fluoranthene	2.374	0.10	3.03	0	78.3	40-140				
Fluorene	2.129	0.10	3.03	0	70.3	40-140				
Indeno(1,2,3-cd)pyrene	2.252	0.10	3.03	0	74.3	40-140				
Naphthalene	2.143	0.10	3.03	0	70.7	40-140				
Phenanthrene	2.193	0.10	3.03	0	72.4	40-140				
Pyrene	2.442	0.10	3.03	0	80.6	40-140				
Surr: 2-Fluorobiphenyl	2.322	0.10	*3.03*	*0*	*76.6*	*40-125*		*0*		
Surr: 4-Terphenyl-d14	2.464	0.10	*3.03*	*0*	*81.3*	*40-135*		*0*		
Surr: Nitrobenzene-d5	2.568	0.10	*3.03*	*0*	*84.7*	*41-120*		*0*		

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

LCSD Sample ID: **SLCSDL1-130617-70846** Units: **µg/L** Analysis Date: **6/18/2013 02:01 AM**

Client ID: Run ID: **SV-6_130617B** SeqNo: **3261622** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	2.336	0.10	3.03	0	77.1	40-140	2.283	2.3	25	
Acenaphthylene	2.754	0.10	3.03	0	90.9	40-140	2.688	2.43	25	
Anthracene	2.593	0.10	3.03	0	85.6	40-140	2.559	1.33	25	
Benz(a)anthracene	2.336	0.10	3.03	0	77.1	40-140	2.439	4.32	25	
Benzo(a)pyrene	1.975	0.10	3.03	0	65.2	40-140	2.197	10.6	25	
Benzo(b)fluoranthene	1.758	0.10	3.03	0	58	40-140	1.926	9.12	25	
Benzo(g,h,i)perylene	1.783	0.10	3.03	0	58.8	40-140	1.998	11.4	25	
Benzo(k)fluoranthene	2.231	0.10	3.03	0	73.6	40-140	2.463	9.86	25	
Chrysene	2.59	0.10	3.03	0	85.5	40-140	2.677	3.31	25	
Dibenz(a,h)anthracene	1.769	0.10	3.03	0	58.4	40-140	2.01	12.8	25	
Fluoranthene	2.473	0.10	3.03	0	81.6	40-140	2.374	4.1	25	
Fluorene	2.178	0.10	3.03	0	71.9	40-140	2.129	2.28	25	
Indeno(1,2,3-cd)pyrene	2.019	0.10	3.03	0	66.6	40-140	2.252	10.9	25	
Naphthalene	2.169	0.10	3.03	0	71.6	40-140	2.143	1.19	25	
Phenanthrene	2.303	0.10	3.03	0	76	40-140	2.193	4.93	25	
Pyrene	2.515	0.10	3.03	0	83	40-140	2.442	2.93	25	
Surr: 2-Fluorobiphenyl	2.804	0.10	*3.03*	*0*	*92.5*	*40-125*	*2.322*	*18.8*	*25*	
Surr: 4-Terphenyl-d14	2.339	0.10	*3.03*	*0*	*77.2*	*40-135*	*2.464*	*5.2*	*25*	
Surr: Nitrobenzene-d5	2.373	0.10	*3.03*	*0*	*78.3*	*41-120*	*2.568*	*7.9*	*25*	

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

MS Sample ID: **1306546-11BMS** Units: **µg/L** Analysis Date: **6/18/2013 03:00 AM**

Client ID: Run ID: **SV-6_130617B** SeqNo: **3261624** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	2.001	0.10	3.078	0	65	40-140				
Acenaphthylene	2.771	0.10	3.078	0	90	40-140				
Anthracene	2.45	0.10	3.078	0	79.6	40-140				
Benz(a)anthracene	2.353	0.10	3.078	0	76.4	40-140				
Benzo(a)pyrene	1.864	0.10	3.078	0	60.6	40-140				
Benzo(b)fluoranthene	2.055	0.10	3.078	0	66.8	40-140				
Benzo(g,h,i)perylene	1.556	0.10	3.078	0	50.6	40-140				
Benzo(k)fluoranthene	1.74	0.10	3.078	0	56.5	40-140				
Chrysene	2.25	0.10	3.078	0	73.1	40-140				
Dibenz(a,h)anthracene	1.362	0.10	3.078	0	44.2	40-140				
Fluoranthene	2.292	0.10	3.078	0	74.5	40-140				
Fluorene	1.444	0.10	3.078	0	46.9	40-140				
Indeno(1,2,3-cd)pyrene	2.135	0.10	3.078	0	69.4	40-140				
Naphthalene	2.488	0.10	3.078	0.2093	74	40-140				
Phenanthrene	2.316	0.10	3.078	0	75.2	40-140				
Pyrene	2.572	0.10	3.078	0	83.6	40-140				
Surr: 2-Fluorobiphenyl	1.954	0.10	*3.078*	*0*	*63.5*	*40-125*		*0*		
Surr: 4-Terphenyl-d14	2.261	0.10	*3.078*	*0*	*73.4*	*40-135*		*0*		
Surr: Nitrobenzene-d5	2.895	0.10	*3.078*	*0*	*94.1*	*41-120*		*0*		

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

Client: ARCADIS U.S., Inc.
Work Order: 1306635
Project: Brickham NM

QC BATCH REPORT

Batch ID: **70846** Instrument ID **SV-6** Method: **SW8270**

MSD Sample ID: **1306546-11BMSD** Units: **µg/L** Analysis Date: **6/18/2013 03:20 AM**

Client ID: Run ID: **SV-6_130617B** SeqNo: **3261625** Prep Date: **6/17/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1.876	0.10	3.067	0	61.2	40-140	2.001	6.43	25	
Acenaphthylene	2.644	0.10	3.067	0	86.2	40-140	2.771	4.69	25	
Anthracene	2.486	0.10	3.067	0	81	40-140	2.45	1.45	25	
Benz(a)anthracene	2.382	0.10	3.067	0	77.7	40-140	2.353	1.25	25	
Benzo(a)pyrene	1.868	0.10	3.067	0	60.9	40-140	1.864	0.235	25	
Benzo(b)fluoranthene	1.769	0.10	3.067	0	57.7	40-140	2.055	14.9	25	
Benzo(g,h,i)perylene	1.469	0.10	3.067	0	47.9	40-140	1.556	5.78	25	
Benzo(k)fluoranthene	1.935	0.10	3.067	0	63.1	40-140	1.74	10.6	25	
Chrysene	2.197	0.10	3.067	0	71.6	40-140	2.25	2.4	25	
Dibenz(a,h)anthracene	1.255	0.10	3.067	0	40.9	40-140	1.362	8.12	25	
Fluoranthene	2.3	0.10	3.067	0	75	40-140	2.292	0.334	25	
Fluorene	1.392	0.10	3.067	0	45.4	40-140	1.444	3.69	25	
Indeno(1,2,3-cd)pyrene	2.047	0.10	3.067	0	66.7	40-140	2.135	4.2	25	
Naphthalene	3.009	0.10	3.067	0.2093	91.3	40-140	2.488	19	25	
Phenanthrene	2.311	0.10	3.067	0	75.3	40-140	2.316	0.213	25	
Pyrene	2.561	0.10	3.067	0	83.5	40-140	2.572	0.448	25	
Surr: 2-Fluorobiphenyl	1.904	0.10	*3.067*	*0*	*62.1*	*40-125*	*1.954*	*2.56*	*25*	
Surr: 4-Terphenyl-d14	2.176	0.10	*3.067*	*0*	*70.9*	*40-135*	*2.261*	*3.83*	*25*	
Surr: Nitrobenzene-d5	2.97	0.10	*3.067*	*0*	*96.8*	*41-120*	*2.895*	*2.55*	*25*	

The following samples were analyzed in this batch:

1306635-01B	1306635-02B	1306635-03B
1306635-04B	1306635-05B	1306635-06B
1306635-07B	1306635-08B	

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

Client: ARCADIS U.S., Inc.
Project: Brickham NM
WorkOrder: 1306635

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

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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: **ARCADIS-BATON ROUGE** Date/Time Received: **14-Jun-13 07:10**

Work Order: **1306635** Received by: **JBA**

Checklist completed by Makenzie L. Henderson eSignature 17-Jun-13 Date Reviewed by: Bethany McDaniel eSignature 18-Jun-13 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):	1.1c/1.1c C/U	IR1	
Cooler(s)/Kit(s):	4199		
Date/Time sample(s) sent to storage:	6/17/13 16:11		
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:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

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: 83626

1306635

ARCADIS-BATON ROUGE: ARCADIS U.S., Inc.

Project: Brickham NM

ALS Project Manager:

Customer Information		Project Information			
Purchase Order		Project Name	Brickham NM	A	BTEX (8021)
Work Order		Project Number		B	Total Metals (6020/7000) Pb
Company Name	ARCADIS U.S., Inc.	Bill To Company	ARCADIS	C	LL PAHs (8270) LVI
Send Report To	Doug Solon	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		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-5	6/13/13	0820	W		7	X	X	X								
2	FB061313	6/13/13	0820	W		7	X	X	X								
3	MW-8	6/13/13	0935	W		7	X	X	X								
4	EB061313	6/13/13	0955	W		7	X	X	X								
5	MW-10	6/13/13	1100	W		7	X	X	X								
6	UPSTream	6/13/13	1320	W		7	X	X	X								
7	EB-2-061313	6/13/13	1330	W		7	X	X	X								
8	Downstream	6/13/13	1345	W		7	X	X	X								
9																	
10																	

Sampler(s) Please Print & Sign: Doug Solon

Shipment Method: Fedex GN

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

Results Due Date:

Relinquished by: [signature] Date: 6/13/13 Time: 1500 Received by: [signature] Date: 6/14/13 Time: 0810

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

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

Cooler ID | Cooler Temp.

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

Notes: 10 Day TAT

QC Package: (Check One Box Below)
- ☑ Level II Std QC
- ☐ Level III Std QC/Raw Data
- ☐ Level IV SW846/CLP
- ☐ Other / EDD
- ☐ TRRP Checklist
- ☐ TRRP Level IV

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 Express NEW Package US Airbill

FedEx Tracking Number 8010 5630 6074

Form ID No. 0215

Recipient's Copy

RECIPIENT: PEEL HERE

1 From This portion can be removed for Recipient's records.

Date 6-13-13 FedEx Tracking Number 8010 5630 6074

Sender's Name D. Solar Phone 713 803-1015

Company AREADS

Address 2301 W. PARK AVE

Dept./Floor/Suite/Room

City EL PASO State TX ZIP 79922

2 Your Internal Billing Reference LA 003185.000

3 To

Recipient's Name CLIENT SERVICES Phone 281 530-5656

Company ALS LABORATORY GROUP

Address 10450 STANCLIFF RD STE 210

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

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

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

Address

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

City HOUSTON State TX ZIP 77099-4338

0455810087

8010 5630 6074

4 Express Package Service * To most locations

NOTE: Service order has changed. Please select carefully.

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

Next Business Day

- [x] 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.

2 or 3 Business Days

- [ ] NEW 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*
- [x] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery NOT available for FedEx Standard Overnight, FedEx First Overnight, 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. Extra charge.
- [ ] 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.

- [x] No
- [ ] Yes As per attached Shipper's Declaration
- [ ] Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

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

- [ ] Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. [ ]

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

[redacted]

Total Packages Total Weight Credit Card Auth.

lbs.

*Our liability is limited unless you declare a higher value. See the current FedEx Service Guide for details.

611

Rev. Date 11/10 • Part #150184 • ©1994-2010 FedEx • PRINTED IN U.S.A. SRS

fedex.com 1.800.GoFedEx 1.800.463.3339

1300035

FedEx Express

FedEx First Overnight®

F0

147918 REV 8/08 RRD

ALS Environmental
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 6-13-13 Time: 1450

Name: D. Solar

Company: ALS Houston

Seal Broken By:

Date:

ALS Environmental

16-Dec-2013

Tim Ratchford
ARCADIS U.S., Inc.
10352 Plaza Americana Drive
Baton Rouge, LA 70816

Tel: (225) 292-1004
Fax:

Re: Huntsman-Brickland NM

Work Order: **1312402**

Dear Tim,

ALS Environmental received 21 samples on 10-Dec-2013 10:50 AM for the analyses 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.

The total number of pages in this report is 36.

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

Sincerely,

Bethany McDaniel

Electronically approved by: Jumoke M. Lawal

Bethany McDaniel
Project Manager

Certificate No: T104704231-13-12

ALS Environmental

Date: 16-Dec-13

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: **1312402**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1312402-01	MW-11	Water		12/3/2013 14:50	12/10/2013 10:50	☐
1312402-02	FB 120313	Water		12/3/2013 14:30	12/10/2013 10:50	☐
1312402-03	EB 120313	Water		12/3/2013 16:05	12/10/2013 10:50	☐
1312402-04	FB 120413	Water		12/4/2013 08:10	12/10/2013 10:50	☐
1312402-05	MW-17	Water		12/4/2013 08:30	12/10/2013 10:50	☐
1312402-06	MW-9S	Water		12/4/2013 09:55	12/10/2013 10:50	☐
1312402-07	MW-3D	Water		12/4/2013 10:55	12/10/2013 10:50	☐
1312402-08	MW-3S	Water		12/4/2013 11:55	12/10/2013 10:50	☐
1312402-09	MW-6D	Water		12/4/2013 13:35	12/10/2013 10:50	☐
1312402-10	MW-6S	Water		12/4/2013 14:15	12/10/2013 10:50	☐
1312402-11	FD 120413	Water		12/4/2013 14:15	12/10/2013 10:50	☐
1312402-12	MW-05	Water		12/4/2013 15:25	12/10/2013 10:50	☐
1312402-13	MW-08	Water		12/4/2013 16:15	12/10/2013 10:50	☐
1312402-14	EB 120413	Water		12/4/2013 16:25	12/10/2013 10:50	☐
1312402-15	MW-10	Water		12/5/2013 09:35	12/10/2013 10:50	☐
1312402-16	FB 120513	Water		12/5/2013 09:35	12/10/2013 10:50	☐
1312402-17	EB 120513	Water		12/5/2013 09:45	12/10/2013 10:50	☐
1312402-18	UPSTREAM	Water		12/5/2013 10:10	12/10/2013 10:50	☐
1312402-19	EB-2-120513	Water		12/5/2013 10:15	12/10/2013 10:50	☐
1312402-20	DOWNSTREAM	Water		12/5/2013 10:30	12/10/2013 10:50	☐
1312402-21	Trip Blank 112113-48	Water		12/3/2013	12/10/2013 10:50	☑

Client:	ARCADIS U.S., Inc.
Project:	Huntsman-Brickland NM
Work Order:	1312402

Case Narrative

Volatile Organics BTEX Method 8021, For numerous samples: Lowest practical dilution due to sample matrix; foamy and oily .

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-11
Lab ID: 1312402-01
Collection Date: 12/3/2013 02:50 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 01:38 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 01:38 PM
Benzene	ND		25	µg/L	25	12/13/2013 01:38 PM
Toluene	ND		25	µg/L	25	12/13/2013 01:38 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 01:38 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 01:38 PM
Surr: 4-Bromofluorobenzene	*98.4*		*75-129*	*%REC*	25	12/13/2013 01:38 PM
Surr: Trifluorotoluene	*97.9*		*75-130*	*%REC*	25	12/13/2013 01:38 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: FB 120313
Lab ID: 1312402-02
Collection Date: 12/3/2013 02:30 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		2.0	µg/L	1	12/12/2013 10:51 AM
o-Xylene	ND		1.0	µg/L	1	12/12/2013 10:51 AM
Benzene	ND		1.0	µg/L	1	12/12/2013 10:51 AM
Toluene	**2.4**		**1.0**	**µg/L**	1	12/12/2013 10:51 AM
Ethylbenzene	ND		1.0	µg/L	1	12/12/2013 10:51 AM
Xylenes, Total	ND		3.0	µg/L	1	12/12/2013 10:51 AM
Surr: 4-Bromofluorobenzene	*119*		*75-129*	*%REC*	1	12/12/2013 10:51 AM
Surr: Trifluorotoluene	*118*		*75-130*	*%REC*	1	12/12/2013 10:51 AM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: EB 120313
Lab ID: 1312402-03
Collection Date: 12/3/2013 04:05 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		2.0	µg/L	1	12/11/2013 04:17 PM
o-Xylene	ND		1.0	µg/L	1	12/11/2013 04:17 PM
Benzene	ND		1.0	µg/L	1	12/11/2013 04:17 PM
Toluene	ND		1.0	µg/L	1	12/11/2013 04:17 PM
Ethylbenzene	ND		1.0	µg/L	1	12/11/2013 04:17 PM
Xylenes, Total	ND		3.0	µg/L	1	12/11/2013 04:17 PM
Surr: 4-Bromofluorobenzene	*115*		*75-129*	*%REC*	1	12/11/2013 04:17 PM
Surr: Trifluorotoluene	*113*		*75-130*	*%REC*	1	12/11/2013 04:17 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: FB 120413
Lab ID: 1312402-04
Collection Date: 12/4/2013 08:10 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		2.0	µg/L	1	12/12/2013 11:09 AM
o-Xylene	ND		1.0	µg/L	1	12/12/2013 11:09 AM
Benzene	ND		1.0	µg/L	1	12/12/2013 11:09 AM
Toluene	ND		1.0	µg/L	1	12/12/2013 11:09 AM
Ethylbenzene	ND		1.0	µg/L	1	12/12/2013 11:09 AM
Xylenes, Total	ND		3.0	µg/L	1	12/12/2013 11:09 AM
Surr: 4-Bromofluorobenzene	*117*		*75-129*	*%REC*	1	12/12/2013 11:09 AM
Surr: Trifluorotoluene	*120*		*75-130*	*%REC*	1	12/12/2013 11:09 AM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-17
Lab ID: 1312402-05
Collection Date: 12/4/2013 08:30 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 01:57 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 01:57 PM
Benzene	ND		25	µg/L	25	12/13/2013 01:57 PM
Toluene	ND		25	µg/L	25	12/13/2013 01:57 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 01:57 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 01:57 PM
Surr: 4-Bromofluorobenzene	*90.3*		*75-129*	*%REC*	25	12/13/2013 01:57 PM
Surr: Trifluorotoluene	*91.0*		*75-130*	*%REC*	25	12/13/2013 01:57 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-9S
Lab ID: 1312402-06
Collection Date: 12/4/2013 09:55 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 02:15 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 02:15 PM
Benzene	ND		25	µg/L	25	12/13/2013 02:15 PM
Toluene	ND		25	µg/L	25	12/13/2013 02:15 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 02:15 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 02:15 PM
Surr: 4-Bromofluorobenzene	*88.0*		*75-129*	*%REC*	25	12/13/2013 02:15 PM
Surr: Trifluorotoluene	*86.9*		*75-130*	*%REC*	25	12/13/2013 02:15 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-3D
Lab ID: 1312402-07
Collection Date: 12/4/2013 10:55 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		10	µg/L	5	12/13/2013 02:32 PM
o-Xylene	ND		5.0	µg/L	5	12/13/2013 02:32 PM
Benzene	ND		5.0	µg/L	5	12/13/2013 02:32 PM
Toluene	ND		5.0	µg/L	5	12/13/2013 02:32 PM
Ethylbenzene	ND		5.0	µg/L	5	12/13/2013 02:32 PM
Xylenes, Total	ND		15	µg/L	5	12/13/2013 02:32 PM
Surr: 4-Bromofluorobenzene	*88.2*		*75-129*	*%REC*	5	12/13/2013 02:32 PM
Surr: Trifluorotoluene	*87.1*		*75-130*	*%REC*	5	12/13/2013 02:32 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-3S
Lab ID: 1312402-08
Collection Date: 12/4/2013 11:55 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		10	µg/L	5	12/13/2013 05:55 PM
o-Xylene	ND		5.0	µg/L	5	12/13/2013 05:55 PM
Benzene	ND		5.0	µg/L	5	12/13/2013 05:55 PM
Toluene	ND		5.0	µg/L	5	12/13/2013 05:55 PM
Ethylbenzene	ND		5.0	µg/L	5	12/13/2013 05:55 PM
Xylenes, Total	ND		15	µg/L	5	12/13/2013 05:55 PM
Surr: 4-Bromofluorobenzene	*87.4*		*75-129*	*%REC*	5	12/13/2013 05:55 PM
Surr: Trifluorotoluene	*88.5*		*75-130*	*%REC*	5	12/13/2013 05:55 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-6D
Lab ID: 1312402-09
Collection Date: 12/4/2013 01:35 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		10	µg/L	5	12/13/2013 06:13 PM
o-Xylene	ND		5.0	µg/L	5	12/13/2013 06:13 PM
Benzene	ND		5.0	µg/L	5	12/13/2013 06:13 PM
Toluene	ND		5.0	µg/L	5	12/13/2013 06:13 PM
Ethylbenzene	ND		5.0	µg/L	5	12/13/2013 06:13 PM
Xylenes, Total	ND		15	µg/L	5	12/13/2013 06:13 PM
Surr: 4-Bromofluorobenzene	*92.4*		*75-129*	*%REC*	5	12/13/2013 06:13 PM
Surr: Trifluorotoluene	*95.8*		*75-130*	*%REC*	5	12/13/2013 06:13 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-6S
Lab ID: 1312402-10
Collection Date: 12/4/2013 02:15 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		20	µg/L	10	12/13/2013 04:26 PM
o-Xylene	ND		10	µg/L	10	12/13/2013 04:26 PM
Benzene	ND		10	µg/L	10	12/13/2013 04:26 PM
Toluene	ND		10	µg/L	10	12/13/2013 04:26 PM
Ethylbenzene	ND		10	µg/L	10	12/13/2013 04:26 PM
Xylenes, Total	ND		30	µg/L	10	12/13/2013 04:26 PM
Surr: 4-Bromofluorobenzene	*94.7*		*75-129*	*%REC*	10	12/13/2013 04:26 PM
Surr: Trifluorotoluene	*94.8*		*75-130*	*%REC*	10	12/13/2013 04:26 PM

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

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM **Work Order:** 1312402
Sample ID: FD 120413 **Lab ID:** 1312402-11
Collection Date: 12/4/2013 02:15 PM **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 06:31 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 06:31 PM
Benzene	ND		25	µg/L	25	12/13/2013 06:31 PM
Toluene	ND		25	µg/L	25	12/13/2013 06:31 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 06:31 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 06:31 PM
Surr: 4-Bromofluorobenzene	*89.6*		*75-129*	*%REC*	25	12/13/2013 06:31 PM
Surr: Trifluorotoluene	*88.6*		*75-130*	*%REC*	25	12/13/2013 06:31 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-05
Lab ID: 1312402-12
Collection Date: 12/4/2013 03:25 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 06:49 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 06:49 PM
Benzene	**140**		**25**	**µg/L**	25	12/13/2013 06:49 PM
Toluene	ND		25	µg/L	25	12/13/2013 06:49 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 06:49 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 06:49 PM
Surr: 4-Bromofluorobenzene	*88.8*		*75-129*	*%REC*	25	12/13/2013 06:49 PM
Surr: Trifluorotoluene	*85.9*		*75-130*	*%REC*	25	12/13/2013 06:49 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-08
Lab ID: 1312402-13
Collection Date: 12/4/2013 04:15 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 07:06 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 07:06 PM
Benzene	**270**		**25**	**µg/L**	25	12/13/2013 07:06 PM
Toluene	ND		25	µg/L	25	12/13/2013 07:06 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 07:06 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 07:06 PM
Surr: 4-Bromofluorobenzene	*92.6*		*75-129*	*%REC*	25	12/13/2013 07:06 PM
Surr: Trifluorotoluene	*89.6*		*75-130*	*%REC*	25	12/13/2013 07:06 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: EB 120413
Lab ID: 1312402-14
Collection Date: 12/4/2013 04:25 PM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		2.0	µg/L	1	12/12/2013 11:27 AM
o-Xylene	ND		1.0	µg/L	1	12/12/2013 11:27 AM
Benzene	ND		1.0	µg/L	1	12/12/2013 11:27 AM
Toluene	ND		1.0	µg/L	1	12/12/2013 11:27 AM
Ethylbenzene	ND		1.0	µg/L	1	12/12/2013 11:27 AM
Xylenes, Total	ND		3.0	µg/L	1	12/12/2013 11:27 AM
Surr: 4-Bromofluorobenzene	*118*		*75-129*	*%REC*	1	12/12/2013 11:27 AM
Surr: Trifluorotoluene	*118*		*75-130*	*%REC*	1	12/12/2013 11:27 AM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: MW-10
Lab ID: 1312402-15
Collection Date: 12/5/2013 09:35 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 07:24 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 07:24 PM
Benzene	ND		25	µg/L	25	12/13/2013 07:24 PM
Toluene	ND		25	µg/L	25	12/13/2013 07:24 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 07:24 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 07:24 PM
Surr: 4-Bromofluorobenzene	*92.9*		*75-129*	*%REC*	25	12/13/2013 07:24 PM
Surr: Trifluorotoluene	*91.7*		*75-130*	*%REC*	25	12/13/2013 07:24 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: FB 120513
Lab ID: 1312402-16
Collection Date: 12/5/2013 09:35 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		2.0	µg/L	1	12/11/2013 05:11 PM
o-Xylene	ND		1.0	µg/L	1	12/11/2013 05:11 PM
Benzene	ND		1.0	µg/L	1	12/11/2013 05:11 PM
Toluene	ND		1.0	µg/L	1	12/11/2013 05:11 PM
Ethylbenzene	ND		1.0	µg/L	1	12/11/2013 05:11 PM
Xylenes, Total	ND		3.0	µg/L	1	12/11/2013 05:11 PM
Surr: 4-Bromofluorobenzene	*115*		*75-129*	*%REC*	1	12/11/2013 05:11 PM
Surr: Trifluorotoluene	*119*		*75-130*	*%REC*	1	12/11/2013 05:11 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: EB 120513
Lab ID: 1312402-17
Collection Date: 12/5/2013 09:45 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		2.0	µg/L	1	12/11/2013 05:29 PM
o-Xylene	ND		1.0	µg/L	1	12/11/2013 05:29 PM
Benzene	ND		1.0	µg/L	1	12/11/2013 05:29 PM
Toluene	ND		1.0	µg/L	1	12/11/2013 05:29 PM
Ethylbenzene	ND		1.0	µg/L	1	12/11/2013 05:29 PM
Xylenes, Total	ND		3.0	µg/L	1	12/11/2013 05:29 PM
Surr: 4-Bromofluorobenzene	*115*		*75-129*	*%REC*	1	12/11/2013 05:29 PM
Surr: Trifluorotoluene	*114*		*75-130*	*%REC*	1	12/11/2013 05:29 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: UPSTREAM
Lab ID: 1312402-18
Collection Date: 12/5/2013 10:10 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 07:42 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 07:42 PM
Benzene	ND		25	µg/L	25	12/13/2013 07:42 PM
Toluene	ND		25	µg/L	25	12/13/2013 07:42 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 07:42 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 07:42 PM
Surr: 4-Bromofluorobenzene	*93.0*		*75-129*	*%REC*	25	12/13/2013 07:42 PM
Surr: Trifluorotoluene	*91.3*		*75-130*	*%REC*	25	12/13/2013 07:42 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: EB-2-120513
Lab ID: 1312402-19
Collection Date: 12/5/2013 10:15 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		2.0	µg/L	1	12/11/2013 05:47 PM
o-Xylene	ND		1.0	µg/L	1	12/11/2013 05:47 PM
Benzene	ND		1.0	µg/L	1	12/11/2013 05:47 PM
Toluene	ND		1.0	µg/L	1	12/11/2013 05:47 PM
Ethylbenzene	ND		1.0	µg/L	1	12/11/2013 05:47 PM
Xylenes, Total	ND		3.0	µg/L	1	12/11/2013 05:47 PM
Surr: 4-Bromofluorobenzene	*116*		*75-129*	*%REC*	1	12/11/2013 05:47 PM
Surr: Trifluorotoluene	*115*		*75-130*	*%REC*	1	12/11/2013 05:47 PM

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

ALS Environmental

Date: *16-Dec-13*

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
Work Order: 1312402
Sample ID: DOWNSTREAM
Lab ID: 1312402-20
Collection Date: 12/5/2013 10:30 AM
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
BTEX BY SW8021B			**SW8021B**			Analyst: **DNR**
m,p-Xylene	ND		50	µg/L	25	12/13/2013 08:00 PM
o-Xylene	ND		25	µg/L	25	12/13/2013 08:00 PM
Benzene	ND		25	µg/L	25	12/13/2013 08:00 PM
Toluene	ND		25	µg/L	25	12/13/2013 08:00 PM
Ethylbenzene	ND		25	µg/L	25	12/13/2013 08:00 PM
Xylenes, Total	ND		75	µg/L	25	12/13/2013 08:00 PM
Surr: 4-Bromofluorobenzene	*93.3*		*75-129*	*%REC*	25	12/13/2013 08:00 PM
Surr: Trifluorotoluene	*91.4*		*75-130*	*%REC*	25	12/13/2013 08:00 PM

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

Work Order: 1312402
Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID R158383	**Test Name:** BTEX by SW8021B					
1312402-03A	EB 120313	Water	12/3/2013 4:05:00 PM			12/11/2013 04:17 PM
1312402-16A	FB 120513		12/5/2013 9:35:00 AM			12/11/2013 05:11 PM
1312402-17A	EB 120513		12/5/2013 9:45:00 AM			12/11/2013 05:29 PM
1312402-19A	EB-2-120513		12/5/2013 10:15:00 AM			12/11/2013 05:47 PM
Batch ID R158475	**Test Name:** BTEX by SW8021B					
1312402-02A	FB 120313	Water	12/3/2013 2:30:00 PM			12/12/2013 10:51 AM
1312402-04A	FB 120413		12/4/2013 8:10:00 AM			12/12/2013 11:09 AM
1312402-14A	EB 120413		12/4/2013 4:25:00 PM			12/12/2013 11:27 AM
Batch ID R158526	**Test Name:** BTEX by SW8021B					
1312402-01A	MW-11	Water	12/3/2013 2:50:00 PM			12/13/2013 01:38 PM
1312402-05A	MW-17		12/4/2013 8:30:00 AM			12/13/2013 01:57 PM
1312402-06A	MW-9S		12/4/2013 9:55:00 AM			12/13/2013 02:15 PM
1312402-07A	MW-3D		12/4/2013 10:55:00 AM			12/13/2013 02:32 PM
1312402-08A	MW-3S		12/4/2013 11:55:00 AM			12/13/2013 05:55 PM
1312402-09A	MW-6D		12/4/2013 1:35:00 PM			12/13/2013 06:13 PM
1312402-10A	MW-6S		12/4/2013 2:15:00 PM			12/13/2013 04:26 PM
1312402-11A	FD 120413					12/13/2013 06:31 PM
1312402-12A	MW-05		12/4/2013 3:25:00 PM			12/13/2013 06:49 PM
1312402-13A	MW-08		12/4/2013 4:15:00 PM			12/13/2013 07:06 PM
1312402-15A	MW-10		12/5/2013 9:35:00 AM			12/13/2013 07:24 PM
1312402-18A	UPSTREAM		12/5/2013 10:10:00 AM			12/13/2013 07:42 PM
1312402-20A	DOWNSTREAM		12/5/2013 10:30:00 AM			12/13/2013 08:00 PM

ALS Environmental

Date: 16-Dec-13

Client: ARCADIS U.S., Inc.

Work Order: 1312402

Project: Huntsman-Brickland NM

QC BATCH REPORT

Batch ID: **R158383** Instrument ID **BTEX5** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-131211-R158383** Units: **µg/L** Analysis Date: **12/11/2013 10:40 AM**

Client ID: Run ID: **BTEX5_131211A** SeqNo: **3465346** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	ND	2.0								
o-Xylene	ND	1.0								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	35.97	1.0	*30*	*0*	*120*	*75-129*	*0*			
Surr: Trifluorotoluene	35.53	1.0	*30*	*0*	*118*	*75-130*	*0*			

LCS Sample ID: **BLCSW1-131211-R158383** Units: **µg/L** Analysis Date: **12/11/2013 10:05 AM**

Client ID: Run ID: **BTEX5_131211A** SeqNo: **3464413** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	37.5	2.0	40	0	93.8	75-125				
o-Xylene	19.39	1.0	20	0	97	75-125				
Benzene	20.39	1.0	20	0	102	75-126				
Toluene	20.05	1.0	20	0	100	75-125				
Ethylbenzene	19.07	1.0	20	0	95.4	75-125				
Xylenes, Total	56.9	3.0	60	0	94.8	75-125				
Surr: 4-Bromofluorobenzene	36.26	1.0	*30*	*0*	*121*	*75-129*	*0*			
Surr: Trifluorotoluene	36.53	1.0	*30*	*0*	*122*	*75-130*	*0*			

MS Sample ID: **1312388-01AMS** Units: **µg/L** Analysis Date: **12/11/2013 12:09 PM**

Client ID: Run ID: **BTEX5_131211A** SeqNo: **3465351** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	40.4	2.0	40	0	101	75-125				
o-Xylene	20.08	1.0	20	0	100	75-125				
Benzene	21.94	1.0	20	0	110	75-126				
Toluene	20.77	1.0	20	0	104	75-125				
Ethylbenzene	20.77	1.0	20	0	104	75-125				
Xylenes, Total	60.48	3.0	60	0	101	75-125				
Surr: 4-Bromofluorobenzene	35.74	1.0	*30*	*0*	*119*	*75-129*	*0*			
Surr: Trifluorotoluene	34.74	1.0	*30*	*0*	*116*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1312402
Project: Huntsman-Brickland NM

QC BATCH REPORT

Batch ID: **R158383** Instrument ID **BTEX5** Method: **SW8021B**

MSD Sample ID: **1312388-01AMSD** Units: **µg/L** Analysis Date: **12/11/2013 12:27 PM**

Client ID: Run ID: **BTEX5_131211A** SeqNo: **3465352** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	41.69	2.0	40	0	104	75-125	40.4	3.15	20	
o-Xylene	20.35	1.0	20	0	102	75-125	20.08	1.34	20	
Benzene	22.15	1.0	20	0	111	75-126	21.94	0.945	20	
Toluene	22.14	1.0	20	0	111	75-125	20.77	6.38	20	
Ethylbenzene	21.24	1.0	20	0	106	76-125	20.77	2.28	20	
Xylenes, Total	62.04	3.0	60	0	103	75-125	60.48	2.55	20	
Surr: 4-Bromofluorobenzene	34.55	1.0	*30*	*0*	*115*	*75-129*	*35.74*	*3.38*	*20*	
Surr: Trifluorotoluene	34.02	1.0	*30*	*0*	*113*	*75-130*	*34.74*	*2.11*	*20*	

The following samples were analyzed in this batch: 1312402-03A 1312402-16A 1312402-17A 1312402-19A

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

Client: ARCADIS U.S., Inc.
Work Order: 1312402
Project: Huntsman-Brickland NM

QC BATCH REPORT

Batch ID: **R158475** Instrument ID **BTEX5** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-131212-R158475** Units: **µg/L** Analysis Date: **12/12/2013 10:33 AM**
Client ID: Run ID: **BTEX5_131212A** SeqNo: **3466597** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	ND	2.0								
o-Xylene	ND	1.0								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	35.55	1.0	*30*	*0*	*119*	*75-129*	*0*			
Surr: Trifluorotoluene	35.57	1.0	*30*	*0*	*119*	*75-130*	*0*			

LCS Sample ID: **BLCSW1-131212-R158475** Units: **µg/L** Analysis Date: **12/12/2013 09:58 AM**
Client ID: Run ID: **BTEX5_131212A** SeqNo: **3466596** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	36.35	2.0	40	0	90.9	75-125				
o-Xylene	18.09	1.0	20	0	90.5	75-125				
Benzene	19.36	1.0	20	0	96.8	75-126				
Toluene	19.09	1.0	20	0	95.5	75-125				
Ethylbenzene	18.65	1.0	20	0	93.3	75-125				
Xylenes, Total	54.44	3.0	60	0	90.7	75-125				
Surr: 4-Bromofluorobenzene	35.38	1.0	*30*	*0*	*118*	*75-129*	*0*			
Surr: Trifluorotoluene	34.88	1.0	*30*	*0*	*116*	*75-130*	*0*			

MS Sample ID: **1312419-03AMS** Units: **µg/L** Analysis Date: **12/12/2013 12:02 PM**
Client ID: Run ID: **BTEX5_131212A** SeqNo: **3466602** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	39.59	2.0	40	0	99	75-125				
o-Xylene	19.89	1.0	20	0	99.5	75-125				
Benzene	21.54	1.0	20	0	108	75-126				
Toluene	21.03	1.0	20	0	105	75-125				
Ethylbenzene	20.44	1.0	20	0	102	75-125				
Xylenes, Total	59.48	3.0	60	0	99.1	75-125				
Surr: 4-Bromofluorobenzene	36.07	1.0	*30*	*0*	*120*	*75-129*	*0*			
Surr: Trifluorotoluene	36.12	1.0	*30*	*0*	*120*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1312402
Project: Huntsman-Brickland NM

QC BATCH REPORT

Batch ID: **R158475** Instrument ID **BTEX5** Method: **SW8021B**

MSD Sample ID: **1312419-03AMSD** Units: **µg/L** Analysis Date: **12/12/2013 12:20 PM**

Client ID: Run ID: **BTEX5_131212A** SeqNo: **3466603** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	40.41	2.0	40	0	101	75-125	39.59	2.05	20	
o-Xylene	20.31	1.0	20	0	102	75-125	19.89	2.06	20	
Benzene	21.73	1.0	20	0	109	75-126	21.54	0.867	20	
Toluene	20.97	1.0	20	0	105	75-125	21.03	0.28	20	
Ethylbenzene	20.51	1.0	20	0	103	76-125	20.44	0.33	20	
Xylenes, Total	60.72	3.0	60	0	101	75-125	59.48	2.05	20	
Surr: 4-Bromofluorobenzene	35.66	1.0	*30*	*0*	*119*	*75-129*	*36.07*	*1.14*	*20*	
Surr: Trifluorotoluene	35.75	1.0	*30*	*0*	*119*	*75-130*	*36.12*	*1.02*	*20*	

The following samples were analyzed in this batch: 1312402-02A 1312402-04A 1312402-14A

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

Client: ARCADIS U.S., Inc.
Work Order: 1312402
Project: Huntsman-Brickland NM

QC BATCH REPORT

Batch ID: **R158526** Instrument ID **BTEX5** Method: **SW8021B**

MBLK Sample ID: **BBLKW1-131213-R158526** Units: **µg/L** Analysis Date: **12/13/2013 11:35 AM**
Client ID: Run ID: **BTEX5_131213A** SeqNo: **3468273** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	ND	2.0								
o-Xylene	ND	1.0								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	3.0								
Surr: 4-Bromofluorobenzene	35.96	1.0	*30*	*0*	*120*	*75-129*	*0*			
Surr: Trifluorotoluene	34.48	1.0	*30*	*0*	*115*	*75-130*	*0*			

LCS Sample ID: **BLCSW1-131213-R158526** Units: **µg/L** Analysis Date: **12/13/2013 10:59 AM**
Client ID: Run ID: **BTEX5_131213A** SeqNo: **3467820** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	36.84	2.0	40	0	92.1	75-125				
o-Xylene	18.85	1.0	20	0	94.3	75-125				
Benzene	19.9	1.0	20	0	99.5	75-126				
Toluene	19	1.0	20	0	95	75-125				
Ethylbenzene	18.79	1.0	20	0	94	75-125				
Xylenes, Total	55.69	3.0	60	0	92.8	75-125				
Surr: 4-Bromofluorobenzene	35.39	1.0	*30*	*0*	*118*	*75-129*	*0*			
Surr: Trifluorotoluene	34.85	1.0	*30*	*0*	*116*	*75-130*	*0*			

MS Sample ID: **1312402-10AMS** Units: **µg/L** Analysis Date: **12/13/2013 04:44 PM**
Client ID: **MW-6S** Run ID: **BTEX5_131213A** SeqNo: **3468591** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	320.6	20	400	0	80.2	75-125				
o-Xylene	165.5	10	200	0	82.8	75-125				
Benzene	173.6	10	200	0	86.8	75-126				
Toluene	171.7	10	200	0	85.8	75-125				
Ethylbenzene	159.2	10	200	0	79.6	75-125				
Xylenes, Total	486.2	30	600	0	81	75-125				
Surr: 4-Bromofluorobenzene	265.1	10	*300*	*0*	*88.4*	*75-129*	*0*			
Surr: Trifluorotoluene	266.1	10	*300*	*0*	*88.7*	*75-130*	*0*			

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

Client: ARCADIS U.S., Inc.
Work Order: 1312402
Project: Huntsman-Brickland NM

QC BATCH REPORT

Batch ID: **R158526** Instrument ID **BTEX5** Method: **SW8021B**

MSD Sample ID: **1312402-10AMSD** Units: **µg/L** Analysis Date: **12/13/2013 05:02 PM**

Client ID: **MW-6S** Run ID: **BTEX5_131213A** SeqNo: **3468592** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
m,p-Xylene	324.3	20	400	0	81.1	75-125	320.6	1.15	20	
o-Xylene	164.7	10	200	0	82.3	75-125	165.5	0.533	20	
Benzene	172.4	10	200	0	86.2	75-126	173.6	0.702	20	
Toluene	165.6	10	200	0	82.8	75-125	171.7	3.61	20	
Ethylbenzene	164.6	10	200	0	82.3	76-125	159.2	3.35	20	
Xylenes, Total	489	30	600	0	81.5	75-125	486.2	0.58	20	
Surr: 4-Bromofluorobenzene	262.4	10	*300*	*0*	*87.5*	*75-129*	*265.1*	*1.05*	*20*	
Surr: Trifluorotoluene	258.2	10	*300*	*0*	*86.1*	*75-130*	*266.1*	*3.03*	*20*	

The following samples were analyzed in this batch:

1312402-01A	1312402-05A	1312402-06A
1312402-07A	1312402-08A	1312402-09A
1312402-10A	1312402-11A	1312402-12A
1312402-13A	1312402-15A	1312402-18A
1312402-20A		

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

Client: ARCADIS U.S., Inc.
Project: Huntsman-Brickland NM
WorkOrder: 1312402

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

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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Units Reported	Description
µg/L	Micrograms per Liter

ALS Environmental

Sample Receipt Checklist

Client Name: **ARCADIS-BATON ROUGE** Date/Time Received: **10-Dec-13 10:50**

Work Order: **1312402** Received by: **BFP**

Checklist completed by Johnnie B. Allen (eSignature) 11-Dec-13 (Date) Reviewed by: Bethany McDaniel (eSignature) 16-Dec-13 (Date)

Matrices: water
Carrier name: FedEx Priority Overnight

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):	0.2 C/0.2 C u/c	IR 1	
Cooler(s)/Kit(s):	5610		
Date/Time sample(s) sent to storage:	12/11/13 07:40		
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 logged in w/out test codes

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

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 3

COC ID: 86753

1312402

ARCADIS-BATON ROUGE: ARCADIS U.S., Inc.

Project: Huntsman-Brickland NM

ALS Project Manager:

Customer Information		Project Information		
Purchase Order		Project Name	Huntsman- Brickland NM	A
Work Order		Project Number	LA003185.001	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@arcad	J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-11	12-3-13	1450	W	HCl	3-VOA	X										
2	FB120313	12-3-13	1430	W	HCl	3-VOA	X										
3	EB 120313	12-3-13	1605	W	HCl	3-VOA	X										
4	FB120413	12-4-13	810	W	HCl	3-VOA	X										
5	MW-17	12-4-13	830	W	HCl	3-VOA	X										
6	MW-9S	12-4-13	955	W	HCl	3-VOA	X										
7	MW-3D	12-4-13	1055	W	HCl	3-VOA	X										
8	MW-3S	12-4-13	1155	W	HCl	3-VOA	X										
9	MW-6D	12-4-13	1335	W	HCl	3-VOA	X										
10	MW-6S	12-4-13	1415	W	HCl	3-VOA	X										

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

Shipment Method: FEDEX

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

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Doug Solon	12/5/13	1300	CSO 12-10-13/10:50	
Relinquished by:	Date:	Time:	Received by (Laboratory):	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)
		☑ Level II Std QC ☐ TRRP CheckList ☐ Level III Std QC/Raw Data ☐ TRRP Level IV ☐ Level IV 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.

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 +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

COC ID: 86752

ALS Environmental

ALS Project Manager: | ALS Work Order #: 1312902

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.001	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@arcad	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	FD120413	12-4-13	1415	W	HCl	3-VOA	X										
2	MW-65 MS	12-4-13	1415	W	HCl	3-VOA	X										
3	MW-65 MSD	12-4-13	1415	W	HCl	3-VOA	X										
4	MW-05	12-4-13	1525	W	HCl	3-VOA	X										
5	MW-08	12-4-13	1615	W	HCl	3-VOA	X										
6	EB120413	12-4-13	1625	W	HCl	3-VOA	X										
7	~~MW-10~~ MW-10	12-5-13	935	W	HCl	3-VOA	X										
8	FB120513	12-5-13	935	W	HCl	3-VOA	X										
9	EB120513	12-5-13	945	W	HCl	3-VOA	X										
10																	

34 of 36

Sampler(s) Please Print & Sign: Doug Solar Douglas M. Solar

Shipment Method: FEDEX

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

Results Due Date:

Relinquished by:	Date:	Time:	Received by:	Notes:
Doug Solar	12/5/13	1300		
Relinquished by:	Date:	Time:	Received by (Laboratory): 12-10-13/10:50	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC
☐ Level III Std QC/Raw Data
☐ Level IV SW846/CLP
☐ Other / EDD
☐ TRRP Checklist
☐ TRRP Level IV

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.

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 +1 304 356 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

COC ID: 86751

ALS Project Manager: | ALS Work Order #: 1312907

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	Huntsman- Brickland NM	A	8021-BTEX
Work Order		Project Number	LA003185.001	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@arcad	J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	UPSTREAM	12-5-13	1010	W	HCl	3-VOA	X										
2	EB-2-120513	12-5-13	1015	W	HCl	3-VOA	X										
3	Downstream	12-5-13	1030	W	HCl	3-VOA	X										
4																	
5																	
6																	
7																	
8																	
9																	
10																	

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

Shipment Method: FEDEX

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: 12/05/13 | Time: 1300 | Received by: [illegible] 12-10-13/10:50

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

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

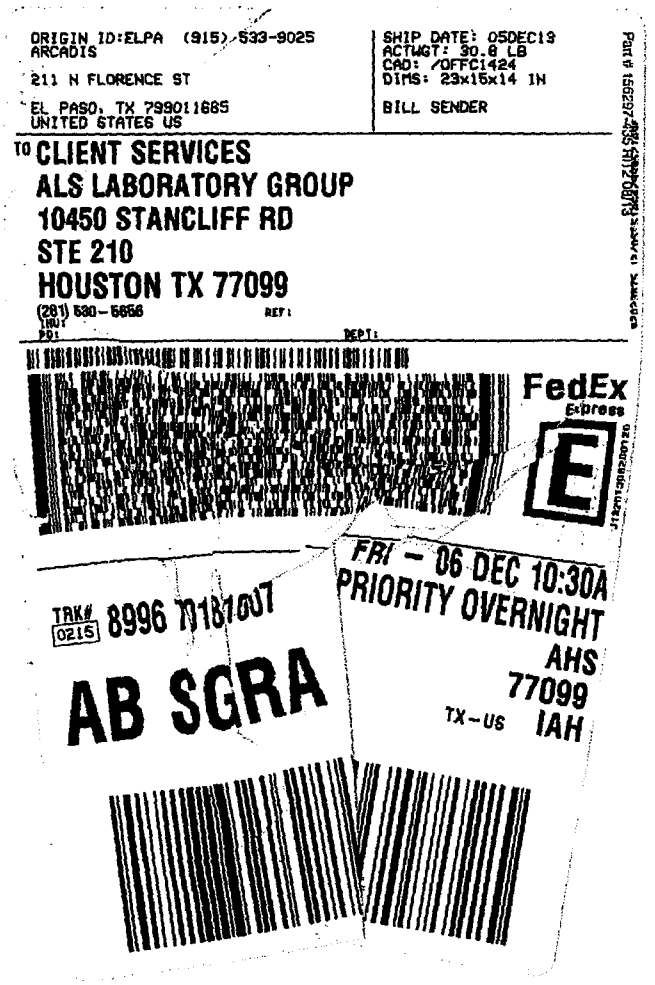
Notes:

Cooler ID	Cooler Temp.

QC Package: (Check One Box Below)
☑ Level II Std QC ☐ TRRP CheckList
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV 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.



ORIGIN ID:ELPA (915) 533-9025
ARCADIS
211 N FLORENCE ST
EL PASO, TX 799011685
UNITED STATES US

SHIP DATE: 05DEC13
ACTWGT: 30.0 LB
CAD: /OFFC1424
DIMS: 23x15x14 IN
BILL SENDER

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF RD
STE 210
HOUSTON TX 77099
(281) 530-5656

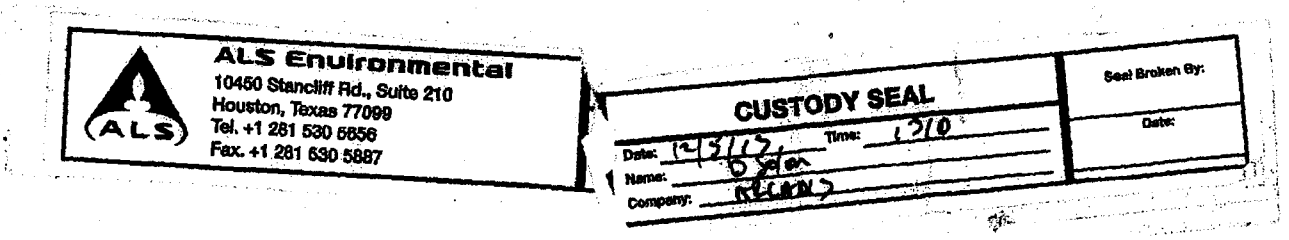
REF:
INV:
PO:
DEPT:

FedEx Express

TRK# 0215 8996 7018 1007

AB SGRA

FRI - 06 DEC 10:30A
PRIORITY OVERNIGHT
AHS
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: 12/5/13 Time: 1310
Name: Oscar
Company: ARCADIS

Seal Broken By:
Date: