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April 8, 2019

New Mexico Oil Conservation Division, District 1
1625 N. French Drive
Hobbs, NM 88240

Re: State A-10
Site Assessment Report - Closure Request
NMOCD Case No 1RP-3637
Lea County, New Mexico

Dear whom it concerns,

Please find enclosed for your files, copies of the following report:

- State A-10 - Site Assessment Report - Closure Request

The submittal was prepared by Arcadis U.S., Inc. (Arcadis) on behalf of Chevron Environmental Management Company (CEMC).

Please do not hesitate to call Brett Krehbiel with Arcadis at 916-786-5382 or myself at 832-854-5601, should you have any questions.

Sincerely,

Jason Michelson

Jason Michelson

Encl. State A-10 - Site Assessment Report - Closure Request

C.C. Amy Barnhill, Chevron/MCBU

ARCADIS Design & Consultancy for natural and built assets

New Mexico Oil Conservation Division – District I
Environmental Specialist
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www.arcadis.com

ENVIRONMENT

Subject:
Site Assessment Report - Closure Request
2018 HES Transfer Site – State A-10
NMOCD Case No. 1RP-3637
Lea County, New Mexico

Date:
April 8, 2019

Contact:
Brett Krehbiel

Phone:
916.786.5382
Email:
Brett.Krehbiel@arcadis.com

Our ref:
B0048625.0A10

ARCADIS U.S., Inc.
TX Engineering License # F-533
Geoscientist License # 50158

Dear whom it concerns:

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) prepared this Site Assessment Report (Report) for State A-10 located in Lea County, New Mexico (site; **Figure 1**). This Report summarizes the field activities completed and the results of samples collected during soil and groundwater investigation activities conducted on site in June 2016, September 2016 and August 2017. The purpose of the Report is to present final soil boring and monitoring well locations, monitoring well construction details, results of samples collected, and the data evaluation performed as part of the investigations after the May 3, 2015 release of oil and produced water.

SITE DESCRIPTION AND BACKGROUND

The following site description and background section provides an overview of the site location and description, as well as the regional setting including geology, hydrogeology, nearby drinking water wells, surface water, and climate.

Site Location and Description

The site is located within the Vacuum Glorieta West Unit (VGWU) approximately 14.5 miles southwest of Lovington, New Mexico. New Mexico Highway 238 is located approximately 0.54 mile east of the site.

The site is situated in the western edge of the Permian Basin, a 75,000-square-mile area in west Texas and New Mexico populated by numerous oil and gas

production wells. In New Mexico, the Permian Basin extends to Roosevelt County to the north and Chaves County to the west. Lovington (the closest town) is approximately 13 miles northeast of the site and the closest agricultural area is 7 miles northeast of the site.

Climate

Monthly average temperatures near the site vary from a minimum of 27.9 degrees Fahrenheit (°F) in January to a maximum of 93.9°F in July (Western Regional Climate Center [WRCC] Hobbs, New Mexico [294026] weather station). Total average precipitation recorded for the area of the site from the available WRCC period of record between 1912 and 2016 was approximately 15.75 inches per year (WRCC 2019a).

Due to the arid climate, the site experiences low precipitation and high evapotranspiration rates. The total average evapotranspiration from the available WRCC period of record between 1914 and 2005 was approximately 87.68 inches per year (WRCC 2019b).

Regional Geology and Hydrogeology

The site elevation is approximately 4,000 feet above mean sea level (amsl). The site is located in the Querecho Plains immediately west of the Mescalero Ridge, which demarcates the western boundary of the (Miocene to Pliocene) High Plains Ogallala Formation (Reeves 1972). A rapid drop in elevation of 200 to 250 feet occurs west of the northwest-trending Mescalero Ridge. The Ogallala Formation east of the ridge is predominantly composed of unconsolidated alluvial fan deposits of sand and gravel near the base, overlain by interbedded sand and clay in the upper portion (Seni 1980). Repeated depositional events on the High Plains surface beginning approximately 7 million years ago, followed by aerial exposure, generated a thick sequence of caliche horizons that are competent enough to act as a cliff for the expression of Mescalero Ridge. These hard caliche deposits form the upper portion of the stratigraphic sequence. In the site area, the Ogallala Formation is underlain by red beds of the Upper Triassic-age Dockum Group. The nearest area where the Ogallala is underlain by the Cretaceous-age Trinity Group is approximately 45 miles to the northwest (Fallin 1988).

The Querecho Plain is 80 percent covered by a moderately stable dune field (Reeves 1972) that is deposited on top of Triassic Dockum red beds. The red bed surface, which is 400,000 to 500,000 years old, is relatively flat with minor erosional incisions and a 3- to 13-foot-thick near-surface caliche layer (Bachman 1980). Deposition of sand and formation of the dune field began 60,000 years ago, with additional development beginning 9,000 years ago (Hall 2002). The surface and interior of these dunes do not contain caliche; however, a 1-foot layer of caliche is common at the bottom of the dunes at the contact with the red bed surface. Groundwater in the area is in the Dockum Group at a depth of approximately 100 feet (Summers 1972). Compared to the High Plains Ogallala Formation to the west of the site, the Dockum Group groundwater is not a major resource in the area due to poor potential water production rates and elevated natural dissolved solids.

Water-supply wells located in the southern High Plains east of Mescalero Ridge in central Lea County and near the site are completed in the High Plains Aquifer (HPA). The HPA consists primarily of the High Plains Ogallala Formation, and in localized areas, alluvial sediment of Quaternary age. Near the site, the HPA is present directly above the Triassic-age Dockum Group, which occurs at a depth of approximately

140 feet below ground surface (bgs) (Ash 1963, Fahlquist 2003, Nativ 1988, Nicholson and Clebsch 1961, Tillery 2008). The regional groundwater flow direction is to the east-southeast (Tillery 2008).

Based on satellite imagery, no surface-water bodies were identified within 2 miles of the site (GoogleEarth 2018). In October 2018, Arcadis reviewed information obtained from the New Mexico Office of the State Engineer (NMOSE) online database (NMOSE 2018), which indicates that no water-supply wells are located within 1,000 feet of the site. In addition, depth to groundwater was gauged at the three monitoring wells onsite (StateA10-MW1, MW2, and MW3) in September 2016 and June 2017 (**Table 1**). On average, depth to groundwater on site is 106.2 feet bgs.

INITIAL RELEASE RESPONSE ACTIVITIES

According to the submitted New Mexico Oil Conservation Division (NMOCD) Notification of Release and Correction Action (Form C141), a release of 4.45 bbls of oil and 5.57 bbls of produced water occurred at the site on May 3, 2015 due to the failure of a rod blowout preventer located below the stuffing box. Chevron personnel from the Mid-Continent Business Unit (MCBU) stopped the release and conducted the initial response activities. Chevron MCBU personnel excavated visually affected soil in the area to a depth of approximately 1-foot bgs and collected four discrete confirmation soil samples from the base of the excavation on July 6, 2015. Information regarding the disposal of the excavated soil was not available to Arcadis. After collecting the soil samples, the excavated area was reportedly backfilled with imported soil.

Pursuant to NMOCD requirements (NMOCD 1993), Form C-141 detailing the location, volume of release, and initial and planned cleanup efforts taken was submitted for the site by Edem Sededji (Chevron). The initial and updated C-141 forms are included as **Attachment 1**.

SOIL INVESTIGATIONS

Site Assessment Activities

MCBU personnel collected four soil samples (1, 2, 3 and 4) on July 6, 2015 to initially assess the impacted area at State A-10. The location of collected samples are presented in **Figure 2**. Soil samples were collected in laboratory provided bottles and submitted to Cardinal Laboratories, a New Mexico-certified laboratory, for the following compounds:

- Benzene, toluene, ethylene, and xylenes (collectively referred to as BTEX) in accordance with United States Environmental Protection Agency (USEPA) Method 8021B
- Chloride in accordance with Standard Method 4500Cl-B
- Total petroleum hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) in accordance with USEPA Method 8015M

Soil assessment activities were conducted in June and September 2016 by Arcadis. A total of five soil borings (StateA10-01 through StateA10-05) were installed, to depths ranging from 30 to 70 feet bgs. Soil was continuously logged for lithologic characteristics according to the Unified Soil Classification System (USCS).

Soil samples were collected at 4 feet bgs and then at each 10-foot depth interval. (**Table 2**). Samples were placed in laboratory-supplied containers and submitted under appropriate chain of custody protocols to Xenco Laboratories (Xenco) for the following analyses:

- Chloride by USEPA Method 300.0
- TPH GRO by SW-846 Method SW8015B modified
- TPH DRO by SW-846 Method SW8015B modified
- Percent moisture by ASTM International Method D2216
- pH by USEPA Method 9045C

To further evaluate the lateral extent of affected soil at the site, Arcadis advanced two soil borings (State A10-06 and State A10-07) on August 14, 2017. Each soil boring was advanced to a total depth of approximately 4 feet bgs using air knife equipment. Soil was continuously logged for lithologic characteristics according to the USCS (**Attachment 2**). The soil samples were field screened for the presence of volatile organic compounds using a photo ionization detector (PID) in combination with visual and field screening methods for evidence of petroleum hydrocarbons. The PID used during this assessment was calibrated daily with fresh air and isobutylene gas. In addition, Arcadis used Quantab® field screening methods to quantify chloride concentrations in soil prior to sample collection (Boyer 2004).

One soil sample was collected from each boring location at 4 feet bgs. Soil samples were placed in laboratory-supplied containers and submitted under appropriate chain of custody protocols to Xenco for the following analysis of chloride by USEPA Method 300.

Following sampling, the boreholes were filled with soil cuttings and grouted to ground surface. The ground surface was restored to match the surrounding conditions. Boring locations are shown on **Figure 2**. Photographic documentation is provided as **Attachment 3**.

Sample Results

Lithologic data indicated that the subsurface material primarily consists of caliche profiles including “caprock,” nodular, and sandy caliche layers from approximately 0 to 4 feet bgs. No staining or elevated PID readings were observed. Soil sample analytical results are summarized in **Table 2**. The analytical data are compared to the closure criteria (CC) outlined in Title 19, Chapter 15, Part 29 (19.15.29) of the New Mexico Administrative Code (NMAC) concerning natural resources and wildlife, oil and gas, and releases which became effective on August 14, 2018.

Total BTEX was detected in soil samples 1, 2, and 3 collected in July 2015 at concentrations ranging from 0.496 milligram per kilogram (mg/kg) (1) to 5.09 mg/kg (2). Total xylenes represent 80 to 90% of the total BTEX concentrations with no detection of benzene or toluene. The detections of Total BTEX concentrations in these soil samples are below the NMAC CC of 50 mg/kg. TPH GRO was detected in soil samples 2 and 3 at concentrations of 538 mg/kg and 167 mg/kg, respectively. TPH DRO was detected in each soil sample at concentrations ranging from 4,190 mg/kg (4) to 10,800 mg/kg (2). TPH concentrations in each of the four samples exceed the cumulative TPH (DRO + ORO) CC limit of 1,000 mg/kg. Chloride was detected in each of the four soil samples at concentrations ranging from 512 mg/kg (4) to 928 mg/kg (1) which is below the NMAC CC of 20,000 mg/kg.

TPH-GRO and TPH-DRO were not detected in soil samples collected from the soil borings advanced in 2016 with the exception of TPH-GRO which was detected in one soil sample collected from State A10-04 at 20 feet bgs with a concentration of 16 mg/kg.

Chloride was detected in 15 of the 24 soil samples collected from the borings advanced in 2016 and 2017. Chloride concentrations ranged from 14.2 mg/kg (StateA10-05 at 20 feet bgs) to 1,630 mg/kg (StateA10-02 at 50 feet bgs) which is below the NMAC CC of 20,000 mg/kg.

Laboratory analytical results with chain of custody documentation are provided in **Attachment 4**.

2016 AND 2017 GROUNDWATER ASSESSMENT

Site Assessment Activities

Arcadis installed groundwater monitoring wells StateA10-MW1, StateA10-MW2 and StateA10-MW3 in September 2016. Soil was continuously logged for lithologic characteristics according to the USCS. After well installation and development, one groundwater grab sample was collected from each of the newly installed wells. In June 2017, additional groundwater samples were collected from StateA10-MW1, StateA10-MW2 and StateA10-MW3. Groundwater samples collected during each of the two sampling events were placed in laboratory-supplied containers and submitted under appropriate chain of custody protocols to Xenco for the analysis for chloride in accordance with the USEPA Method 300/300.1.

Boring logs and monitoring well completion diagrams are provided in **Attachment 2**. Laboratory analytical results with chain of custody documentation are provided in **Attachment 4**.

Sample Results

Groundwater analytical results are compared the Human Health Standards outlined in Title 20, Chapter 6, Part 2 (20.6.2) of the New Mexico Administrative Code (NMAC) concerning environmental protection, water quality, ground and surface water protection which became effective on December 1, 1995.

Chloride was detected at concentrations less than the NMAC Standard of 250 milligrams per liter (mg/L) in groundwater samples collected from State A10-MW1, State A10-MW2 and State A10-MW3. Chloride concentrations were 82.3 mg/L in StateA10-MW1, 128 mg/L in StateA10-MW2 and 73.2 mg/L in StateA10-MW3 during the September 2016 event. Chloride concentrations were 66.7 mg/L in StateA10-MW1, 102 mg/L in StateA10-MW2 and 23.6 mg/L in StateA10-MW3 during the June 2017 event. Chloride concentrations decreased between 2016 and 2017 and remain less than the NMAC Standard of 250 mg/L. The cumulative groundwater analytical results for chloride are provided in **Table 3**.

2017 GEOPHYSICAL SURVEY

On December 6 and 7, 2017, Arcadis performed an electromagnetic conductivity survey over accessible areas of the site covering approximately 2.3 acres (**Figures 5** through **9**). The objective of the survey was to determine background electrical conductivity (EC) response and identify EC anomalies within the surveyed area to assess the lateral extent of possible produced water-related soil impacts.

The particularly high electrical conductivity of oil field production water makes the detection of produced water-related soil impacts by geophysical methods sensitive to the electrical conductivity of soil and

groundwater a reliable approach. There are several methods that can be used for quantifying the EC of soil and groundwater, but a class of instruments which utilize the concept of electromagnetic induction to measure EC are very effective in many situations. Electromagnetic (EM) instruments that operate in what is known as the frequency domain are well suited for shallow investigations. EM conductivity instruments consist of co-planar transmitter and receiver coils, and a power source that can be handled by one or two persons. During the operation of the instrument, the transmitter coil is energized by an alternating current and radiates an electromagnetic field into the earth. This transmitted primary field induces electrical currents in the earth below the instrument. The magnitude of the induced current is proportional to the EC of the earth materials beneath the instrument. The induced current flow generates a secondary electromagnetic field, phase-lagged behind the primary field, that is detected by the receiver coil on the instrument. The receiver coil also detects the primary field and uses the ratio of the secondary to primary field to calculate the EC of the earth. This reading represents a bulk EC measurement, known as the apparent EC, within a volume of ground directly beneath the instrument down to its effective depth of penetration. The penetration depth is determined by the transmitter frequency, coil separation, height of instrument off the ground surface, and orientation of the coils.

For this site, Arcadis performed shallow-imaging EM surveys with a GEM-2 broadband electromagnetic sensor manufactured by Geophex Ltd. The GEM-2 is a digital, multi-frequency sensor capable of transmitting and receiving a digitally-synthesized arbitrary waveform containing multiple frequencies. The approximate depth of exploration for a given earth medium is determined by the operating frequency of the sensor. By utilizing multiple frequencies to measure the earth response from several depths, a concept of the approximate three-dimensional distribution of subsurface materials can be created. The quad-phase and in-phase instrument response values are stored in a handheld computer for subsequent processing. Data were collected in vertical dipole mode using five discrete frequencies (93 kilohertz (kHz), 63 kHz, 18.3 kHz, 5.3 kHz, and 1.5 kHz). The higher instrument frequencies are sensitive to shallow variations in the subsurface, while the lower instrument frequencies are more sensitive to deeper variations in the subsurface.

Data were collected along lines spaced approximately 10 feet apart with nearly continuous data coverage along these lines. Positioning information was provided by a Hemisphere A100 global positioning system (GPS) receiver with dynamic, real time correction (submeter accuracy). GPS and instrument response data were simultaneously recorded in a handheld field computer. All GPS and geophysical data collected during the survey were merged into a single data file for subsequent data processing.

Once EM data sets were collected, they were transferred to a laptop computer while on site. The data sets were preprocessed using *WinGEM* from Geophex Ltd. and imported into *Surfer Version 15* to create relative conductivity maps. A raw plot of the GPS positions was created to verify the sufficiency of data coverage, which was verified affirmatively. Preliminary contour plots of the raw apparent conductivity data were also created while on site to verify that the data were within acceptable bounds and that project objectives were being met.

To further assess EC variations in the subsurface, additional GEM-2 data were collected along a west to east transect line (A-A') and a south to north transect line (B-B') as depicted in **Figure 5**. In order to produce a more robust model, data from nine discrete frequencies were collected along the two transect lines (93 kHz, 80kHz, 63kHz, 38.3kHz, 18.3kHz, 12.4 kHz, 5.3kHz, 2.4kHz and 1.5 kHz). The data were inverse-modeled using the software IX1Dv3 by Interpex to produce electrical resistivity cross-sections of

the subsurface. Note that modeled GEM-2 2D data at depths near the limit of the penetration of the GEM-2 instrument are less constrained with results typically displaying distortions near the base of the model.

Interpretation of Geophysical Results

Figures 5 through **7** present color-filled contour maps for the 63kHz GEM2 data (4 to 8-foot sensing depth), the 18.3kHz GEM2 data (6 to 10-foot sensing depth), and the 5.3kHz GEM2 data (8 to 12-foot sensing depth), respectively. **Figures 8** and **9** present GEM-2 2D modelling results along the A-A' and B-B' profiles. Locations of metallic pipelines (based on field observations and aerial photographs) and 2016 soil sample locations are denoted in the figures.

The color scale used in **Figures 5** through **9** is designed to visually portray the deviation from the background EC conditions, which are in the gray to blue green range. In contrast, anomalous areas of high EC are shown in upper portion of the color scale, from green to yellow to red, progressively indicating higher EC, which is generally assumed to reflect proportionately higher total dissolved solids (TDS) pore fluids (produced water influence) or conductive metallic features (site structure or subsurface utilities). Anomaly intensity and physical dimensions typically reveal whether the anomalies are due to pore fluid chemistry or metallic objects. Note that the data output for the GEM-2 model profiles presented in **Figure 8** and **9** is in units of electrical resistivity (ohm-meters, logarithmic scale) which is the inverse quantity of electrical conductivity (mS/m). A corresponding logarithmic color scale is used in **Figure 7** and **8** to depict areas of low electrical resistivity in the A-A' and B-B' profiles with warm colors (yellow to red) that correlate to areas of high EC in the contour maps.

As depicted in **Figures 5** through **7**, no significant elevated EC responses are observed within the vicinity of the red outlined State A-10 spill extent. The low to moderate EC response shown in **Figure 7** surrounding the pumpjack at the southern edge of the spill zone is likely attributed to metallic interference. Approximately 70 feet south of the outlined spill, an area of high EC response located west of monitoring well StateA10-MW1 is depicted in **Figures 5** through **7**. The elevated EC response in this area does not intersect the outlined spill extent and therefore does not appear to be associated with a release within the State A-10 area.

The west to east GEM-2 A-A' profile shown in **Figure 8** resolves two small perched high conductivity zones located outside of the red outlined spill area. The two EC features are discontinuous and isolated to approximately 7 to 16 feet bgs and therefore do not appear to be associated with a release within the State A-10 spill area. The south to north GEM-2 B-B' profile shown in **Figure 9** resolves a high conductivity feature at the west edge of the model that is associated with the previously mentioned high EC area located south of the outlined spill extent. As shown in **Figure 9**, the high conductivity feature may extend further to the west as the B-B' model does not delineate the base or full spatial extent of high conductivity zone.

2018 SOIL EXCAVATION

Excavation Activities

On July 30, 2018, Arcadis began potholing the parameter of the excavation area as well as exposing the buried lines within or in proximity to the area. Native stone was discovered at approximately 12 inches bgs (**Attachment 3**); therefore, a maximum depth of 3 feet bgs was achieved at only one location during potholing. The depth of the rest of the trench was between 8 and 15 inches bgs. The area within the potholed parameter was excavated to an average depth of 8 inches bgs on July 31 through August 3, 2018 with a maximum depth of approximately 3.5 feet bgs. Approximately 140 cubic yards of impacted soil were excavated and stockpiled on visqeen onsite pending analysis.

Three sidewall samples (State-A10-01-W, State-A10-02-S, State-A10-03-E) were collected at the base of the excavation (ranging between 0.5 and 3.5 feet bgs). Confirmation sidewall soil samples were collected in laboratory-supplied sample containers, labeled, placed on ice, and submitted to Xenco under chain of custody protocol. Expedited turnaround time (2 business days) for laboratory analysis was requested for all soil samples. Each sample was analyzed for chloride by USEPA Method 300.0. Chloride concentrations were not detected in the sidewall soil confirmation samples above the revised NMAC closure criteria of 600 mg/kg for horizontal delineation within the first 4 feet bgs, or the site specific vertical screening criteria of 20,000 mg/kg. Confirmation soil sample results are summarized in **Table 2** and displayed in **Figure 3**. The laboratory analytical report is included in **Attachment 4**.

Once chloride impacted soils had been excavated, either to below the regulatory limit or to the extent possible due to the location of subsurface or surface infrastructure, a liner was be placed within the limits of the excavation footprint and clean fill was used to backfill the excavated areas. Upon receiving laboratory confirmation, the excavated soil was transported offsite to Sundance Services for disposal in accordance with state and federal regulations on August 14 and 15, 2018.

CONCLUSION

TPH impacted soil was excavated by MCBU in 2015, and soil assessment results conducted in 2016 (**Table 2**) confirm that no TPH impacted soil remains within the remediated area. The chloride-impacted soils were successfully excavated to the extent possible by Arcadis in 2018 (**Figure 3**). Confirmation sidewall samples collected at the base of the excavation did not contain chloride concentrations exceeding the revised NMAC closure criteria. In addition, soils associated with the release did not poses a significant threat to groundwater resources. This conclusion is supported by chloride concentrations detected in the groundwater samples collected in September 2016 and June 2017 being below NMAC closure criteria values (**Table 3**).

CLOSING

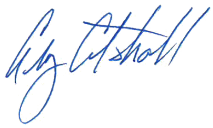
No further assessments or additional cleanup actions are required at the site. Arcadis will plug and abandon the three monitoring wells on site in 2019. A request will be submitted to the NMOCD for a No Further Action status to the site following the plug and abandonment.

If you have any questions or comments regarding the information presented in this Report, please contact Brett Krehbiel at 916.786.5382 or at Brett.Krehbiel@arcadis.com.

Sincerely,

Arcadis U.S., Inc.

Brett Krehbiel
Project Manager



Greg Cutshall
Program Manager

Copies:
Jason Michelson (CEMC)

Enclosures:

Tables

1 Gauging Groundwater Data
2 Soil Sampling Analytical Results
3 Groundwater Sampling Analytical Results

Figures

1 Site Vicinity Map
2 Site Plan
3 State A-10 Soil Analytical Results
4 State A-10 Groundwater Analytical Results
5 GEM-2 Conductivity Map – 63kHz
6 GEM-2 Conductivity Map – 18.3kHz
7 GEM-2 Conductivity Map – 5.3kHz
8 Modelled GEM-2 Profile – Section A-A'
9 Modelled GEM-2 Profile – Section B-B'

Attachments

1 Form C-141
2 Soil Boring Logs and Monitor Well Logs
3 Photographic Log
4 Laboratory Reports

References

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TABLES

Table 1
Groundwater Gauging Data
Chevron EMC
State A-10
Lea County, New Mexico

ARCADIS Design & Consultancy for natural and built assets

Monitoring Well ID	Date	DTW (ft btoc)	Total Depth (ft btoc)
StateA10-MW1	9/23/2016	106.91	228.59
	6/27/2017	105.97	228.38
StateA10-MW2	9/24/2016	104.94	244.86
	6/27/2017	107.7	224.55
StateA10-MW3	9/24/2016	104.24	227.67
	6/27/2017	107.29	227.04

Notes:

btoc - Below top of casing
DTW- depth to water
ft - feet

Table 2
Soil Analytical Results
Chevron EMC
State A-10
Lea County, New Mexico

Soil Sample Location ID	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Chloride (mg/kg)	% Moisture	pH
NMAC Closure Criteria [(a)]			10	---	---	---	50	1,000		20,000	---	---
1	7/6/2015	1	<0.050	<0.050	0.123	0.496	0.619	<50.0	**9,140**	928	--	--
2	7/6/2015	1	<0.200	<0.200	1.02	4.07	5.09	538	**10,800**	832	--	--
3	7/6/2015	1	<0.100	<0.100	0.103	0.929	1.03	167	**6,550**	752	--	--
4	7/6/2015	1	<0.050	<0.050	<0.050	<0.150	<0.300	<50.0	**4,190**	512	--	--
StateA10-01	6/24/2016	4	--	--	--	--	--	<15.6	<15.6	441	4.23	8.22
		10	--	--	--	--	--	<15.4	<15.4	<10.3	2.90	9.08
		20	--	--	--	--	--	<15.6	<15.6	<10.4	3.9	9.11
		30	--	--	--	--	--	<16.1	<16.1	<10.7	6.76	8.82
StateA10-02	6/24/2016	4	--	--	--	--	--	<16.5	<16.5	86.40	9.44	9.41
		10	--	--	--	--	--	<16.5	<16.5	131	9.60	9.69
		20	--	--	--	--	--	<17.2	<17.2	316	12.6	9.6
		30	--	--	--	--	--	<15.9	<15.9	418	5.72	9.68
		50	--	--	--	--	--	--	--	1,630	--	--
		70	--	--	--	--	--	--	--	865	--	--
StateA10-03	6/24/2016	4	--	--	--	--	--	<15.6	<15.6	131	3.94	8.63
		10	--	--	--	--	--	<16.0	<16.0	73.7	6.18	8.97
		20	--	--	--	--	--	<16.5	<16.5	<10.1	9.16	8.97
		30	--	--	--	--	--	<16.0	<16.0	<10.5	6.29	9.04
StateA10-04	6/24/2016	4	--	--	--	--	--	<15.9	<15.9	94.3	5.73	8.12
		10	--	--	--	--	--	<18.0	<18.0	45.9	16.90	8.46
		20	--	--	--	--	--	16	<15.1	29.5	<1.00	9.0
		30	--	--	--	--	--	<15.8	<15.8	<10.7	5.06	8.83

Table 2
Soil Analytical Results
Chevron EMC
State A-10
Lea County, New Mexico

Soil Sample Location ID	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Chloride (mg/kg)	% Moisture	pH
NMAC Closure Criteria [(a)]			10	---	---	---	50	1,000		20,000	---	---
StateA10-05	6/24/2016	4	--	--	--	--	--	<15.6	<15.6	47.5	3.84	8.92
		10	--	--	--	--	--	<16.2	<16.2	<10.8	7.45	9.04
		20	--	--	--	--	--	<15.2	<15.2	14.2	1.61	9.27
		30	--	--	--	--	--	<16.3	<16.3	23.4	8.11	8.84
State A10-06	8/14/2017	4	--	--	--	--	--	--	--	16.5	--	--
State A10-07	8/14/2017	4	--	--	--	--	--	--	--	120	--	--
State-A10-01-W	8/2/2018	3.5	--	--	--	--	--	--	--	223	--	--
State-A10-02-S	8/2/2018	0.5	--	--	--	--	--	--	--	283	--	--
State-A10-03-E	8/2/2018	1	--	--	--	--	--	--	--	580	--	--

Legend:

###	Analytical value is greater than or equal to NMAC closure criteria
%	Percent
mg/kg	Miligram(s) per kilogram
<	Analyte was not detected above the specified method reporting limit
--	Not Analyzed/Not Listed
ft bgs	Feet below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
NMAC	New Mexico Administrative Code
TPH-GRO	Total Petroleum Hydrocarbons as Gasoline Range Organics
TPH-DRO	Total Petroleum Hydrocarbons as Diesel Range Organics

Notes:
(a) Title 19, Chapter 15 of the NMAC for Natural Resources and Wildlife, Oil and Gas, and Releases, 19.15.29 NMAC. August 2018.

Table 3
Groundwater Analytical Results
Chevron EMC
State A-10
Lea County, New Mexico

Well ID	Sample Date	Chloride [1] (mg/L)
NMAC Standards [2]		250
StateA10-MW1	9/20/2016	82.3
	6/27/2017	66.7
StateA10-MW2	9/24/2016	128
	9/20/2016 (DUP)	135
	6/27/2017	102
	6/27/2017 (DUP)	104
StateA10-MW3	9/24/2016	73.2
	6/27/2017	23.6

Notes:
1. Chloride analyzed by EPA Method 300/300.1.
2. Title 20, Chapter 6 of the NMAC for Environmental Protection, Water Quality, Ground and Surface Water Protection, 20.6.2 NMAC. December.

Legend:

NMAC	New Mexico Administrative Code
DUP	Field duplicate sample

FIGURES

SOURCE: AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO - NOVEMBER 2, 2017

0 500' 1000'

GRAPHIC SCALE

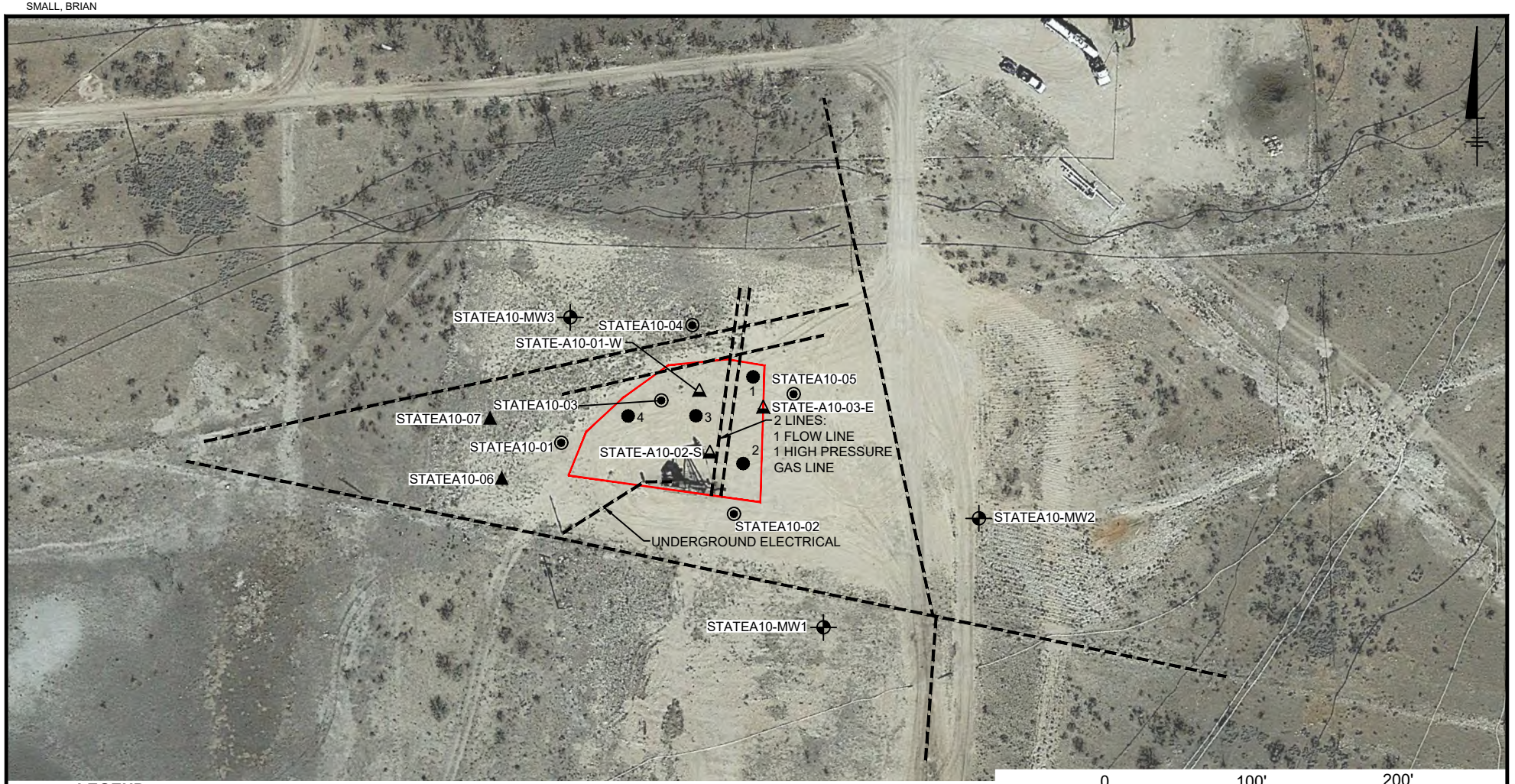
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
VGWU BATTERY
LEA COUNTY, NEW MEXICO
SITE ASSESSMENT REPORT

SITE VICINITY MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM
C:\Users\BSSmall\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\State A-10\2018\B0048625.1701\01-DWG\SitePlan-Fig2.dwg LAYOUT: 2 SAVED: 8/27/2018 3:58 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 8/27/2018 4:36 PM BY: SMALL, BRIAN



LEGEND:

- JULY 2015 ASSESSMENT SOIL SAMPLING LOCATION
- JUNE 2016 ASSESSMENT SOIL SAMPLING LOCATION
- AUGUST 2017 ASSESSMENT SOIL SAMPLING LOCATION
- AUGUST 2018 ASSESSMENT SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- APPROXIMATE EXTENT OF RELEASE
- UNDERGROUND UTILITY LINE

NOTES:

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO.
2. FUNCTIONAL MANAGEMENT TEAM REQUIRES BORING TO BE AT MINIMUM 10 FEET FROM UNDERGROUND UTILITIES.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
VGWU BATTERY
LEA COUNTY, NEW MEXICO

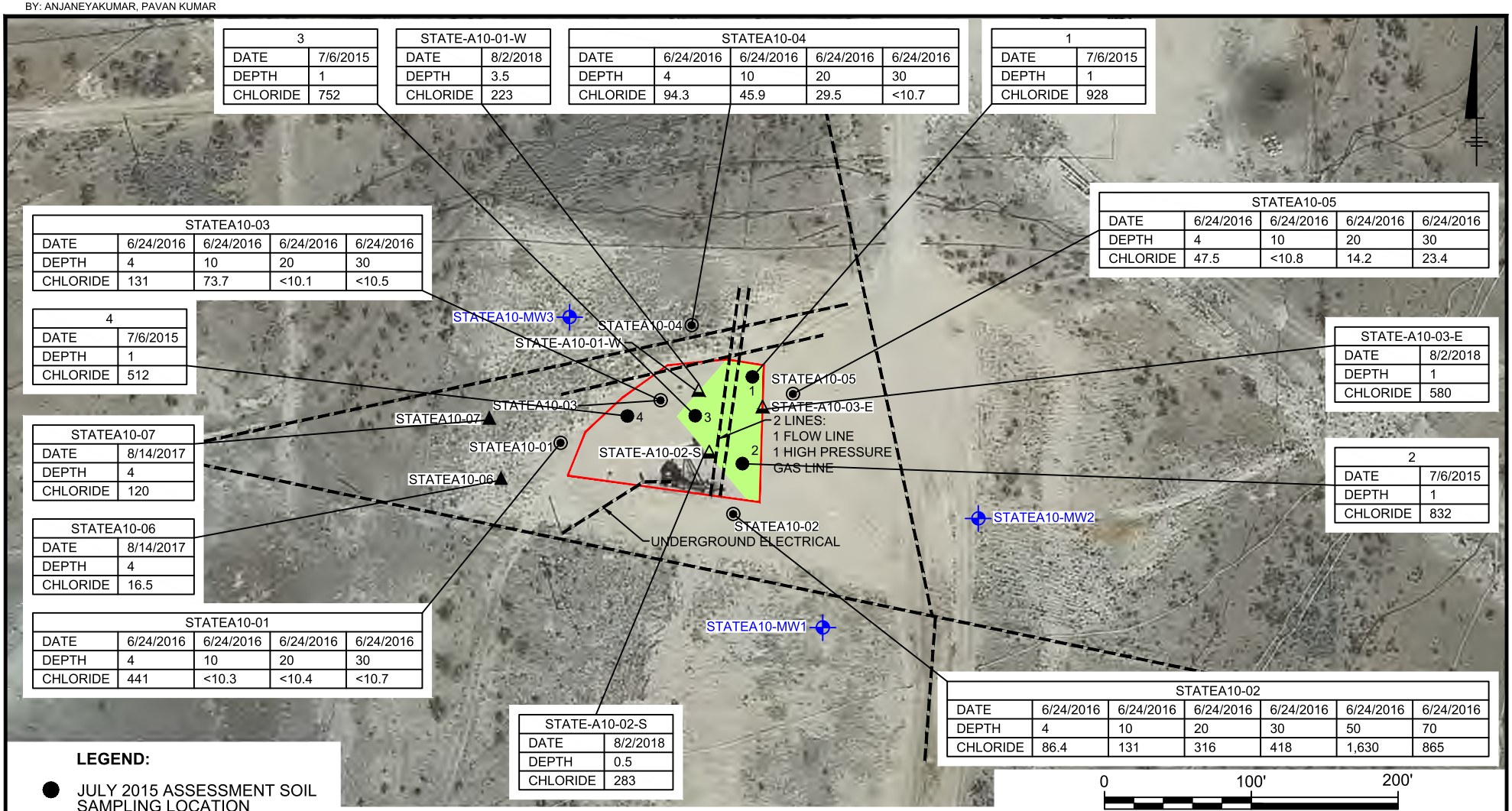
SITE ASSESSMENT REPORT

SITE PLAN

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM
C:\Users\PAI01041\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\State A-10\2018\B0048625.1701\01-DWG\SoilData-Fig3.dwg LAYOUT: 3 SAVED: 11/22/2018 11:11 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 11/22/2018 11:19 AM
BY: ANJANEYAKUMAR, PAVAN KUMAR



3	
DATE	7/6/2015
DEPTH	1
CHLORIDE	752

STATE-A10-01-W	
DATE	8/2/2018
DEPTH	3.5
CHLORIDE	223

STATEA10-04				
DATE	6/24/2016	6/24/2016	6/24/2016	6/24/2016
DEPTH	4	10	20	30
CHLORIDE	94.3	45.9	29.5	<10.7

1	
DATE	7/6/2015
DEPTH	1
CHLORIDE	928

STATEA10-03				
DATE	6/24/2016	6/24/2016	6/24/2016	6/24/2016
DEPTH	4	10	20	30
CHLORIDE	131	73.7	<10.1	<10.5

STATEA10-05				
DATE	6/24/2016	6/24/2016	6/24/2016	6/24/2016
DEPTH	4	10	20	30
CHLORIDE	47.5	<10.8	14.2	23.4

4	
DATE	7/6/2015
DEPTH	1
CHLORIDE	512

STATE-A10-03-E	
DATE	8/2/2018
DEPTH	1
CHLORIDE	580

STATEA10-07	
DATE	8/14/2017
DEPTH	4
CHLORIDE	120

2	
DATE	7/6/2015
DEPTH	1
CHLORIDE	832

STATEA10-06	
DATE	8/14/2017
DEPTH	4
CHLORIDE	16.5

STATEA10-01				
DATE	6/24/2016	6/24/2016	6/24/2016	6/24/2016
DEPTH	4	10	20	30
CHLORIDE	441	<10.3	<10.4	<10.7

STATE-A10-02-S	
DATE	8/2/2018
DEPTH	0.5
CHLORIDE	283

STATEA10-02						
DATE	6/24/2016	6/24/2016	6/24/2016	6/24/2016	6/24/2016	6/24/2016
DEPTH	4	10	20	30	50	70
CHLORIDE	86.4	131	316	418	1,630	865

LEGEND:

- JULY 2015 ASSESSMENT SOIL SAMPLING LOCATION
- JUNE 2016 ASSESSMENT SOIL SAMPLING LOCATION
- AUGUST 2017 ASSESSMENT SOIL SAMPLING LOCATION
- AUGUST 2018 ASSESSMENT SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- APPROXIMATE EXTENT OF RELEASE
- UNDERGROUND UTILITY LINE
- EXCAVATION AREA

NOTES:

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO.
2. FUNCTIONAL MANAGEMENT TEAM REQUIRES BORING TO BE AT MINIMUM 10 FEET FROM UNDERGROUND UTILITIES.
3. ALL RESULTS ARE IN MILLIGRAMS PER KILOGRAM (mg/kg).
4. NEW MEXICO ADMINISTRATIVE CODE (NMAC) CLOSURE CRITERIA OF 20,000 mg/kg FOR CHLORIDE.
5. SAMPLE DEPTHS ARE FEET BELOW GROUND SURFACE.

0 100' 200'

GRAPHIC SCALE

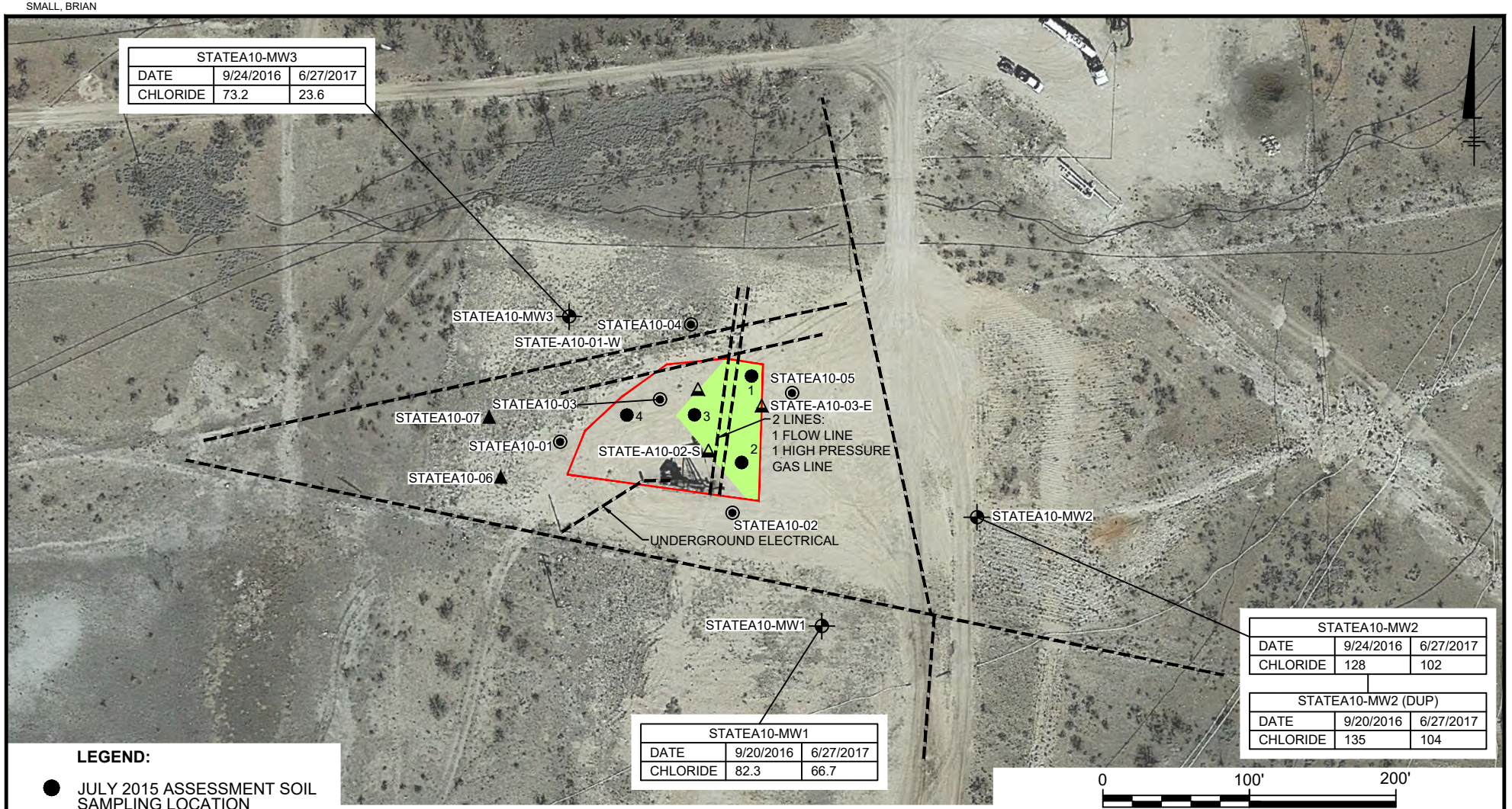
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
VGWU BATTERY
LEA COUNTY, NEW MEXICO
SITE ASSESSMENT REPORT

STATE A-10 SOIL ANALYTICAL RESULTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM
C:\Users\BSSmall\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\State A-10\2018\B0048625.1701\01-DWG\GWData-Fig4.dwg LAYOUT: 4 SAVED: 8/27/2018 3:57 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 8/27/2018 4:37 PM BY: SMALL, BRIAN



STATEA10-MW3		
DATE	9/24/2016	6/27/2017
CHLORIDE	73.2	23.6

STATEA10-MW2		
DATE	9/24/2016	6/27/2017
CHLORIDE	128	102

STATEA10-MW2 (DUP)		
DATE	9/20/2016	6/27/2017
CHLORIDE	135	104

STATEA10-MW1		
DATE	9/20/2016	6/27/2017
CHLORIDE	82.3	66.7

LEGEND:

- JULY 2015 ASSESSMENT SOIL SAMPLING LOCATION
- JUNE 2016 ASSESSMENT SOIL SAMPLING LOCATION
- AUGUST 2017 ASSESSMENT SOIL SAMPLING LOCATION
- AUGUST 2018 ASSESSMENT SOIL SAMPLING LOCATION
- MONITORING WELL LOCATION
- APPROXIMATE EXTENT OF RELEASE
- UNDERGROUND UTILITY LINE
- EXCAVATION AREA

NOTES:

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO.
2. FUNCTIONAL MANAGEMENT TEAM REQUIRES BORING TO BE AT MINIMUM 10 FEET FROM UNDERGROUND UTILITIES.
3. ALL RESULTS ARE IN MILLIGRAMS PER LITER (mg/L).
4. NMOCD GROUNDWATER REMEDIATION ACTION LEVEL OF 250 mg/L.

0 100' 200'

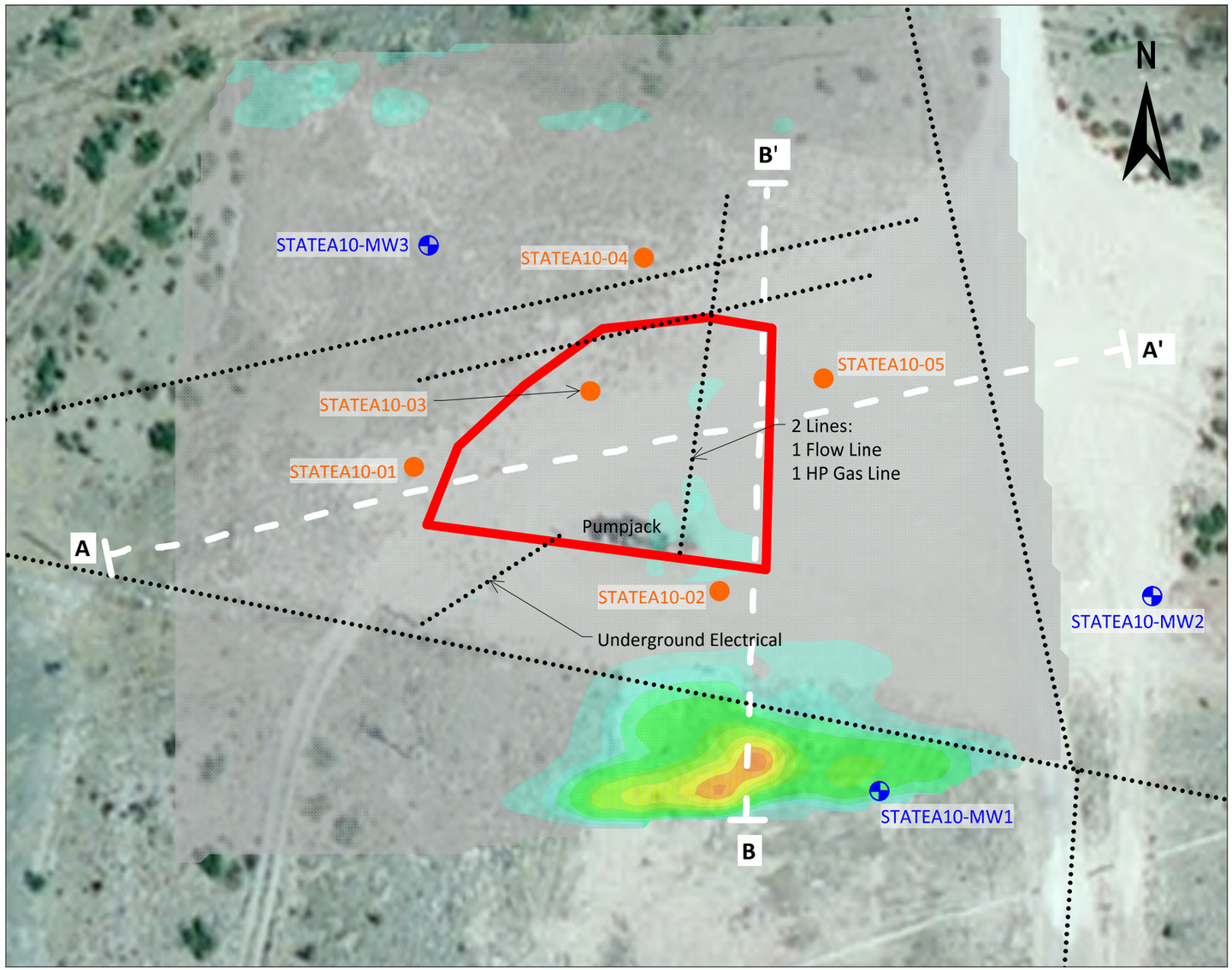
GRAPHIC SCALE

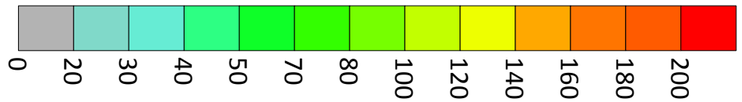
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
VGWU BATTERY
LEA COUNTY, NEW MEXICO
SITE ASSESSMENT REPORT

STATE A-10 GROUNDWATER ANALYTICAL RESULTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4





ELECTRICAL CONDUCTIVITY
milliSiemens/meter

LEGEND

- UNDERGROUND UTILITY LINE
- APPROXIMATE EXTENT OF SPILL
- MONITORING WELL LOCATION
- JUNE 2016 BORING LOCATION
- MODELLED GEM-2 PROFILE

0 20 40 60 80 100
SCALE IN FEET

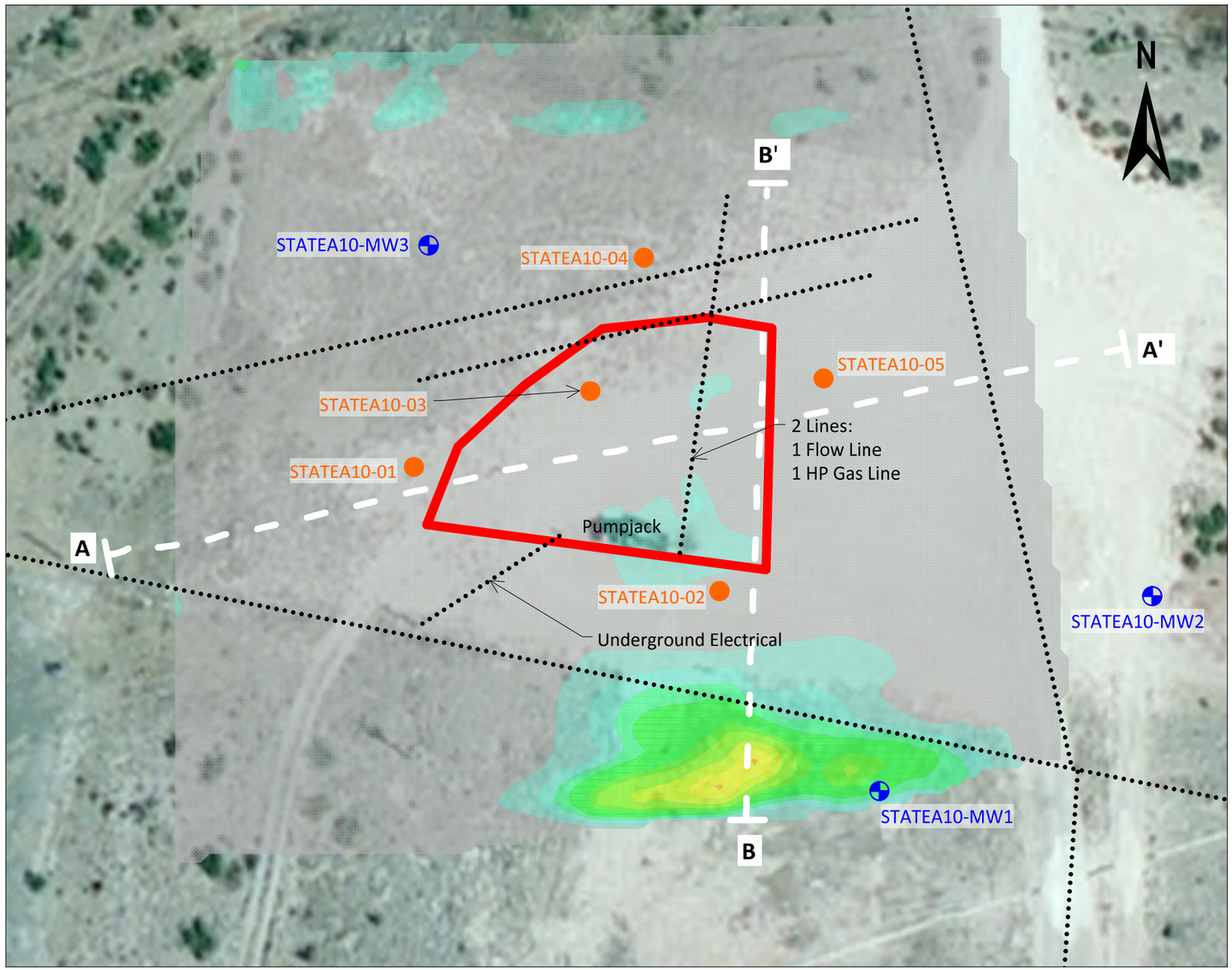
NOTE: AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO.

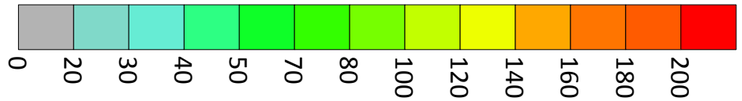
ARCADIS

GEM-2 Electrical Conductivity Map - 63 kHz Frequency
Approximate Penetration Depth of 4 to 8 feet bgs

STATE A-10
Chevron Environmental Management Company
VGWU BATTERY
Lea County, New Mexico

FIGURE 5





ELECTRICAL CONDUCTIVITY
milliSiemens/meter

LEGEND

- UNDERGROUND UTILITY LINE
- APPROXIMATE EXTENT OF SPILL
- MONITORING WELL LOCATION
- JUNE 2016 BORING LOCATION
- MODELLED GEM-2 PROFILE

0 20 40 60 80 100
SCALE IN FEET

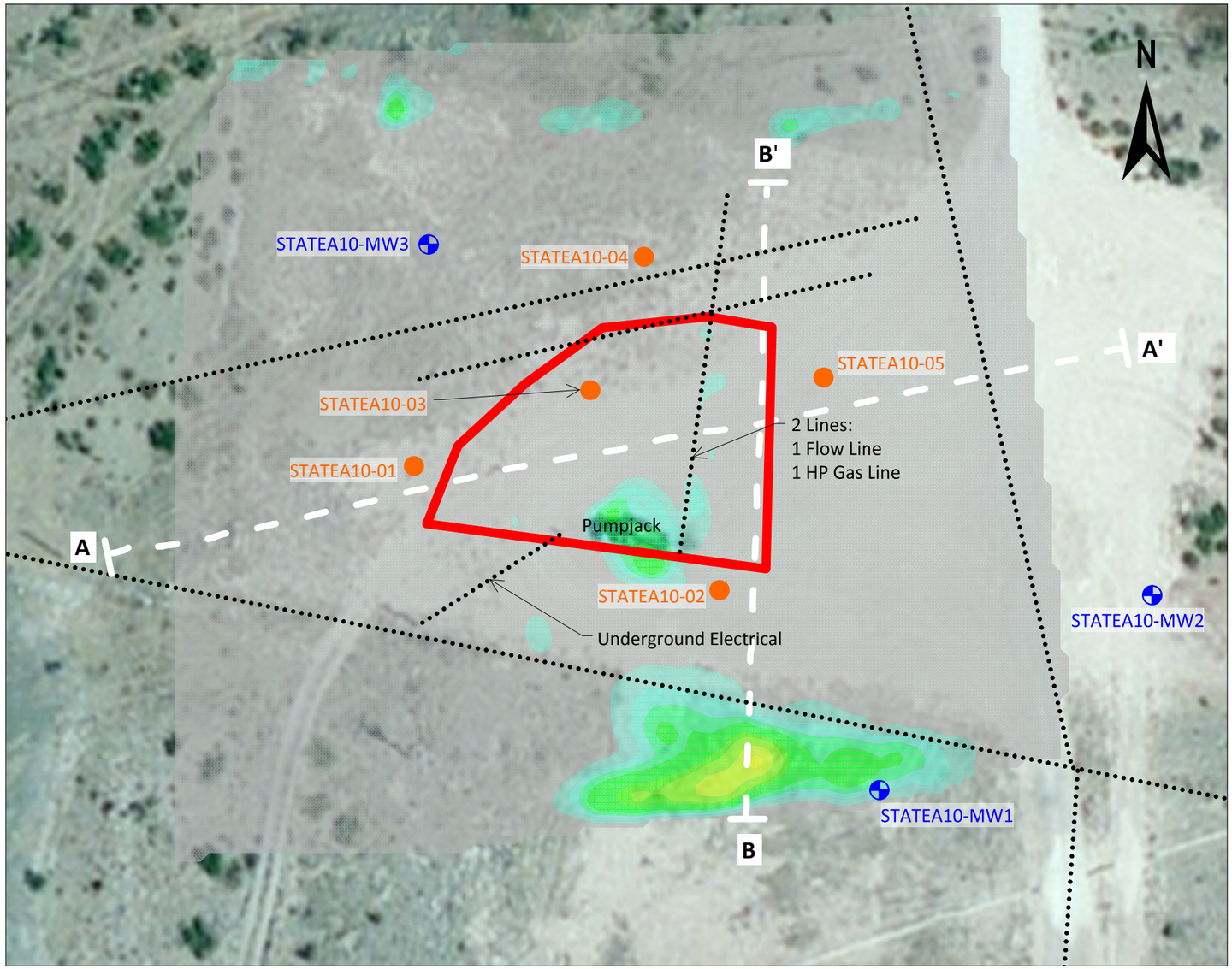
NOTE: AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO.

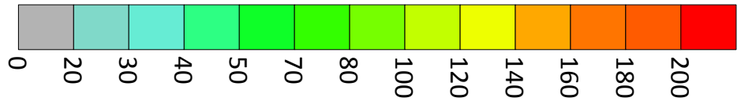
ARCADIS

GEM-2 Electrical Conductivity Depth Map - 18.3 kHz Frequency
Approximate Penetration Depth of 6 to 10 feet bgs

FIGURE 6

STATE A-10
Chevron Environmental Management Company
VGWU BATTERY
Lea County, New Mexico





LEGEND

- UNDERGROUND UTILITY LINE
- APPROXIMATE EXTENT OF SPILL
- MONITORING WELL LOCATION
- JUNE 2016 BORING LOCATION
- MODELLED GEM-2 PROFILE

0 20 40 60 80 100
SCALE IN FEET

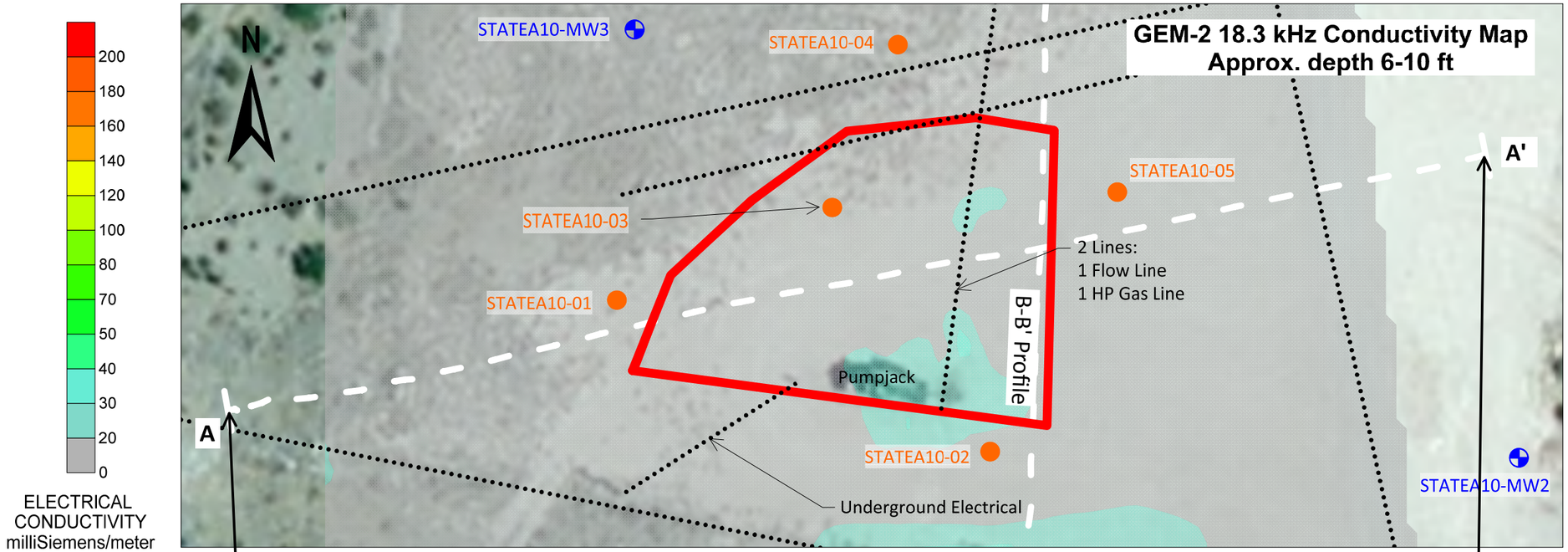
NOTE: AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO.

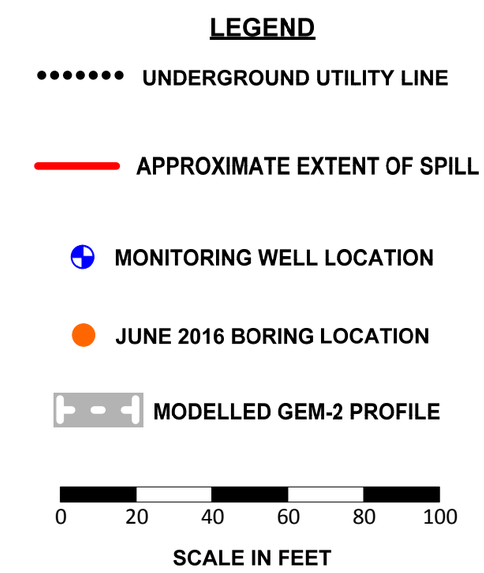
ARCADIS Design & Consultancy for natural and built assets

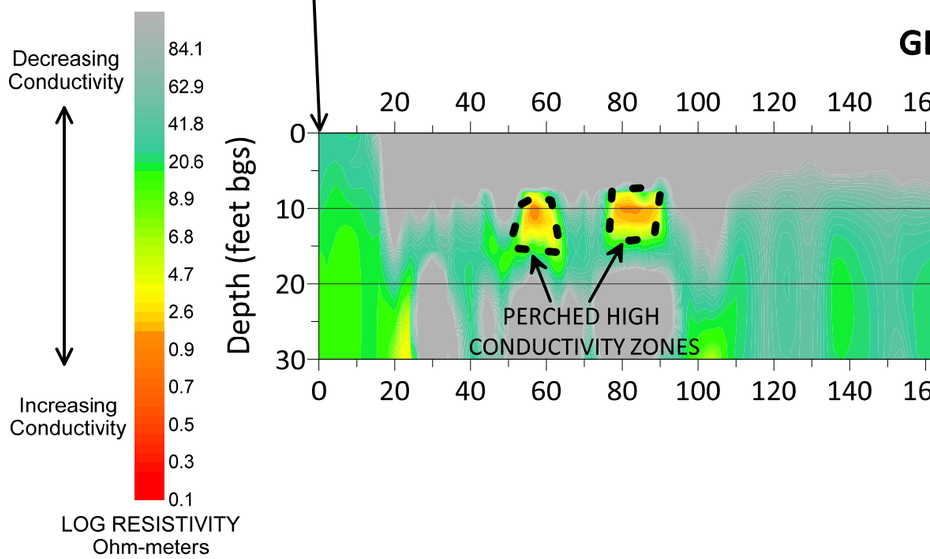
GEM-2 Electrical Conductivity Depth Map - 5.3 kHz Frequency
Approximate Penetration Depth of 8 to 12 feet bgs

STATE A-10
Chevron Environmental Management Company
VGWU BATTERY
Lea County, New Mexico

FIGURE 7





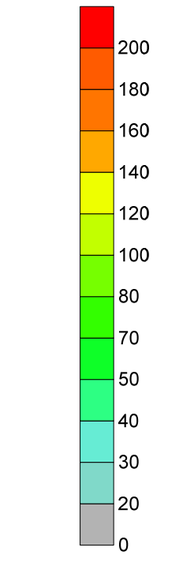


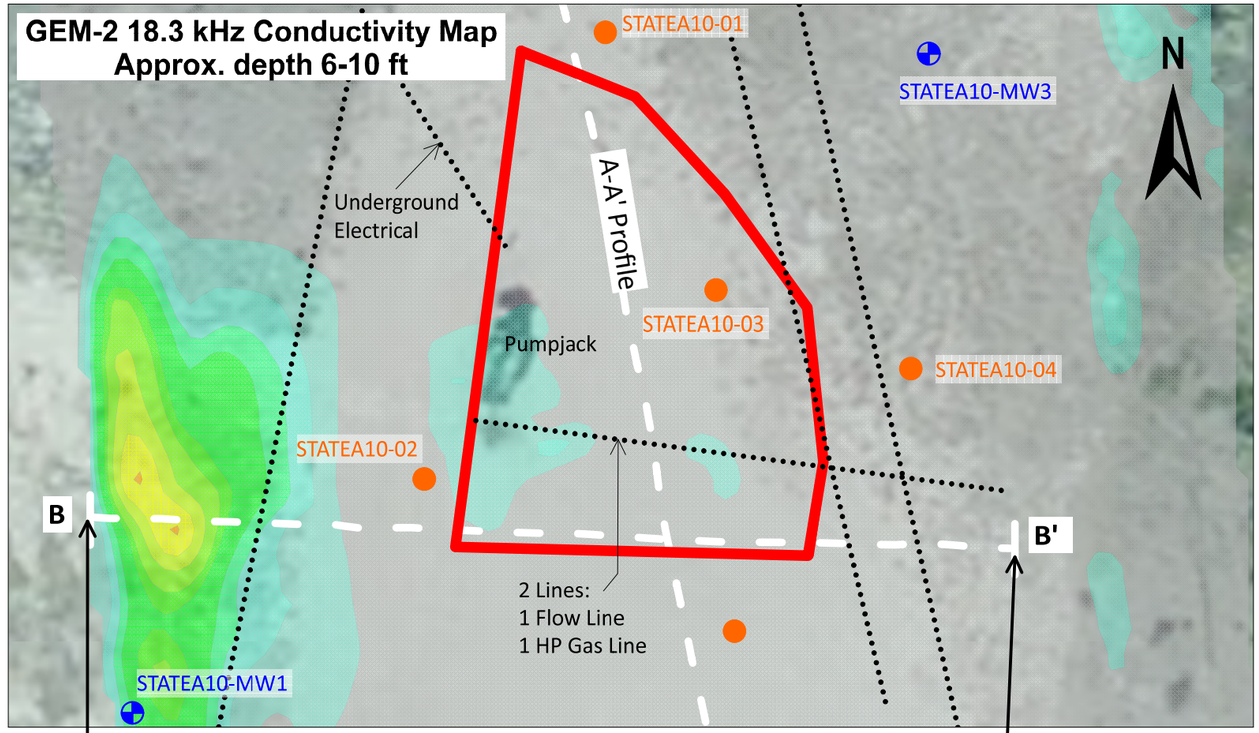
Vertical Exaggeration = 2x

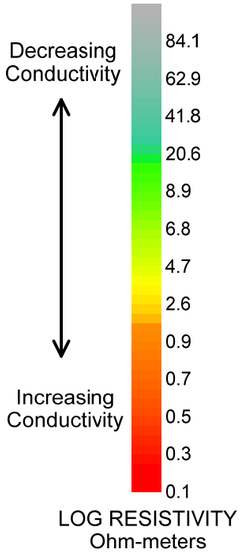
ARCADIS Design & Consultancy for natural and built assets

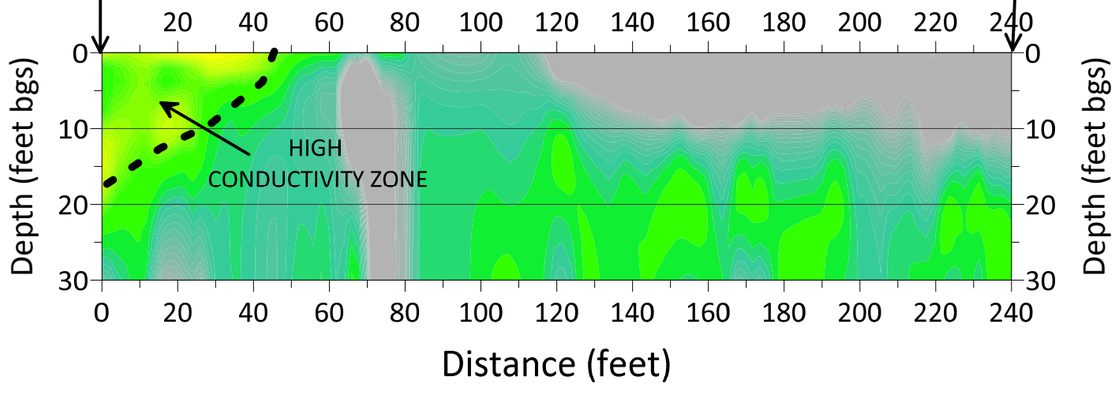
MODELLED GEM-2 PROFILE - SECTION A-A'
STATE A-10
Chevron Environmental Management Company
VGWU BATTERY
Lea County, New Mexico

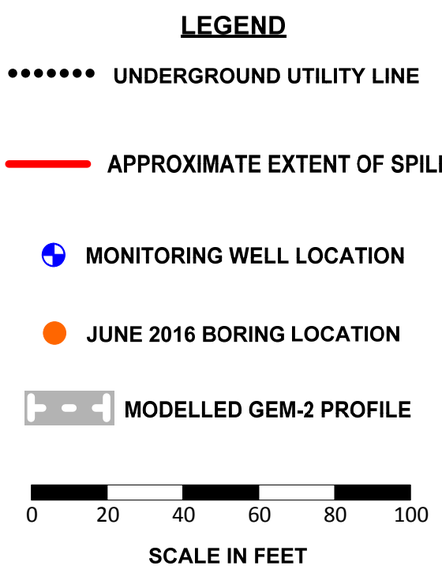
FIGURE 8











Vertical Exaggeration = 2x

ARCADIS Design & Consultancy for natural and built assets

MODELLED GEM-2 PROFILE - SECTION B-B'
STATE A-10
Chevron Environmental Management Company
VGWU BATTERY
Lea County, New Mexico

FIGURE 9

ATTACHMENT 1.

Form C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company: Chevron USA Inc. | Contact: Edem Sededji
Address: 15 Smith Rd., Midland, TX. 79705 | Telephone No. 432-234-4437
Facility Name: State A-10 | Facility Type: Oil Well

Surface Owner: New Mexico | Mineral Owner: New Mexico | API No. 30-025-32844

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	31	17S	35E	940	North	940	East	Lea

Latitude 32.7962 **Longitude** -103.4916

NATURE OF RELEASE

Type of Release: Release to land	Volume of Release: 10.02 bbls of total fluids	Volume Recovered:
Source of Release: Wellhead	Date and Hour of Occurrence: 05/03/2015 09:30 AM	Date and Hour of Discovery: 05/03/2015 09:30 AM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Rod BOP (Blowout Preventer) located below the stuffing box failed, which resulted in 4.45 bbls of oil spill and 5.57 bbls of produced water spill.

Describe Area Affected and Cleanup Action Taken.*

The area affected was around Vacuum Glorietta West Unit Battery. A vacuum truck was called out and cleaned up the spill. The next step is for backhoe to excavate top layer of soil approximate 12" deep and soil samples will be taken to the laboratory to determine TPH, Benzene and Chlorides contaminants levels. In case any of the contaminants levels are still high, the spill location will be turned over to Chevron management Company (EMC) for further remediation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Edem Sededji

OIL CONSERVATION DIVISION

Printed Name: Edem Sededji | Approved by Environmental Specialist:

Title: HE Specialist | Approval Date: | Expiration Date:

E-mail Address: etpo@chevron.com | Conditions of Approval: | Attached ☐

Date: 05/12/2015 Phone: 432-234-4437

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company: CHEVRON U.S.A. Inc.	Contact: Jason Michelson
Address: 100 Northpark Blvd Covington, LA 70433	Telephone No.: Office: 985.773.6746 Mobile: 281.660.8564
Facility Name: State A-10	Facility Type: Oil Well

Surface Owner: State of New Mexico	Mineral Owner: State of New Mexico	API No. 30-025-32844

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	31	17S	35E	940		940		Lea

Latitude 32.7962° **Longitude** -103.4916°

NATURE OF RELEASE

Type of Release: Release to land	Volume of Release: 10.02 bbls of total fluids	Volume Recovered:
Source of Release: Wellhead	Date and Hour of Occurrence: 05/03/15 09:30 AM	Date and Hour of Discovery: 05/03/15 09:30 AM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Rod BOP (Blowout Preventer) located below the stuffing box failed, which resulted in 4.45 bbls of oil spill and 5.57 bbls of produced water spill.

Describe Area Affected and Cleanup Action Taken.*

The area affected was around the Vacuum Glorietta West Unit Battery. Initial response activities consisted of using a vacuum truck to clean up the spill. Affected soil was excavated to a depth of 12 inches and soil samples were collected from the bottom of the excavation and submitted for laboratory analysis of total petroleum hydrocarbons (TPH), TPH diesel range organics (DRO), TPH gasoline range organics (GRO), BTEX (benzene, toluene, ethylbenzene, and total xylenes), total BTEX, and chloride.

In June 2016 and August 2017 three groundwater monitoring wells and seven additional soil borings were installed to assess onsite soil and groundwater conditions. Groundwater samples were submitted for laboratory analysis of chloride; All chloride concentrations in groundwater are below 250 mg/L. Soil samples collected in June 2016 were submitted for laboratory analysis of TPH-DRO, TPH-GRO, chloride, percent moisture, and pH. Soil samples collected in August 2017 were submitted for laboratory analysis of chloride and percent moisture. Analytical data is attached as Table 1 and Table 2.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Jason Michelson	OIL CONSERVATION DIVISION
Printed Name: Jason Michelson	Approved by Environmental Specialist: Nelson Velez
Title: Project Manager	Approval Date: 01/18/2023 Expiration Date:
E-mail Address: JMichelson@chevron.com	Conditions of Approval: Attached ☐
Date: 4/8/2019 Phone: (o) 985.773.6746 (m) 281.660.8564	

* Attach Additional Sheets If Necessary

ATTACHMENT 2.

Soil Boring Logs and Monitor Well Logs

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0								Hydro Vac - No Cuttings Recovered Caprock Caliche, white [2.5Y 8/1] to very pale brown [10YR 8.2], indurated, dry, laminated, fractured, trace pisolites, silt and fine sand grains, subrounded	4" Sch. 40 PVC Riser 7 7/8" Dia. Borehole
5	-5								Nodular Caliche, very pale brown [10YR 8/2], firm, dry, strongly containing caliche nodules, indurated, subrounded to well rounded, closely spaced, trace silt and fine sand grains, subrounded	
10	-10									Portland/Baraid Mix Grout (0 to 72 ft bgs)
15	-15									
20	-20								Soft Nodular Caliche, white [5Y 8/1], soft to friable, powdery, dry; trace silt to fine sand grains, subrounded; caliche nodules as described at 5ft and 18ft bgs; trace silicious caliche, pale yellow [5Y 8/2]; indurated thin interbeds throughout formation	4" Sch. 40 PVC Casing (0 to 79 ft bgs)

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-1.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
25	-25									
30	-30								Silicious Caliche, pale yellow [5Y 8/2], indurated, trace silt and fine sand grains, subrounded, dry	
							SAND STONE		Sandstone, pinkish white [10YR 8/2], fine grained, subrounded, poorly sorted; friable, dry, strongly calcareous	
35	-35									
40	-40									
45	-45									

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
50	-50						SAND STONE		Sandstone, pink [7.5YR 7/3], fine grained, subrounded, poorly sorted; friable, dry, calcareous	
55	-55									
60	-60									
							SP		Sand, brownish yellow [10YR 6/6], fine grained, subrounded, well sorted, loose, dry	
65	-65									
							SAND STONE		Sandstone, very pale brown [10YR 8/2], fine grained, subrounded, poorly sorted; firm, friable, strongly calcareous, containing trace thin sandstone, yellowish brown [10YR 5/4], fine grained, subrounded, well sorted; very firm silica cemented interbeds, dry	
70	-70									

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
75	-75						SC		Clayey Sand, light yellowish brown [10YR 6/4], fine grained, subrounded, poorly sorted, slightly firm, little intergranular clay	3/8" Bentonite Chip Seal (72 to 75 ft bgs)
80	-80									4" Sch. 40 PVC 0.010 Slot Screen (79 to 229 ft bgs)
85	-85									8/16 Silica Sand (75 to 232 ft bgs)
90	-90								Formation showed trace intergranular clay at 90ft bgs Formation is tightly packed Formation became very fine to fine grained and began showing clay, very pale brown [10YR 8/2], soft, runny, 0.1cm to 0.5cm	
95	-95									

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-1.dat Date: 12/26/2018 Created/Edited by: B. Draeger

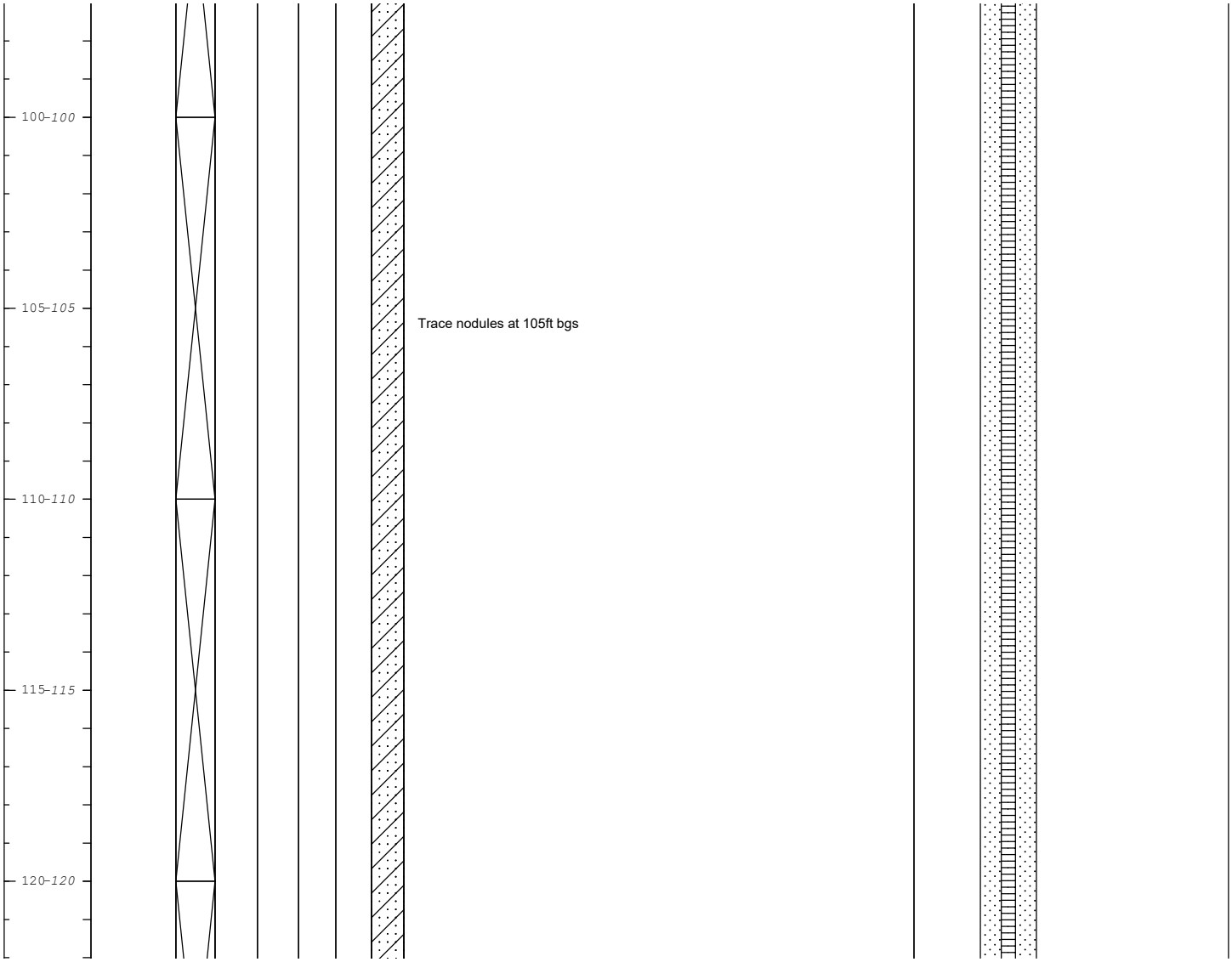
Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction



ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-1.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
125–125									
130–130						SP		Sand, very pale brown [10YR 7/4], very fine to fine grained, subrounded to well rounded, poorly sorted, tightly packed containing thin, clayey sand interbeds	
135–135									
140–140								Intergranular clay increase to 25% at 140ft bgs	
145–145									

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-1.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
150–150						SC		Silty clay, reddish brown [5YR 5/4], firm, fat, plastic, slightly moist	
						SW		Sand, very pale brown [10YR 7/4], fine grained, sub rounded, poorly sorted; tightly packed, containing trace intergranular clay	
155–155									
160–160									
165–165									
170–170						SC		Clayey sand, very pale brown [10YR 7/4], fine grained, trace medium and coarse grains, subrounded, poorly sorted; little intergranular clay; trace gravel, multicolored; chert and quartz pebbles, subrounded, 0.2 to 0.4cm in size	

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
175–175									
180–180						SW		Sand, very pale brown [10YR 7/4], fine grained, subrounded, poorly sorted, tightly packed	
185–185									
190–190									
195–195						SAND STONE		Sandstone, very pale brown [10YR 7/4], fine grained, subrounded, moderately sorted, firm, friable	

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
200-200						SC		Clayey sand, pink [7.5YR 7/4], fine grained, subrounded, poorly sorted, slightly tightly packed, containing 15% intergranular clay	
205-205						SW/GW		Gravelly sand, pink [2.5YR 3/4] fine grained, trace very fine, medium, and coarse grains, subrounded, poorly sorted, loose; trace gravel, multicolored; chert, flint, and quartz pebbles, subrounded, 0.2 to 1cm in size; 10% intergranular clay	
210-210									
215-215									
220-220								Formation gravel increased in size to 0.4 to 2cm in size and formation began showing sandy clay, light red [2.5YR], very soft, containing very fine and fine grains, thinly lensed sand beginning at 220ft bgs	

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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-1.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 232 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-1
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
225–225						SW/GW		Gravelly sand, light yellowish brown [10YR 6/4], fine to very coarse grained, subrounded, poorly sorted, loose, 70% sand; 30% gravel, multicolored; mainly chert, flint and quartz pebbles, subrounded, 0.3 to 2cm in size.	
230–230						SW/GW		Sandy gravel, multicolored, same description as 222ft to 228ft bgs; loose, 60% gravel; 40% sand; same description as above at 222ft to 228ft bgs; loose, trace clay, olive yellow [2.5Y 6/6], very soft, slightly runny, sticky, 0.3cm in size, nodules	End Cap
						CH		Clay, reddish brown [2.5YR 5/4], very firm, fat, high plasticity, slight moisture becoming more dry with increased depth	
235–235								End boring at 232ft bgs	

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	106.91 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-1.dat Date: 12/26/2018 Created/Edited by: B. Draeger

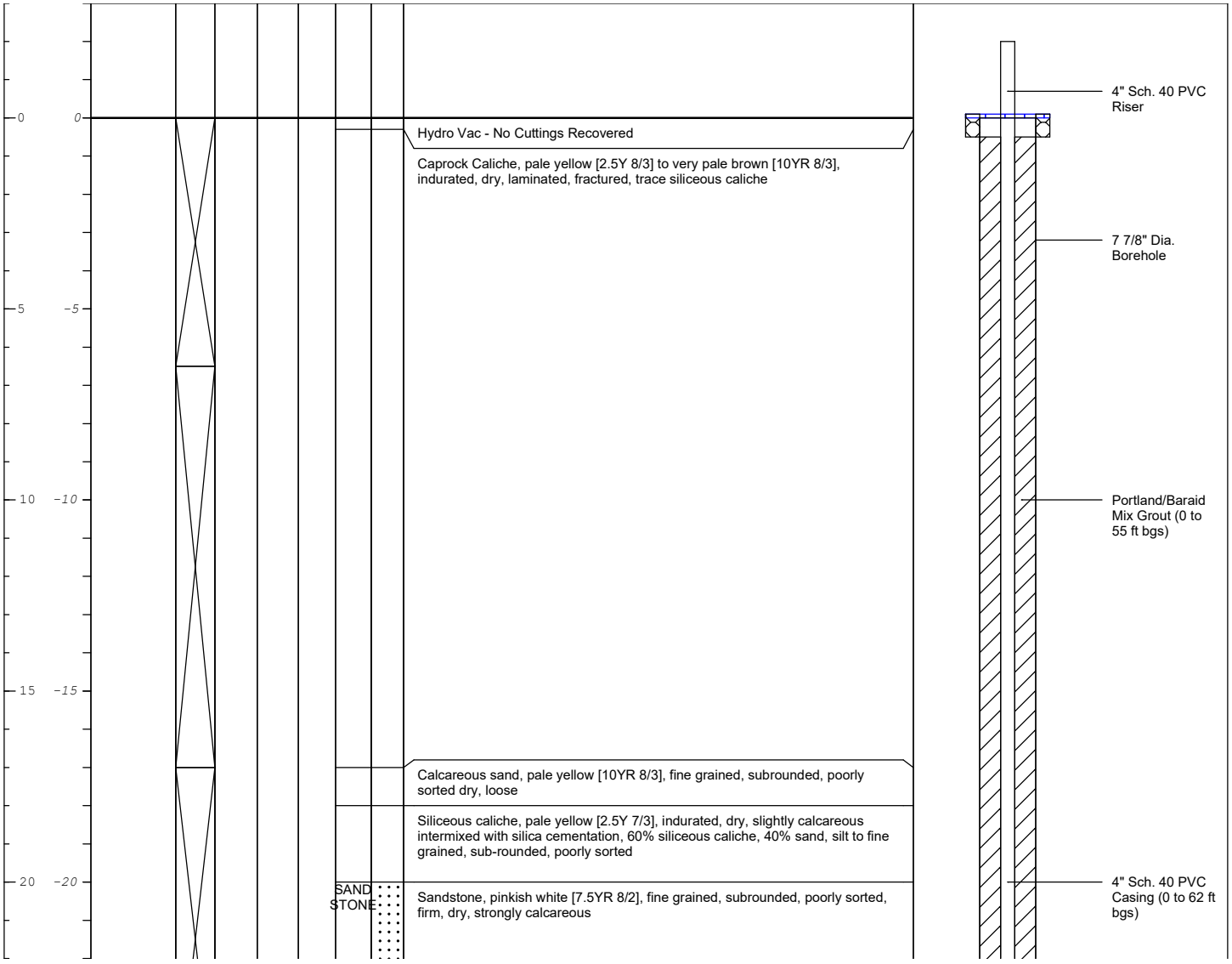
Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction



ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
25	-25									
30	-30								Nodular sandy caliche, pink [7.5YR 8/3], fine grained, subrounded, poorly sorted, slightly firm, dry; trace caliche nodules, moderately firm to indurated, subrounded, 0.5cm to 1cm in size, widely spaced	
35	-35									
40	-40									
45	-45						SP		Sand, pink [7.5YR 5/4], fine grained, subrounded, moderately sorted, dry, loose, moderately calcareous	

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron

Location: Buckeye, New Mexico
State A10

Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
50	-50									
55	-55						SAND STONE		Sandstone, pinkish white [7.5YR 8/2], fine grained, subrounded, poorly sorted, firm, dry, strongly calcareous	3/8" Bentonite Chip Seal (55 to 59 ft bgs)
							SP		Sand, brownish yellow [10YR 6/6], fine grained, subrounded, well sorted, slight moisture, loose	
60	-60									
65	-65									
70	-70						SW		Sand, very pale brown [10YR 7/3], fine grained, subrounded, poorly sorted, loose; formation contains silty clay, pale yellow [5Y 8/2], soft, slightly sticky, non-plastic, lean, thin interbeds	4" Sch. 40 PVC 0.010 Slot Screen (62 to 227 ft bgs)

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
75	-75									8/16 Silica Sand (59 to 231 ft bgs)
80	-80						SC		Clayey sand, pale yellow [2.5Y 8/2], fine grained, subrounded, moderately sorted, slightly firm; 10% to 15% intergranular clay, formation also contains trace, very thin, silica cemented sandstone interbeds	
85	-85									
90	-90						SP		Sand, pale brown [10YR 6/3], fine grained, subrounded, moderately sorted, tightly packed Formation became light yellowish brown [10YR 6/4], showing 2% to 5% intergranular clay Void of intergranular clay at 120 ft	
95	-95									

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

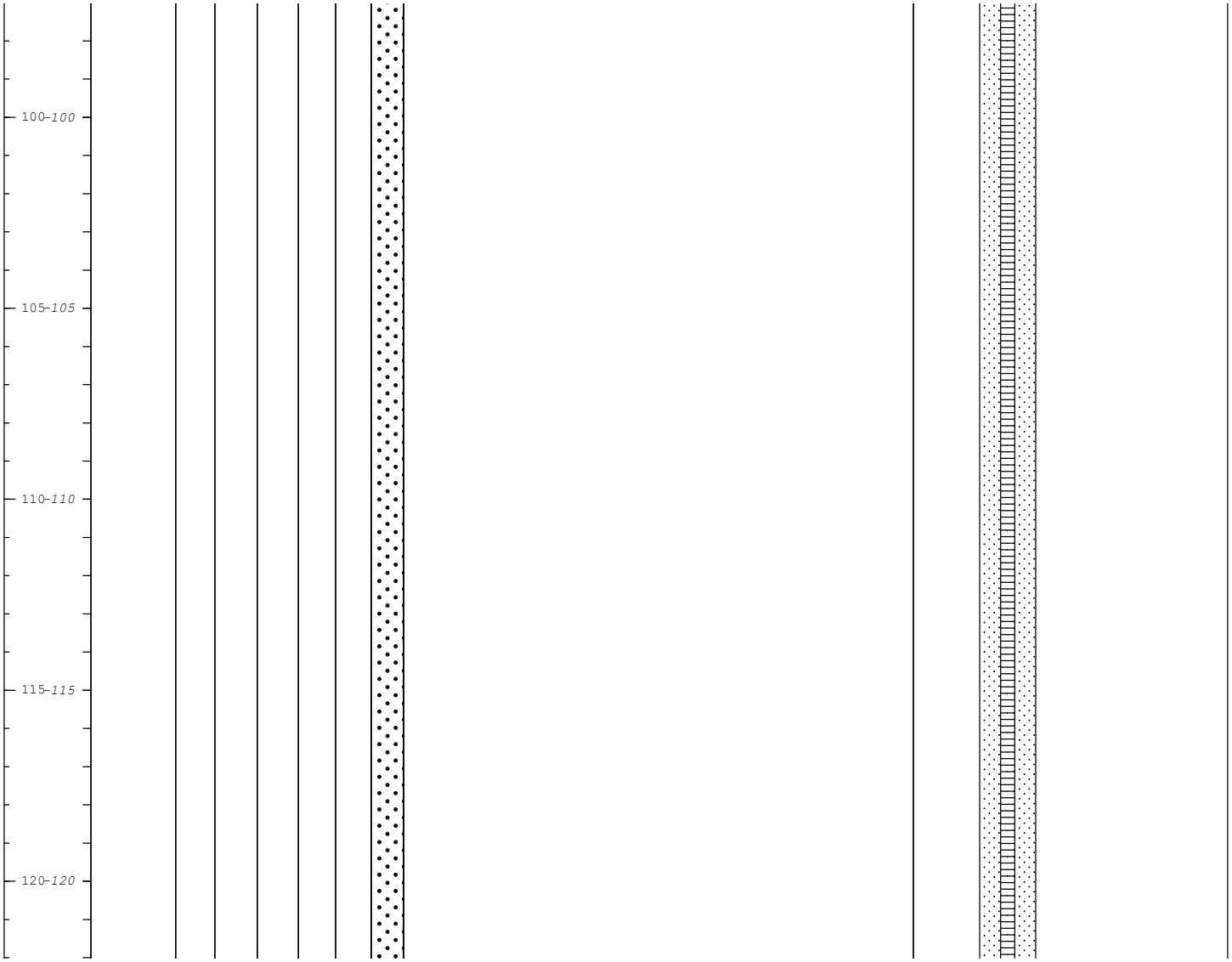
Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction



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Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
125–125								From 123' to 130', trace siltstone, very pale brown [10YR 7/3], indurated, dry, trace fine sand grains in sample; thin to 0.1' thick interbeds.	
130–130						SC		Sandy clay indicated by drilling rig - No sample recovered	
						SP		Sand, light yellowish brown [10YR 6/4], fine grained, subrounded, moderately sorted, loose	
135–135									
140–140						SC		Clayey sand, light brown [7.5YR 6/4], very fine to fine grained, subrounded, poorly sorted, showing 5% to 10% intergranular clay Formation began to show gravel, multicolored chert, flint, and quartz pebbles, subrounded, 0.2cm to 0.4cm in size; trace sandy clay, very pale brown [10YR 8/2] and olive yellow [2.5Y 6/8], subrounded, very soft, slightly runny 0.1cm to 0.3cm, nodules and sandy clay, reddish brown [2.5YR 5/4], soft, slightly plastic, non-sticky, thin interbeds, containing trace very fine to fine sand grains beginning at 150', intergranular clay increased to 25% from 166' to 167'	
145–145									

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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
150–150									
155–155									
160–160									
165–165									
170–170						SP		Sand, pale brown [10YR 6/3], fine grained, subrounded, moderately sorted, tightly packed, showing trace intergranular clay Formation also contains trace sandy clay, very pale brown [10YR 8/2], very soft and runny, subrounded, 0.1cm to 0.3cm nodules Formation became light yellowish brown [10YR 6/4] and showed sand, fine	

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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
175–175								grained, subrounded, well sorted, clean, thin interbeds beginning at 180'	
180–180									
185–185									
190–190						SC		Clayey sand, light brown [7.5YR 6/4], very fine to fine grained, poorly sorted, slightly firm, 25% intergranular clay, non-sticky	
195–195									

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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
200-200						SP		Sand, very pale brown [10YR 7/3], fine grained, subrounded, moderately sorted, tightly packed, 2% to 5% intergranular clay, trace gravel, black and white flint and quartz, subrounded to subangular, 0.3cm to 1cm in size	
205-205									
210-210						SC		Clayey sand, brown [7.5YR 5/4], fine grained, subrounded, moderately sorted, contains little to some intergranular clay, slightly runny, slightly sticky Moderately firm during drilling (could have thin clay interbeds throughout formation)	
215-215									
220-220						GW		Gravely sand, light yellowish brown [10YR 6/4], medium to very coarse grained, subrounded, poorly sorted, 50% sand, 50% gravel; multicolored, mainly chert, flint, and quartz pebbles, 0.1cm to 0.5cm in size; trace intergranular clay and silty clay, yellow [10YR 7/8], soft, 0.1cm to 0.3cm in size; nodules	

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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 231
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-2
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH / ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
225–225						GW		Gravel, multicolored, chert, quartz, and lithic pebbles, subrounded, loose, 0.5cm to 2cm in size, 70% gravel; 29% sand, medium to coarse grained, subrounded, poorly sorted Formation trace silty clay, yellow [10YR 7/8], blocky, subrounded, 0.3cm to 1cm nodules	End Cap
230–230						CH		Clay, reddish brown [2.5YR 5/4], very firm, fat, high plasticity, slight moisture becoming more dry with increasing depth	
								End boring at 231ft bgs	
235–235									

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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	105.01 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-MW-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

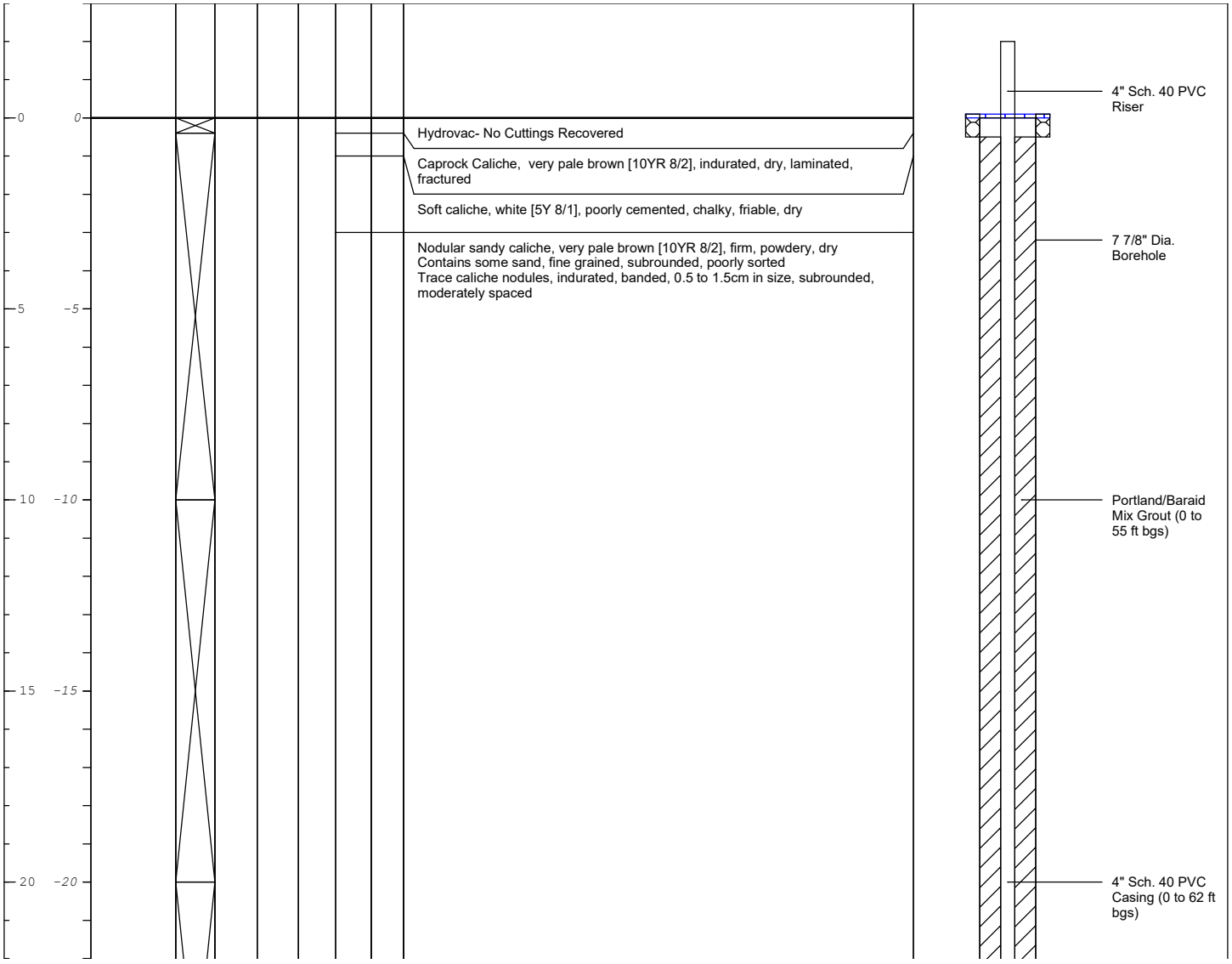
Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction



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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
25	-25									
30	-30						SAND STONE		Sandstone, pink [2.5YR 8/3], fine grained, subrounded, poorly sorted, weakly cemented, strongly calcareous	
35	-35									
40	-40								At 42ft bgs, formation started showing siltstone, white [GLEY1 8/N], indurated, dry, containing trace fine sand grains, subrounded to well rounded, poorly sorted, dry, interbeded throughout formation	
45	-45									

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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
50	-50									
55	-55						SP		Sand, brownish yellow [10YR 6/6], fine grained, subrounded, moderately sorted, loose, slightly moist; containing trace calcareous nodules, very pale brown [10YR 8/2], subrounded, soft, friable, 0.1 to 0.3cm in size	3/8" Bentonite Chip Seal (55 to 59 ft bgs)
60	-60									
65	-65						SW		Sand, light yellowish brown [10YR 6/4], fine grained, subrounded, poorly sorted, tightly packed, trace intergranular clay	
70	-70									4" Sch. 40 PVC 0.010 Slot Screen (62 to 227 ft bgs)

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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
75	-75									8/16 Silica Sand (59 to 229 ft bgs)
80	-80								Begining at 80ft bgs, formation contains trace calcareous nodules, pale yellow [2.5Y 8/3], indurated, subrounded, 0.4 to 0.2cm in size.	
85	-85									
90	-90									
95	-95								At 94ft bgs, Intergranular clay increased to 20%, slightly sticky, slightly firm formation	

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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
100–100								At 100ft bgs, void of intergranular clay	
105–105									
110–110									
115–115									
120–120								At 120ft bgs, began seeing trace gravel, multicolored, chert, flint, and quartz, subrounded pebbles, 0.2 to 0.3cm in size; 2% to 5% intergranular clay	

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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
125–125									
130–130						CL		Sandy clay, yellowish red [5YR 4/6], firm; low to non-plastic, slightly moist, contains little silt and fine sand grains, subrounded, poorly sorted	
135–135						SW		Sand, yellowish brown [10YR 6/4], fine grained, subrounded, poorly sorted, soft	
140–140									
145–145									

ARCADIS

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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
150–150						SC		Clayey sand, light yellowish brown [10YR 6/4], fine grained, subrounded, poorly sorted, soft, containing trace intgranular clay and trace calcareous nodules, white [5Y 8/1], subrounded, very soft, 0.1 to 0.3cm in size	
155–155									
160–160						CL		Sandy silty clay as described from 130ft to 137ft bgs	
						SC		Clayey sand, light yellowish brown [10YR 6/4], fine grained with trace medium grains in sample, subrounded, poorly sorted; 10% intergranular clay Formation contains calcareous nodules as described from 150ft to 160ft bgs	
165–165									
170–170						SW		Sand, light yellowish brown [10YR 6/4], fine grained with trace medium and coarse grains in sample, subrounded, poorly sorted, loose, containing trace calcareous nodules as described at 160.5ft to 170ft bgs	

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Remarks:
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▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
175–175									
180–180						SP		Sand, light brown [7.5YR 6/4], fine grained, subrounded, moderately to well sorted, tightly packed	
185–185									
190–190									
195–195									

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron
Location: Buckeye, New Mexico
State A10
Reviewed By: A. Lehman

DEPTH ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
200-200						SC		Clayey sand, light reddish brown [5YR 6/4], fine grained, subrounded, moderately to well sorted, soft, containing some intergranular clay, non-sticky Formation contains trace clay, yellowish red [5YR 5/6], soft, lean, non-sticky, thin interbeds	
205-205									
210-210						SP		Sand, pale brown [10YR 6/3], very fine to fine grained, subrounded, well sorted, loose Formation became fine grained, poorly sorted and showed trace gravel, red, chert pebbles, subrounded, 0.2cm in size beginning at 220ft bgs	
215-215									
220-220									

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air/Mud Rotary
Rig Type: --
Sampling Method: Shovel

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 229 ft bgs
Borehole Diameter: 7 7/8 inch
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-MW-3
Client: Chevron

Location: Buckeye, New Mexico
State A10

Reviewed By: A. Lehman

DEPTH / ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
225–225						GW		Sandy gravel, multicolored, mainly chert, flint, and quartz pebbles, subrounded, 0.3 to to 1.5cm in size; 60% gravel, 40% sand, fine to coarse grained, subrounded, poorly sorted, loose formation Contains trace clay, yellow [10YR 7/8], soft, slightly runny, nodules 0.1 to 0.4 cm in size	End Cap
						CH		Clay, reddish brown [2.5YR 5/4], very firm, fat, high plasticity, slight moisture becoming more dry with increasing depth	
230–230								End boring at 229ft bgs	

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million; PVC = polyvinyl chloride; Sch. = schedule

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
NA	▽	NA ft bgs	NA ft amsl
9/24/2016	▼	104.34 ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_25 ft
Data File: State A10-MW-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air Rotary
Rig Type: --
Sampling Method: NA

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 30 ft bgs
Borehole Diameter: --
Surface Elevation: NA
Descriptions By: K. Wicus

Well/Boring ID: SB-1
Client: Chevron
Location: Buckeye, New Mexico State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0						SP		Pale tan, sand, some silt, poorly graded, dry
5	-5								
10	-10						SW		Gray, well graded sand, some silt
15	-15								
20	-20								
25	-25						SP		Tan, fine sand, dry, some silt, poorly graded
30	-30								End boring at 30ft bgs
35	-35								

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
	▽	NA ft bgs	NA ft amsl
NA	▼	NA ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: SB-10.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air Rotary
Rig Type: --
Sampling Method: NA

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 70 ft bgs
Borehole Diameter: --
Surface Elevation: NA
Descriptions By: K. Wicus

Well/Boring ID: SB-2
Client: Chevron
Location: Buckeye, New Mexico State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0						SP		Tan, fine sand, some coarse sand, dry, poorly graded, some silt
30	-30						SP		Tan, fine sand, dry, poorly graded, some silt
60	-60								Moist at 60ft bgs
70	-70								End boring at 70ft bgs

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
	▽	NA ft bgs	NA ft amsl
NA	▼	NA ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: SB-2.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air Rotary
Rig Type: --
Sampling Method: NA

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 30 ft bgs
Borehole Diameter: --
Surface Elevation: NA
Descriptions By: K. Wicus

Well/Boring ID: SB-3
Client: Chevron
Location: Buckeye, New Mexico State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0						SP		Tan, fine sand, dry, some silt
20	-20						SW		Gray, fine to medium sand, dry, well graded
25	-25						SP		Tan, fine sand, dry, poorly graded,
30	-30								End boring at 30ft bgs
35	-35								

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
	▽	NA ft bgs	NA ft amsl
NA	▼	NA ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: SB-3.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air Rotary
Rig Type: --
Sampling Method: NA

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 30 ft bgs
Borehole Diameter: --
Surface Elevation: NA
Descriptions By: K. Wicus

Well/Boring ID: SB-4
Client: Chevron
Location: Buckeye, New Mexico State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0						SP		Tan, fine sand, dry, some silt
20	-20						SW		Gray, fine to medium sand, dry, well graded
25	-25						SW		Tan, fine sand, dry, poorly graded
30	-30								End Boring at 30ft bgs

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
	▽	NA ft bgs	NA ft amsl
NA	▼	NA ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: SB-4.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air Rotary
Rig Type: --
Sampling Method: NA

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 30 ft bgs
Borehole Diameter: --
Surface Elevation: NA
Descriptions By: K. Wicus

Well/Boring ID: SB-5
Client: Chevron
Location: Buckeye, New Mexico State A10
Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0						SW		Pale tan, fine sand, some silt, well graded, dry
5	-5								
10	-10						SW		Tan, well graded sand, few fines, dry
15	-15								
20	-20								
25	-25						SP		Tan, fine sand, dry, some fines, poorly graded
30	-30								End boring at 30ft bgs
35	-35								

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
	▽	NA ft bgs	NA ft amsl
NA	▼	NA ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: SB-5.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air Rotary
Rig Type: --
Sampling Method: Slide Hammer

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 4 ft bgs
Borehole Diameter: --
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-06
Client: Chevron
Location: Buckeye, New Mexico
State A10

Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0				0.0				Caprock Caliche, white [2.5Y 8/1], laminated with pale yellow [2.5Y 8/2], very firm (hard), dry, fractured, showing trace pisolites Formation contains little sand, fine and medium grained, subrounded, poorly sorted
							SC		Clayey sand, brown [10YR 5/3], fine grained, showing trace medium grains in sample, subrounded, poorly sorted, soft, friable, dry; 80% clayey sand, 20% caprock caliche as described above Nodules and fragments 0.5-inch to 2-inches in size
5	-5								End Boring at 4ft bgs Quantab reading at 4ft bgs: 1.4 units = 29mg/L x 4 = 116mg/kg

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
	▽	NA ft bgs	NA ft amsl
NA	▼	NA ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: State A10-06.dat Date: 12/26/2018 Created/Edited by: B. Draeger

Drilling Company: HCI
Drilling Method: Air Rotary
Rig Type: --
Sampling Method: Slide Hammer

Latitude: NA
Longitude: NA
Casing Elevation: NA

Borehole Depth: 4 ft bgs
Borehole Diameter: --
Surface Elevation: NA
Descriptions By: R. Nanny

Well/Boring ID: State A10-07
Client: Chevron
Location: Buckeye, New Mexico
State A10

Reviewed By: A. Lehman

DEPTH	ELEVATION	Sample ID	Sample Interval	Recovery (feet)	PID (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0				0.1				Caprock Caliche, white [2.5Y 8/1], laminated with pale yellow [2.5Y 8/2], very firm (hard), dry, fractured, showing trace pisolites Formation contains little sand, fine and medium grained, subrounded, poorly sorted
							SC		Clayey sand, brown [10YR 5/3], fine grained, showing trace medium grains in sample, subrounded, poorly sorted, soft, friable, dry; 80% clayey sand, 20% caprock caliche as described above Nodules and fragments 0.5-inch to 2-inches in size
5	-5								End Boring at 4ft bgs Quantab reading at 4ft bgs: 0.8 units (Below scale)

ARCADIS

Remarks:
bgs = below ground surface; Dia. = diameter; " = inches; ft / ' = feet; cm = centimeters NA = not applicable/available; PID = photo-ionization detector; ppm = parts per million

▽ = First Encountered Water ▼ = Static Water

Water Level Data

Date		Depth	Elev.
	▽	NA ft bgs	NA ft amsl
NA	▼	NA ft bgs	NA ft amsl

Project: B0048618 Template: G:\Projects\LogPlot\Logs\CA000700\CA000798\0700\ldfx and dat...\boring_well deep geoprobe 2007 analytical USCS WL_NoWell
Data File: StateA10-07.dat Date: 12/26/2018 Created/Edited by: B. Draeger

ATTACHMENT 3.

Photographic Log

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
September 22, 2016

Description: Harrison and Cooper (H&C) installing sand pack at MW1.

Photograph Taken By:
R. Nanny

Date:
September 22, 2016

Description: Sand pack and screen slots.

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
September 22, 2016

Description: H&C installing screen and casing at MW2

Photograph Taken By:
R. Nanny

Date:
September 22, 2016

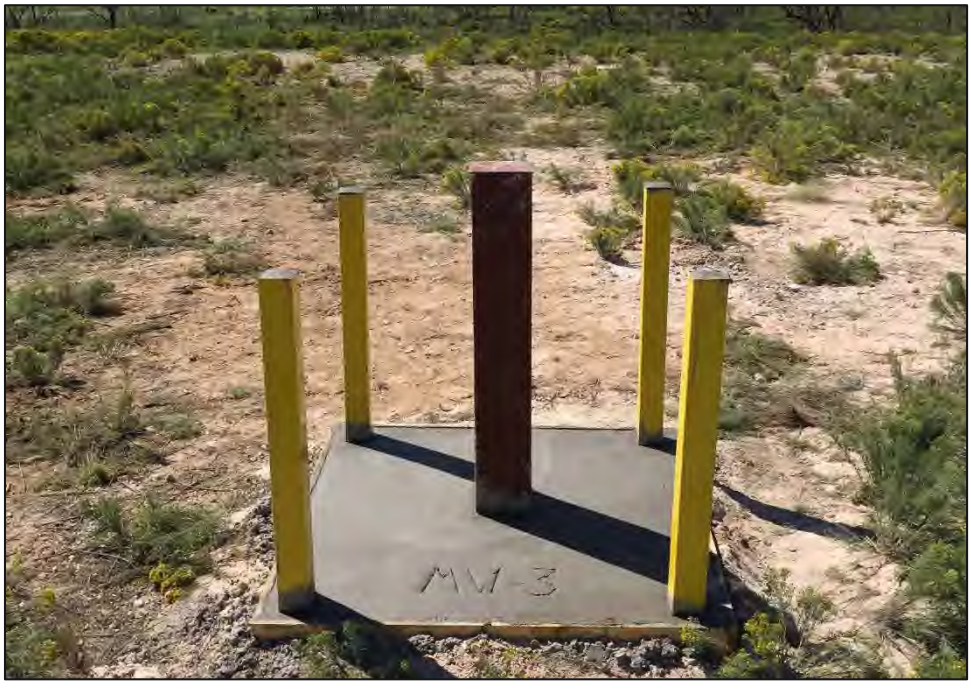
Description: Surface complete at MW2.

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico



Date:
September 22, 2016

Description: Surface complete at MW3.

Photograph Taken By:
R. Nanny

Date:
August 2017

Description: StateA10-06 Air Knife Depth Showing 1 ft.

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
August 2017

Description: StateA10-06 Air Knife Width Showing 10.50'' East West

Photograph Taken By:
R. Nanny

Date:
August 2017

Description: StateA10-07 Air Knife Depth Measurement- 8 inches in depth

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
August 2017

Description: StateA10-07 Air Knife Width Measurement - 8 inches North South

Photograph Taken By:
R. Nanny

Date:
August 2017

Description: White Drilling Advancing StateA10-06 Soil Boring

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
August 2017

DescriptionWhite Drilling Advancing StateA10-07 Soil Boring

Photograph Taken By:
R. Nanny

Date:
August 2017

DescriptionStateA10-07 Soil Boring Plugged and Covered

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
August 2017

Description: View of Quantab Titration Strip Showing 0.8 Units (Below Scale) on 4' StateA10-07 Sample.

Photograph Taken By:
R. Nanny

Date:
June 29, 2018

Description: Marked proposed excavation.

Location: Looking north from the south side of the proposed excavation.

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
June 29, 2018

Description: : View of marked proposed excavation and utilities.

Location: Looking southeast.

Photograph Taken By:
R. Nanny

Date:
June 29, 2018

Description: View of marked proposed excavation and utilities.

Location: Looking southwest.

Photograph Taken By:
R. Nanny

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
July 31, 2018

Description: View of hydroexcavation around excavation parameter.

Photograph Taken By:
K. Hansen

Date:
July 31, 2018

Description: View of native stone at 12 inches depth.

Location: Looking at excavation parameter.

Photograph Taken By:
K. Hansen

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
July 31, 2018

Description: View of hydroexcavation around excavation parameter.

Photograph Taken By:
K. Hansen

Date:
August 1, 2018

Description: View of complete hydroexcavation along parameter.

Photograph Taken By:
K. Hansen

ARCADIS Design & Consultancy for natural and built assets

Project Photographs

Chevron EMC Upstream Business Unit
State A-10
Lea County, New Mexico

Date:
August 1, 2018

Description: View of excavation within the hydroexcavated parameter.

Photograph Taken By:
K. Hansen

Date:
August 14, 2018

Description: View of excavated soil being loaded for transportation for disposal.

Photograph Taken By:
R. Nanny

ATTACHMENT 4.

Laboratory Reports

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 13, 2015

NICK MOSCHETTI

Chevron - Lovington

HCR 60 Box 423

Lovington, NM 88260

RE: SOIL SAMPLES

Enclosed are the results of analyses for samples received by the laboratory on 07/06/15 15:52.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Chevron - Lovington
NICK MOSCHETTI
HCR 60 Box 423
Lovington NM, 88260
Fax To: None

Received:	07/06/2015	Sampling Date:	07/06/2015
Reported:	07/13/2015	Sampling Type:	Soil
Project Name:	SOIL SAMPLES	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: STATE A-10 1 (H501713-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/13/2015	ND	2.13	107	2.00	3.67	
Toluene*	<0.050	0.050	07/13/2015	ND	1.90	95.2	2.00	3.76	
Ethylbenzene*	**0.123**	0.050	07/13/2015	ND	1.82	91.1	2.00	4.21	
Total Xylenes*	**0.496**	0.150	07/13/2015	ND	5.38	89.6	6.00	4.75	
Total BTEX	**0.619**	0.300	07/13/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *120 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**928**	16.0	07/09/2015	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/09/2015	ND	199	99.4	200	6.45	
DRO >C10-C28	**9140**	50.0	07/09/2015	ND	207	104	200	7.40	

Surrogate: 1-Chlorooctane *93.3 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *178 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Chevron - Lovington
NICK MOSCHETTI
HCR 60 Box 423
Lovington NM, 88260
Fax To: None

Received:	07/06/2015	Sampling Date:	07/06/2015
Reported:	07/13/2015	Sampling Type:	Soil
Project Name:	SOIL SAMPLES	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: STATE A-10 2 (H501713-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	07/13/2015	ND	2.13	107	2.00	3.67	
Toluene*	<0.200	0.200	07/13/2015	ND	1.90	95.2	2.00	3.76	
Ethylbenzene*	**1.02**	0.200	07/13/2015	ND	1.82	91.1	2.00	4.21	
Total Xylenes*	**4.07**	0.600	07/13/2015	ND	5.38	89.6	6.00	4.75	
Total BTEX	**5.09**	1.20	07/13/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**832**	16.0	07/09/2015	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**538**	50.0	07/09/2015	ND	199	99.4	200	6.45	
DRO >C10-C28	**10800**	50.0	07/09/2015	ND	207	104	200	7.40	

Surrogate: 1-Chlorooctane *163 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *161 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Chevron - Lovington
NICK MOSCHETTI
HCR 60 Box 423
Lovington NM, 88260
Fax To: None

Received:	07/06/2015	Sampling Date:	07/06/2015
Reported:	07/13/2015	Sampling Type:	Soil
Project Name:	SOIL SAMPLES	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: STATE A-10 3 (H501713-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.100	0.100	07/13/2015	ND	2.13	107	2.00	3.67	
Toluene*	<0.100	0.100	07/13/2015	ND	1.90	95.2	2.00	3.76	
Ethylbenzene*	**0.103**	0.100	07/13/2015	ND	1.82	91.1	2.00	4.21	
Total Xylenes*	**0.929**	0.300	07/13/2015	ND	5.38	89.6	6.00	4.75	
Total BTEX	**1.03**	0.600	07/13/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**752**	16.0	07/09/2015	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**167**	50.0	07/09/2015	ND	199	99.4	200	6.45	
DRO >C10-C28	**6550**	50.0	07/09/2015	ND	207	104	200	7.40	

Surrogate: 1-Chlorooctane *119 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *147 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

Chevron - Lovington
NICK MOSCHETTI
HCR 60 Box 423
Lovington NM, 88260
Fax To: None

Received:	07/06/2015	Sampling Date:	07/06/2015
Reported:	07/13/2015	Sampling Type:	Soil
Project Name:	SOIL SAMPLES	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: STATE A-10 4 (H501713-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/13/2015	ND	2.13	107	2.00	3.67	
Toluene*	<0.050	0.050	07/13/2015	ND	1.90	95.2	2.00	3.76	
Ethylbenzene*	<0.050	0.050	07/13/2015	ND	1.82	91.1	2.00	4.21	
Total Xylenes*	<0.150	0.150	07/13/2015	ND	5.38	89.6	6.00	4.75	
Total BTEX	<0.300	0.300	07/13/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *61-154*

Chloride, SM4500Cl-B mg/kg Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**512**	16.0	07/09/2015	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	07/09/2015	ND	199	99.4	200	6.45	
DRO >C10-C28	**4190**	50.0	07/09/2015	ND	207	104	200	7.40	

Surrogate: 1-Chlorooctane *89.9 %* *47.2-157*

Surrogate: 1-Chlorooctadecane *145 %* *52.1-176*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Chevron
Project Manager:	Nick Hampton
Address:	56 Texas Camp Road
City:	Lovington State: NM Zip: 88260
Phone #:	985-502-2342 Fax #:
Project #:	Project Owner:
Project Name:	
Project Location:	
Sampler Name:	

BILL TO

P.O. #:	
Company:	Chevron
Attn:	Nick Moschetti
Address:	56 Texas Camp Rd.
City:	Lovington, ~~NM~~
State:	NM Zip: 88260
Phone #:	575-396-4414 x201
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	TPH	Benzene	Chlorides
H501713 ~~H502977~~ 1	State A-10 1	G	1			✓					✓		7/6/15	1:20pm	✓	✓	✓
2	State A-10 2																
3	State A-10 3																
4	State A-10 4																

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Nick Hampton	Date: 7/6/15 Time: 3:52pm	Received By: Jodi Henson	
Relinquished By: Nick Hampton	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	2.4°C	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#54

Analytical Report 537535

for

Arcadis - Houston

Project Manager: Jonathan Olsen

HES Transfer

04-OCT-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Table of Contents

04-OCT-16

Project Manager: **Jonathan Olsen**
Arcadis - Houston
2929 Briarpark Dr., Ste 300
Houston, TX 77042

Reference: XENCO Report No(s): **537535**
HES Transfer
Project Address: Lovington NM

Jonathan Olsen:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 537535. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 537535 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 537535

Arcadis - Houston, Houston, TX

HES Transfer

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
VGWU61-03B (40')	S	09-20-16 15:38	- 40 ft	537535-001
VGWU61-MW1	W	09-20-16 14:54		537535-004
VGWU61-MW2	W	09-20-16 13:15		537535-005
EB-1	W	09-20-16 12:00		537535-006
DUP-1	W	09-20-16 00:00		537535-007
StateA10-MW1	W	09-20-16 11:21		537535-008
StateA10-MW2	W	09-20-16 10:13		537535-009
StateA10-MW3	W	09-20-16 08:48		537535-010
VGWU61-03B (50')	S	09-20-16 15:43	- 50 ft	Not Analyzed
VGWU61-03B (60')	S	09-20-16 15:50	- 60 ft	Not Analyzed

CASE NARRATIVE

Client Name: Arcadis - Houston
Project Name: HES Transfer

Project ID:
Work Order Number(s): *537535*

Report Date: *04-OCT-16*
Date Received: *09/27/2016*

Sample receipt non conformances and comments:

Direct bill to Chevron/PM Rob Speer

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 537535

Arcadis - Houston, Houston, TX

Project Name: HES Transfer

Project Id:

Contact: Jonathan Olsen

Project Location: Lovington NM

Date Received in Lab: Tue Sep-27-16 10:18 am

Report Date: 04-OCT-16

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	537535-001		537535-004		537535-005		537535-006		537535-007		537535-008	
	Field Id:	VGWU61-03B (40')		VGWU61-MW1		VGWU61-MW2		EB-1		DUP-1		StateA10-MW1	
	Depth:	40 ft											
	Matrix:	SOIL		WATER		WATER		WATER		WATER		WATER	
	Sampled:	Sep-20-16 15:38		Sep-20-16 14:54		Sep-20-16 13:15		Sep-20-16 12:00		Sep-20-16 00:00		Sep-20-16 11:21	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Oct-03-16 11:00		Oct-03-16 08:45		Oct-03-16 08:45		Oct-03-16 08:45		Oct-03-16 08:45		Oct-03-16 08:45	
	Analyzed:	Oct-03-16 17:23		Oct-03-16 12:00		Oct-03-16 12:22		Oct-03-16 17:16		Oct-03-16 12:36		Oct-03-16 12:43	
	Units/RL:	mg/kg	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		8.49	5.00	176	2.50	97.4	2.50	0.659	0.500	135	2.50	82.3	2.50

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 537535

Arcadis - Houston, Houston, TX

Project Name: HES Transfer

Project Id:

Contact: Jonathan Olsen

Project Location: Lovington NM

Date Received in Lab: Tue Sep-27-16 10:18 am

Report Date: 04-OCT-16

Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	537535-009		537535-010					
	Field Id:	StateA10-MW2		StateA10-MW3					
	Depth:								
	Matrix:	WATER		WATER					
	Sampled:	Sep-20-16 10:13		Sep-20-16 08:48					
Inorganic Anions by EPA 300/300.1	***Extracted:***	Oct-03-16 08:45		Oct-03-16 08:45					
	Analyzed:	Oct-03-16 13:04		Oct-03-16 13:11					
	Units/RL:	mg/L	RL	mg/L	RL				
Chloride		128	2.50	73.2	2.50				

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager

Final 1.000

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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Houston - Dallas - San Antonio - Atlanta - Midland/Odessa - Tampa/Lakeland - Phoenix - Latin America

	Phone	Fax
4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

BS / BSD Recoveries

Project Name: HES Transfer

Work Order #: 537535 **Project ID:**

Analyst: MNR **Date Prepared:** 10/03/2016 **Date Analyzed:** 10/03/2016

Lab Batch ID: 3001263 **Sample:** 714496-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.500	25.0	25.3	101	25.0	26.1	104	3	90-110	20	

Analyst: MNR **Date Prepared:** 10/03/2016 **Date Analyzed:** 10/03/2016

Lab Batch ID: 3001267 **Sample:** 714494-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	269	108	250	261	104	3	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: HES Transfer

Work Order # : 537535 **Project ID:**

Lab Batch ID: 3001263 **QC- Sample ID:** 537535-004 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 10/03/2016 **Date Prepared:** 10/03/2016 **Analyst:** MNR

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	176	125	308	106	125	313	110	2	90-110	20	

Lab Batch ID: 3001267 **QC- Sample ID:** 537535-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/03/2016 **Date Prepared:** 10/03/2016 **Analyst:** MNR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	8.49	250	262	101	250	259	100	1	90-110	20	

Lab Batch ID: 3001267 **QC- Sample ID:** 537766-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/03/2016 **Date Prepared:** 10/03/2016 **Analyst:** MNR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	2270	1250	3520	100	1250	3550	102	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

ARCADIS
Infrastructure Water Environment Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #: 501535

Send Results to:

Contact & Company Name: Jonathan Olson/Arcadis
Telephone: 713.953.4874
Address: 2929 Briar Park Dr. Suite 300
Fax:
City: Houston State: TX Zip: 77042
E-mail Address: Jonathan.Olson@Arcadis.com
Project Name/Location (City, State): HES Transfer/Lovington, NM
Project #: (Direct Bill to Chevron/PM)
Sampler's Printed Name: Ryan Nanny
Sampler's Signature:

Preservative	E
Filtered (✓)	NA
# of Containers	10
Container Information	7

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: _____

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	PARAMETER ANALYSIS & METHOD: Chloride	REMARKS
VGWU61-03B(40')	9-20-16	1538		✓	SO	1	
VGWU61-03B(50')	9-20-16	1543		✓	SO	1	Hold
VGWU61-03B(60')	9-20-16	1550		✓	SO	1	Hold
VGWU61-MW1	9-23-16	1454		✓	W	1	
VGWU61-MW2	9-23-16	1315		✓	W	1	
EB-1	9-23-16	1200		✓	W	1	
DUP-1	9-24-16	—		✓	W	1	
StateA10-MW1 (9-23-16)	9-23-16	1121		✓	W	1	
StateA10-MW2	9-24-16	1013		✓	W	1	
StateA10-MW3	9-24-16	0848		✓	W	1	

Special Instructions/Comments:
* Direct Bill to Chevron/PM: Rob Sparr *

☐ Special QA/QC Instructions(✓):
* Standard TAT *

Laboratory Information and Receipt

Lab Name: Xenco
☑ Cooler packed with ice (✓)
Cooler Custody Seal (✓): ☐ Intact ☐ Not Intact
Specify Turnaround Requirements: Standard
Shipping Tracking #:
Sample Receipt: Condition/Cooler Temp: 2.5°C

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ryan Nanny	Printed Name: JESSICA KRAMER	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier: Xenco	Firm/Courier:	Firm:
Date/Time: 9-26-16 1700	Date/Time: 9-27-16 1018	Date/Time:	Date/Time:

20730826 CofC AR Form 01.12.2007

Distribution: WHITE – Laboratory returns with results; YELLOW – Lab copy; PINK – Retained by ARCADIS

ORIGIN ID:LBBA (806) 543-1945
RYAN NANNY
1000 MCGUIRE ST
LUBBOCK, TX 79416
UNITED STATES US

SHIP DATE: 26SEP16
ACTWGT: 52.90 LB
CAD: 6996848/SSFO1704
DIMS: 24x14x14 IN
BILL THIRD PARTY

TO XENCO LAB
SAMPLE RECEIVING
1211 W FLORIDA AVE
MIDLAND TX 79701
(432) 563-1800 REF:
INV: PO: DEPT:

FedEx Express

TUE - 27 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 7841 8857 6880
0201

41 MAFA

79701
TX-US LBB

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Arcadis - Houston

Date/ Time Received: 09/27/2016 10:18:00 AM

Work Order #: 537535

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.5
#2 *Shipping container in good condition?	**N/A**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**N/A**
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Jessica Kramer
Jessica Kramer
Date: 09/27/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 09/27/2016

Analytical Report 532368

for

ARCADIS

Project Manager: Arti Patel

Chevron Sites

713.953.4841

21-JUL-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

21-JUL-16

Project Manager: **Arti Patel**
ARCADIS
1004 N. Big Spring St.
Midland, TX 79701

Reference: XENCO Report No(s): **532368**
Chevron Sites
Project Address: Hobbs, NM

Arti Patel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 532368. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 532368 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

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Sample Cross Reference 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
STATEA-10-04 4'	S	06-24-16 00:00	- 4 ft	532368-001
STATEA-10-04 10'	S	06-24-16 00:00	- 10 ft	532368-002
STATEA-10-04 20'	S	06-24-16 00:00	- 20 ft	532368-003
STATEA-10-04 30'	S	06-24-16 00:00	- 30 ft	532368-004
STATEA-10-03 4'	S	06-24-16 00:00	- 4 ft	532368-005
STATEA-10-03 10'	S	06-24-16 00:00	- 10 ft	532368-006
STATEA-10-03 20'	S	06-24-16 00:00	- 20 ft	532368-007
STATEA-10-03 30'	S	06-24-16 00:00	- 30 ft	532368-008
STATEA-10-01 4'	S	06-24-16 00:00	- 4 ft	532368-009
STATEA-10-01 10'	S	06-24-16 00:00	- 10 ft	532368-010
STATEA-10-01 20'	S	06-24-16 00:00	- 20 ft	532368-011
STATEA-10-01 30'	S	06-24-16 00:00	- 30 ft	532368-012
STATEA-10-02 4'	S	06-24-16 00:00	- 4 ft	532368-013
STATEA-10-02 10'	S	06-24-16 00:00	- 10 ft	532368-014
STATEA-10-02 20'	S	06-24-16 00:00	- 20 ft	532368-015
STATEA-10-02 30'	S	06-24-16 00:00	- 30 ft	532368-016
STATEA-10-02 50'	S	06-24-16 00:00	- 50 ft	532368-018
STATEA-10-02 70'	S	06-24-16 00:00	- 70 ft	532368-020
STATEA-10-05 4'	S	06-24-16 00:00	- 4 ft	532368-021
STATEA-10-05 10'	S	06-24-16 00:00	- 10 ft	532368-022
STATEA-10-05 20'	S	06-24-16 00:00	- 20 ft	532368-023
STATEA-10-05 30'	S	06-24-16 00:00	- 30 ft	532368-024
VGWUSAT3-02 4'	S	06-24-16 00:00	- 4 ft	532368-025
VGWUSAT3-02 10'	S	06-24-16 00:00	- 10 ft	532368-026
VGWUSAT3-02 20'	S	06-24-16 00:00	- 20 ft	532368-027
VGWUSAT3-02 30'	S	06-24-16 00:00	- 30 ft	532368-028
VGWUSAT3-02 60'	S	06-24-16 00:00	- 60 ft	532368-031
VGWUSAT3-04 4'	S	06-24-16 00:00	- 4 ft	532368-032
VGWUSAT3-04 30'	S	06-24-16 00:00	- 30 ft	532368-035
VGWUSAT3-01 4'	S	06-24-16 00:00	- 4 ft	532368-036
VGWUSAT3-01 10'	S	06-24-16 00:00	- 10 ft	532368-037
STATEA-10-02 40'	S	06-24-16 00:00	- 40 ft	Not Analyzed
STATEA-10-02 60'	S	06-24-16 00:00	- 60 ft	Not Analyzed
VGWUSAT3-02 40'	S	06-24-16 00:00	- 40 ft	Not Analyzed
VGWUSAT3-02 50'	S	06-24-16 00:00	- 50 ft	Not Analyzed
VGWUSAT3-04 10'	S	06-24-16 00:00	- 10 ft	Not Analyzed
VGWUSAT3-04 20'	S	06-24-16 00:00	- 20 ft	Not Analyzed
VGWUSAT3-01 20'	S	06-24-16 00:00	- 20 ft	Not Analyzed
VGWUSAT3-01 30'	S	06-24-16 00:00	- 30 ft	Not Analyzed

CASE NARRATIVE

Client Name: ARCADIS

Project Name: Chevron Sites

Project ID: *713.953.4841*
Work Order Number(s): *532368*

Report Date: *21-JUL-16*
Date Received: *06/25/2016*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-997612 Inorganic Anions by EPA 300/300.1
Lab Sample ID 532437-015 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 532368-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -021.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-04 4'** Matrix : Soil % Moisture : 5.73
Lab Sample Id : 532368-001 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	131	mg/kg	07.06.16 19.22		1

Sample Id : **STATEA-10-04 4'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-001 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.12	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-04 10'** Matrix : Soil % Moisture : 16.89
Lab Sample Id : 532368-002 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	73.7	mg/kg	07.06.16 19.30		1

Sample Id : **STATEA-10-04 10'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-002 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.46	SU	07.05.16 11.48		1

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-04 20'** Matrix : Soil % Moisture : .84
Lab Sample Id : 532368-003 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : TPH By SW8015B Mod Prep Method: TX1005P
Seq Number 997171 Date Prep: 06.28.16 15.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	C6C10GRO	16.0	mg/kg	06.28.16 22.35		1
Total TPH	PHC635	16.0	mg/kg	06.28.16 22.35		1

Sample Id : **STATEA-10-04 20'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-003 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.99	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-04 30'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-004 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.83	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-03 4'** Matrix : Soil % Moisture : 3.94
Lab Sample Id : 532368-005 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	94.3	mg/kg	07.06.16 20.09		1

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-03 4'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-005 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.63	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-03 10'** Matrix : Soil % Moisture : 6.18
Lab Sample Id : 532368-006 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	45.9	mg/kg	07.06.16 20.17		1

Sample Id : **STATEA-10-03 10'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-006 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.97	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-03 20'** Matrix : Soil % Moisture : 9.16
Lab Sample Id : 532368-007 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.5	mg/kg	07.06.16 20.25		1

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-03 20'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-007 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.97	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-03 30'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-008 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.04	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-01 4'** Matrix : Soil % Moisture : 4.23
Lab Sample Id : 532368-009 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	441	mg/kg	07.07.16 07.29		1

Sample Id : **STATEA-10-01 4'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-009 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.22	SU	07.05.16 11.48		1

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-01 10'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-010 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.08	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-01 20'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-011 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.11	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-01 30'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-012 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.82	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-02 4'** Matrix : Soil % Moisture : 9.44
Lab Sample Id : 532368-013 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	86.4	mg/kg	07.07.16 08.31		1

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ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-02 4'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-013 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.41	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-02 10'** Matrix : Soil % Moisture : 9.6
Lab Sample Id : 532368-014 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	131	mg/kg	07.07.16 08.39		5

Sample Id : **STATEA-10-02 10'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-014 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.69	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-02 20'** Matrix : Soil % Moisture : 12.62
Lab Sample Id : 532368-015 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	316	mg/kg	07.07.16 08.47		5

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-02 20'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-015 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.60	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-02 30'** Matrix : Soil % Moisture : 5.72
Lab Sample Id : 532368-016 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	418	mg/kg	07.07.16 08.55		5

Sample Id : **STATEA-10-02 30'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-016 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997530

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.68	SU	07.05.16 11.48		1

Sample Id : **STATEA-10-02 50'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-018 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 50 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998310 Date Prep: 07.18.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1630	mg/kg	07.18.16 20.11		10

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ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-02 70'** Matrix : Soil % Moisture : 6.09
Lab Sample Id : 532368-020 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 70 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998464 Date Prep: 07.20.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	865	mg/kg	07.20.16 16.46		5

Sample Id : **STATEA-10-05 4'** Matrix : Soil % Moisture : 3.84
Lab Sample Id : 532368-021 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997612 Date Prep: 07.06.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	47.5	mg/kg	07.07.16 09.02		1

Sample Id : **STATEA-10-05 4'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-021 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997531

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.92	SU	07.05.16 15.52		1

Sample Id : **STATEA-10-05 10'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-022 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997531

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.04	SU	07.05.16 15.52		1

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ARCADIS, Midland, TX

Chevron Sites

Sample Id : **STATEA-10-05 20'** Matrix : Soil % Moisture : 1.61
Lab Sample Id : 532368-023 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997641 Date Prep: 07.06.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.2	mg/kg	07.07.16 10.21		1

Sample Id : **STATEA-10-05 20'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-023 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997531

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	9.27	SU	07.05.16 15.52		1

Sample Id : **STATEA-10-05 30'** Matrix : Soil % Moisture : 8.11
Lab Sample Id : 532368-024 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997641 Date Prep: 07.06.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.4	mg/kg	07.07.16 10.28		1

Sample Id : **STATEA-10-05 30'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-024 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Soil pH by EPA 9045C
Seq Number 997531

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
pH	12408-02-5	8.84	SU	07.05.16 15.52		1

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **VGWUSAT3-02 4'** Matrix : Soil % Moisture : 0
Lab Sample Id : 532368-025 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998464 Date Prep: 07.20.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3340	mg/kg	07.20.16 17.09		20

Sample Id : **VGWUSAT3-02 10'** Matrix : Soil % Moisture : 0
Lab Sample Id : 532368-026 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 10 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998464 Date Prep: 07.20.16 12.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3590	mg/kg	07.20.16 17.17		20

Sample Id : **VGWUSAT3-02 20'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-027 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 20 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998310 Date Prep: 07.18.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	546	mg/kg	07.18.16 20.18		5

Sample Id : **VGWUSAT3-02 30'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-028 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998310 Date Prep: 07.18.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	635	mg/kg	07.18.16 20.26		5

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **VGWUSAT3-02 60'** Matrix : Soil % Moisture : 7.45
Lab Sample Id : 532368-031 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 60 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997641 Date Prep: 07.06.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.9	mg/kg	07.07.16 10.36		1

Sample Id : **VGWUSAT3-04 4'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-032 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998310 Date Prep: 07.18.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	58.4	mg/kg	07.18.16 20.34		1

Sample Id : **VGWUSAT3-04 30'** Matrix : Soil % Moisture : 7.45
Lab Sample Id : 532368-035 Date Collected : 06.24.16 00.00 Basis : Dry Weight
Sample Depth : 30 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 997641 Date Prep: 07.06.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	72.2	mg/kg	07.07.16 10.44		1

Sample Id : **VGWUSAT3-01 4'** Matrix : Soil % Moisture :
Lab Sample Id : 532368-036 Date Collected : 06.24.16 00.00 Basis : Wet Weight
Sample Depth : 4 ft Date Received : 06.25.16 10.30

Analytical Method : Inorganic Anions by EPA 300/300.1 Prep Method: E300P
Seq Number 998310 Date Prep: 07.18.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	681	mg/kg	07.18.16 20.42		5

Hits Summary 532368

ARCADIS, Midland, TX

Chevron Sites

Sample Id : **VGWUSAT3-01 10'**
Lab Sample Id : 532368-037
Sample Depth : 10 ft

Matrix : Soil
Date Collected : 06.24.16 00.00
Date Received : 06.25.16 10.30

% Moisture : 7.45
Basis : Dry Weight

Analytical Method : Inorganic Anions by EPA 300/300.1
Seq Number 997641

Prep Method: E300P
Date Prep: 07.06.16 14.00

Parameter	Cas Number	Result	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	54.4	mg/kg	07.07.16 11.07		1

Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-001		532368-002		532368-003		532368-004		532368-005		532368-006	
	Field Id:	STATEA-10-04 4'		STATEA-10-04 10'		STATEA-10-04 20'		STATEA-10-04 30'		STATEA-10-03 4'		STATEA-10-03 10'	
	Depth:	4 ft		10 ft		20 ft		30 ft		4 ft		10 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		5.73	1.00	16.9	1.00	<1.00	1.00	5.06	1.00	3.94	1.00	6.18	1.00

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Kelsey Brooks
Project Manager

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Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-001		532368-002		532368-003		532368-004		532368-005		532368-006	
	Field Id:	STATEA-10-04 4'		STATEA-10-04 10'		STATEA-10-04 20'		STATEA-10-04 30'		STATEA-10-03 4'		STATEA-10-03 10'	
	Depth:	4 ft		10 ft		20 ft		30 ft		4 ft		10 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00	
	Analyzed:	Jul-06-16 19:22		Jul-06-16 19:30		Jul-06-16 19:38		Jul-06-16 20:01		Jul-06-16 20:09		Jul-06-16 20:17	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		131	10.6	73.7	12.0	<10.1	10.1	<10.5	10.5	94.3	10.4	45.9	10.7
Soil pH by EPA 9045C	***Extracted:***												
	Analyzed:	Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48	
	Units/RL:	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL
pH		8.12		8.46		8.99		8.83		8.63		8.97	
TPH By SW8015B Mod	***Extracted:***	Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00	
	Analyzed:	Jun-28-16 20:53		Jun-28-16 22:10		Jun-28-16 22:35		Jun-28-16 23:01		Jun-28-16 23:27		Jun-28-16 23:55	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		<15.9	15.9	<18.0	18.0	16.0	15.1	<15.8	15.8	<15.6	15.6	<16.0	16.0
C10-C28 Diesel Range Hydrocarbons		<15.9	15.9	<18.0	18.0	<15.1	15.1	<15.8	15.8	<15.6	15.6	<16.0	16.0
Total TPH		<15.9	15.9	<18.0	18.0	16.0	15.1	<15.8	15.8	<15.6	15.6	<16.0	16.0

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Kelsey Brooks
Project Manager

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Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-007		532368-008		532368-009		532368-010		532368-011		532368-012	
	Field Id:	STATEA-10-03 20'		STATEA-10-03 30'		STATEA-10-01 4'		STATEA-10-01 10'		STATEA-10-01 20'		STATEA-10-01 30'	
	Depth:	20 ft		30 ft		4 ft		10 ft		20 ft		30 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		9.16	1.00	6.29	1.00	4.23	1.00	2.90	1.00	3.89	1.00	6.76	1.00

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Certificate of Analysis Summary 532368

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Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-007		532368-008		532368-009		532368-010		532368-011		532368-012	
	Field Id:	STATEA-10-03 20'		STATEA-10-03 30'		STATEA-10-01 4'		STATEA-10-01 10'		STATEA-10-01 20'		STATEA-10-01 30'	
	Depth:	20 ft		30 ft		4 ft		10 ft		20 ft		30 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00	
	Analyzed:	Jul-06-16 20:25		Jul-06-16 20:32		Jul-07-16 07:29		Jul-07-16 07:52		Jul-07-16 08:00		Jul-07-16 08:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		29.5	11.0	<10.7	10.7	441	10.4	<10.3	10.3	<10.4	10.4	<10.7	10.7
Soil pH by EPA 9045C	***Extracted:***												
	Analyzed:	Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48	
	Units/RL:	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL	SU	RL
pH		8.97		9.04		8.22		9.08		9.11		8.82	
TPH By SW8015B Mod	***Extracted:***	Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00	
	Analyzed:	Jun-29-16 00:21		Jun-29-16 00:48		Jun-29-16 01:16		Jun-29-16 01:42		Jun-29-16 02:35		Jun-29-16 02:59	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		<16.5	16.5	<16.0	16.0	<15.6	15.6	<15.4	15.4	<15.6	15.6	<16.1	16.1
C10-C28 Diesel Range Hydrocarbons		<16.5	16.5	<16.0	16.0	<15.6	15.6	<15.4	15.4	<15.6	15.6	<16.1	16.1
Total TPH		<16.5	16.5	<16.0	16.0	<15.6	15.6	<15.4	15.4	<15.6	15.6	<16.1	16.1

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Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-013		532368-014		532368-015		532368-016		532368-018		532368-020	
	Field Id:	STATEA-10-02 4'		STATEA-10-02 10'		STATEA-10-02 20'		STATEA-10-02 30'		STATEA-10-02 50'		STATEA-10-02 70'	
	Depth:	4 ft		10 ft		20 ft		30 ft		50 ft		70 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05	
	Units/RL:	%	RL	%	RL	%	RL	%	RL	%	RL	%	RL
Percent Moisture		9.44	1.00	9.60	1.00	12.6	1.00	5.72	1.00	9.15	1.00	6.09	1.00

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Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-013		532368-014		532368-015		532368-016		532368-018		532368-020	
	Field Id:	STATEA-10-02 4'		STATEA-10-02 10'		STATEA-10-02 20'		STATEA-10-02 30'		STATEA-10-02 50'		STATEA-10-02 70'	
	Depth:	4 ft		10 ft		20 ft		30 ft		50 ft		70 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-06-16 12:00		Jul-18-16 14:00		Jul-20-16 12:00	
	Analyzed:	Jul-07-16 08:31		Jul-07-16 08:39		Jul-07-16 08:47		Jul-07-16 08:55		Jul-18-16 20:11		Jul-20-16 16:46	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		86.4	11.0	131	55.3	316	57.2	418	53.0	1630	100	865	53.2
Soil pH by EPA 9045C	***Extracted:***												
	Analyzed:	Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48		Jul-05-16 11:48					
	Units/RL:	SU	RL	SU	RL	SU	RL	SU	RL				
pH		9.41		9.69		9.60		9.68					
TPH By SW8015B Mod	***Extracted:***	Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00		Jun-28-16 15:00					
	Analyzed:	Jun-29-16 03:25		Jun-29-16 03:51		Jun-29-16 04:17		Jun-29-16 04:44					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
C6-C10 Gasoline Range Hydrocarbons		<16.5	16.5	<16.5	16.5	<17.2	17.2	<15.9	15.9				
C10-C28 Diesel Range Hydrocarbons		<16.5	16.5	<16.5	16.5	<17.2	17.2	<15.9	15.9				
Total TPH		<16.5	16.5	<16.5	16.5	<17.2	17.2	<15.9	15.9				

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Kelsey Brooks
Project Manager

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Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-021		532368-022		532368-023		532368-024		532368-025		532368-026	
	Field Id:	STATEA-10-05 4'		STATEA-10-05 10'		STATEA-10-05 20'		STATEA-10-05 30'		VGWUSAT3-02 4'		VGWUSAT3-02 10'	
	Depth:	4 ft		10 ft		20 ft		30 ft		4 ft		10 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Percent Moisture	***Extracted:***												
	Analyzed:	Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05		Jul-01-16 17:05					
	Units/RL:	%	RL	%	RL	%	RL	%	RL				
Percent Moisture		3.84	1.00	7.45	1.00	1.61	1.00	8.11	1.00				

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Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-021		532368-022		532368-023		532368-024		532368-025		532368-026	
	Field Id:	STATEA-10-05 4'		STATEA-10-05 10'		STATEA-10-05 20'		STATEA-10-05 30'		VGWUSAT3-02 4'		VGWUSAT3-02 10'	
	Depth:	4 ft		10 ft		20 ft		30 ft		4 ft		10 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jul-06-16 12:00		Jul-06-16 14:00		Jul-06-16 14:00		Jul-06-16 14:00		Jul-20-16 12:00		Jul-20-16 12:00	
	Analyzed:	Jul-07-16 09:02		Jul-07-16 09:57		Jul-07-16 10:21		Jul-07-16 10:28		Jul-20-16 17:09		Jul-20-16 17:17	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		47.5	10.4	<10.8	10.8	14.2	10.2	23.4	10.9	3340	200	3590	200
Soil pH by EPA 9045C	***Extracted:***												
	Analyzed:	Jul-05-16 15:52		Jul-05-16 15:52		Jul-05-16 15:52		Jul-05-16 15:52					
	Units/RL:	SU	RL	SU	RL	SU	RL	SU	RL				
pH		8.92		9.04		9.27		8.84					
TPH By SW8015B Mod	***Extracted:***	Jun-29-16 14:00		Jun-29-16 14:00		Jun-29-16 14:00		Jun-29-16 14:00					
	Analyzed:	Jun-29-16 15:39		Jun-29-16 16:59		Jun-29-16 17:26		Jun-29-16 17:53					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
C6-C10 Gasoline Range Hydrocarbons		<15.6	15.6	<16.2	16.2	<15.2	15.2	<16.3	16.3				
C10-C28 Diesel Range Hydrocarbons		<15.6	15.6	<16.2	16.2	<15.2	15.2	<16.3	16.3				
Total TPH		<15.6	15.6	<16.2	16.2	<15.2	15.2	<16.3	16.3				

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	532368-027		532368-028		532368-031		532368-032		532368-035		532368-036	
	Field Id:	VGWUSAT3-02 20'		VGWUSAT3-02 30'		VGWUSAT3-02 60'		VGWUSAT3-04 4'		VGWUSAT3-04 30'		VGWUSAT3-01 4'	
	Depth:	20 ft		30 ft		60 ft		4 ft		30 ft		4 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00		Jun-24-16 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jul-18-16 14:00		Jul-18-16 14:00		Jul-06-16 14:00		Jul-18-16 14:00		Jul-06-16 14:00		Jul-18-16 14:00	
	Analyzed:	Jul-18-16 20:18		Jul-18-16 20:26		Jul-07-16 10:36		Jul-18-16 20:34		Jul-07-16 10:44		Jul-18-16 20:42	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		546	50.0	635	50.0	22.9	10.8	58.4	10.0	72.2	10.8	681	50.0

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager

Final 1.000

Certificate of Analysis Summary 532368

ARCADIS, Midland, TX

Project Name: Chevron Sites

Project Id: 713.953.4841
Contact: Arti Patel
Project Location: Hobbs, NM

Date Received in Lab: Sat Jun-25-16 10:30 am
Report Date: 21-JUL-16
Project Manager: Kelsey Brooks

Analysis Requested							
	Lab Id:	532368-037					
	Field Id:	VGWUSAT3-01 10'					
	Depth:	10 ft					
	Matrix:	SOIL					
	Sampled:	Jun-24-16 00:00					
Inorganic Anions by EPA 300/300.1	***Extracted:***	Jul-06-16 14:00					
	Analyzed:	Jul-07-16 11:07					
	Units/RL:	mg/kg	RL				
Chloride		54.4	10.8				

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Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

Form 2 - Surrogate Recoveries

Project Name: Chevron Sites

Work Orders : 532368, 532368 **Project ID:** 713.953.4841

Lab Batch #: 997171 **Sample:** 532368-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 20:53

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.9	101	70-135	
o-Terphenyl	52.5	50.0	105	70-135	

Lab Batch #: 997171 **Sample:** 532368-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 22:10

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.5	99.9	97	70-135	
o-Terphenyl	46.9	50.0	94	70-135	

Lab Batch #: 997171 **Sample:** 532368-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 22:35

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.0	99.7	94	70-135	
o-Terphenyl	44.2	49.9	89	70-135	

Lab Batch #: 997171 **Sample:** 532368-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 23:01

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.2	100	84	70-135	
o-Terphenyl	41.0	50.0	82	70-135	

Lab Batch #: 997171 **Sample:** 532368-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 23:27

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.9	99.8	88	70-135	
o-Terphenyl	42.4	49.9	85	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Chevron Sites

Work Orders : 532368, 532368 **Project ID:** 713.953.4841

Lab Batch #: 997171 **Sample:** 532368-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 23:55

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.0	99.8	92	70-135	
o-Terphenyl	44.9	49.9	90	70-135	

Lab Batch #: 997171 **Sample:** 532368-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 00:21

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.0	99.7	86	70-135	
o-Terphenyl	42.2	49.9	85	70-135	

Lab Batch #: 997171 **Sample:** 532368-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 00:48

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.9	99.7	90	70-135	
o-Terphenyl	43.7	49.9	88	70-135	

Lab Batch #: 997171 **Sample:** 532368-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 01:16

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.3	99.7	93	70-135	
o-Terphenyl	45.0	49.9	90	70-135	

Lab Batch #: 997171 **Sample:** 532368-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 01:42

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.9	99.9	86	70-135	
o-Terphenyl	41.6	50.0	83	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Chevron Sites

Work Orders : 532368, 532368 **Project ID:** 713.953.4841

Lab Batch #: 997171 **Sample:** 532368-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 02:35

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.8	99.8	93	70-135	
o-Terphenyl	45.9	49.9	92	70-135	

Lab Batch #: 997171 **Sample:** 532368-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 02:59

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.9	99.9	100	70-135	
o-Terphenyl	50.1	50.0	100	70-135	

Lab Batch #: 997171 **Sample:** 532368-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 03:25

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.4	99.9	96	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

Lab Batch #: 997171 **Sample:** 532368-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 03:51

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.5	99.7	95	70-135	
o-Terphenyl	46.7	49.9	94	70-135	

Lab Batch #: 997171 **Sample:** 532368-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 04:17

TPH By SW8015B Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	49.6	50.0	99	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Chevron Sites

Work Orders : 532368, 532368 **Project ID:** 713.953.4841

Lab Batch #: 997171 **Sample:** 532368-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 04:44

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	99.8	98	70-135	
o-Terphenyl	48.7	49.9	98	70-135	

Lab Batch #: 997250 **Sample:** 532368-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 15:39

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.0	99.7	92	70-135	
o-Terphenyl	46.1	49.9	92	70-135	

Lab Batch #: 997250 **Sample:** 532368-022 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 16:59

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.6	99.8	92	70-135	
o-Terphenyl	45.7	49.9	92	70-135	

Lab Batch #: 997250 **Sample:** 532368-023 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 17:26

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.4	99.7	93	70-135	
o-Terphenyl	44.7	49.9	90	70-135	

Lab Batch #: 997250 **Sample:** 532368-024 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 17:53

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.9	99.9	95	70-135	
o-Terphenyl	47.1	50.0	94	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Chevron Sites

Work Orders : 532368, 532368 **Project ID:** 713.953.4841

Lab Batch #: 997171 **Sample:** 710455-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/28/16 19:37

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	51.6	50.0	103	70-135	

Lab Batch #: 997250 **Sample:** 710500-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/29/16 14:19

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	100	103	70-135	
o-Terphenyl	52.2	50.0	104	70-135	

Lab Batch #: 997171 **Sample:** 710455-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/28/16 20:02

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	56.5	50.0	113	70-135	

Lab Batch #: 997250 **Sample:** 710500-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/29/16 14:45

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	58.7	50.0	117	70-135	

Lab Batch #: 997171 **Sample:** 710455-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/28/16 20:27

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	100	121	70-135	
o-Terphenyl	55.3	50.0	111	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Chevron Sites

Work Orders : 532368, 532368 **Project ID:** 713.953.4841

Lab Batch #: 997250 **Sample:** 710500-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 06/29/16 15:12

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	130	100	130	70-135	
o-Terphenyl	59.2	50.0	118	70-135	

Lab Batch #: 997171 **Sample:** 532368-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 21:19

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	99.9	115	70-135	
o-Terphenyl	51.1	50.0	102	70-135	

Lab Batch #: 997250 **Sample:** 532368-021 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 16:05

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	99.9	110	70-135	
o-Terphenyl	45.1	50.0	90	70-135	

Lab Batch #: 997171 **Sample:** 532368-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/28/16 21:45

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	99.8	123	70-135	
o-Terphenyl	54.4	49.9	109	70-135	

Lab Batch #: 997250 **Sample:** 532368-021 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 06/29/16 16:32

SURROGATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	109	99.7	109	70-135	
o-Terphenyl	46.1	49.9	92	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Chevron Sites

Work Order #: 532368, 532368 **Project ID:** 713.953.4841

Analyst: MNR **Date Prepared:** 07/06/2016 **Date Analyzed:** 07/06/2016

Lab Batch ID: 997612 **Sample:** 710654-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<10.0	250	236	94	250	228	91	3	90-110	20	

Analyst: MNR **Date Prepared:** 07/06/2016 **Date Analyzed:** 07/07/2016

Lab Batch ID: 997641 **Sample:** 710669-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<10.0	250	231	92	250	233	93	1	90-110	20	

Analyst: MNR **Date Prepared:** 07/18/2016 **Date Analyzed:** 07/18/2016

Lab Batch ID: 998310 **Sample:** 711075-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<10.0	250	246	98	250	250	100	2	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Chevron Sites

Work Order #: 532368, 532368 **Project ID:** 713.953.4841

Analyst: MNR **Date Prepared:** 07/20/2016 **Date Analyzed:** 07/20/2016

Lab Batch ID: 998464 **Sample:** 711178-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<10.0	250	257	103	250	268	107	4	90-110	20	

Analyst: ARM **Date Prepared:** 06/28/2016 **Date Analyzed:** 06/28/2016

Lab Batch ID: 997171 **Sample:** 710455-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	918	92	1000	899	90	2	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	965	97	1000	963	96	0	70-135	35	

Analyst: ARM **Date Prepared:** 06/29/2016 **Date Analyzed:** 06/29/2016

Lab Batch ID: 997250 **Sample:** 710500-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	991	99	1000	1040	104	5	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	1100	110	1000	1080	108	2	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS Recoveries

Project Name: Chevron Sites

Work Order #: 532368

Lab Batch #: 997612 **Project ID:** 713.953.4841

Date Analyzed: 07/07/2016 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532368-009 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	441	261	635	74	80-120	X

Lab Batch #: 997612

Date Analyzed: 07/06/2016 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532437-015 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	529	1250	1620	87	80-120	

Lab Batch #: 997641

Date Analyzed: 07/07/2016 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532368-022 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<10.8	270	231	86	80-120	

Lab Batch #: 997641

Date Analyzed: 07/07/2016 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532413-005 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	2150	2500	4800	106	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS Recoveries

Project Name: Chevron Sites

Work Order #: 532368

Lab Batch #: 998310 **Project ID:** 713.953.4841

Date Analyzed: 07/18/2016 **Date Prepared:** 07/18/2016 **Analyst:** MNR

QC- Sample ID: 532328-017 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	28.7	250	258	92	80-120	

Lab Batch #: 998310

Date Analyzed: 07/18/2016 **Date Prepared:** 07/18/2016 **Analyst:** MNR

QC- Sample ID: 533521-001 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300 Analytes	MATRIX / MATRIX SPIKE RECOVERY STUDY					
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	<10.0	250	274	110	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: Chevron Sites

Work Order # : 532368 **Project ID:** 713.953.4841

Lab Batch ID: 998464 **QC- Sample ID:** 533505-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 07/20/2016 **Date Prepared:** 07/20/2016 **Analyst:** MNR

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	717	1250	2040	106	1250	2010	103	1	80-120	20	

Lab Batch ID: 997171 **QC- Sample ID:** 532368-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/28/2016 **Date Prepared:** 06/28/2016 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.9	1060	904	85	1060	1090	103	19	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.9	1060	977	92	1060	1080	102	10	70-135	35	

Lab Batch ID: 997250 **QC- Sample ID:** 532368-021 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 06/29/2016 **Date Prepared:** 06/29/2016 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015B Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.6	1040	887	85	1040	880	85	1	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.6	1040	1010	97	1040	1010	97	0	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: Chevron Sites

Work Order #: 532368

Lab Batch #: 997612 **Project ID:** 713.953.4841

Date Analyzed: 07/07/2016 07:37 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532368-009 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	441	440	0	20	

Lab Batch #: 997612

Date Analyzed: 07/06/2016 18:51 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532437-015 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	529	502	5	20	

Lab Batch #: 997641

Date Analyzed: 07/07/2016 10:05 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532368-022 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	<10.8	<10.8	0	20	U

Lab Batch #: 997641

Date Analyzed: 07/07/2016 11:54 **Date Prepared:** 07/06/2016 **Analyst:** MNR

QC- Sample ID: 532413-005 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	2150	2280	6	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

Sample Duplicate Recovery

Project Name: Chevron Sites

Work Order #: 532368

Lab Batch #: 998310 **Project ID:** 713.953.4841

Date Analyzed: 07/18/2016 20:57 **Date Prepared:** 07/18/2016 **Analyst:** MNR

QC- Sample ID: 532328-017 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	28.7	25.5	12	20	

Lab Batch #: 998310

Date Analyzed: 07/18/2016 19:08 **Date Prepared:** 07/18/2016 **Analyst:** MNR

QC- Sample ID: 533521-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	<10.0	<10.0	0	20	U

Lab Batch #: 997489

Date Analyzed: 07/01/2016 17:05 **Date Prepared:** 07/01/2016 **Analyst:** WRU

QC- Sample ID: 532368-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	5.73	5.48	4	20	

Lab Batch #: 997489

Date Analyzed: 07/01/2016 17:05 **Date Prepared:** 07/01/2016 **Analyst:** WRU

QC- Sample ID: 532368-011 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture	SAMPLE / SAMPLE DUPLICATE RECOVERY				
Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	3.89	3.66	6	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

Sample Duplicate Recovery

Project Name: Chevron Sites

Work Order #: 532368

Lab Batch #: 997493 **Project ID:** 713.953.4841

Date Analyzed: 07/01/2016 17:05 **Date Prepared:** 07/01/2016 **Analyst:** WRU

QC- Sample ID: 532368-021 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: %

Percent Moisture Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture	3.84	3.95	3	20	

Lab Batch #: 997530

Date Analyzed: 07/05/2016 11:48 **Date Prepared:** 07/05/2016 **Analyst:** WRU

QC- Sample ID: 532585-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: SU

Soil pH by EPA 9045C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
pH	7.78	7.77	0	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: ARCADIS

Date/ Time Received: 06/25/2016 10:30:00 AM

Work Order #: 532368

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.5
#2 *Shipping container in good condition?	**N/A**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**No**
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Mary Alexis Negron
Mary Negron
Date: 06/27/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 06/28/2016

ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of ___

Lab Work Order # 532368

Send Results to:

Contact & Company Name: Arti Patil

Telephone: 713 853 4841

Address:

Fax:

City State Zip

E-mail Address: Arti.patil@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
SE - Sediment
NL - NAPL/Oil
W - Water
SL - Sludge
SW - Sample Wipe
T - Tissue
A - Air
Other: _____

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD: Chloride	REMARKS
A-10 SB-4 4	6-24			✓	SOL						test
10											hold
20											hold
30											hold
SB-3 4											Test
10											hold
20											hold
30											hold
SB-2 4											test
10											hold
20											hold
30											hold
SB-1 4											test hold
10											hold

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name:

☐ Cooler packed with ice (✓)

Specify Turnaround Requirements:

Shipping Tracking #:

Cooler Custody Seal (✓)
☑ Intact ☐ Not Intact

Sample Receipt:
Condition/Cooler Temp: 4.5°C

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ken Wicus	Printed Name:	Printed Name:	Printed Name: Julian Martinez
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier: MS	Firm/Courier:	Firm: Xenco
Date/Time: 6/24 1700	Date/Time: 6/24	Date/Time:	Date/Time: 6-25-16 10:30

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ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 2 of ___

Lab Work Order # 532368

Send Results to:

Contact & Company Name: Arti pahl

Telephone: 713.953.4841

Address:

Fax:

City / State / Zip:

E-mail Address: Arti.pahl@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Preservative							
Filtered (✓)							
# of Containers							
Container Information							

PARAMETER ANALYSIS & METHOD

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: ___ G. Other: ___ H. Other: ___

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: ___ 10. Other: ___

Matrix Key: SO - Soil; W - Water; T - Tissue; SE - Sediment; SL - Sludge; A - Air; NL - NAPL/Oil; SW - Sample Wipe; Other: ___

Sample ID	Collection Date	Collection Time	Type Comp	Type Grab	Matrix	Chlorides							REMARKS
A-10 SB-2 20	6-24			✓	Soil								hold ✓
30	↓			↓	↓								hold ✓
40													hold ✓
50													hold ✓
60													hold ✓
70													hold ✓
SB-5 4													test ✓
10													hold ✓
20													hold ✓
30													hold ✓
SAT-3 SB-3 ~~4~~													test
10													hold
20													hold
30													hold

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name:

☐ Cooler packed with ice (✓)

Specify Turnaround Requirements:

Shipping Tracking #:

Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp: ______

	Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name:	Ken wicks	[illegible]		
Signature:	[signature]	[signature]		
Firm / Firm/Courier:	Arcadis	MS		
Date/Time:	6/24 1700	6/24/16		

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ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

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Lab Work Order # 532368

Send Results to:

Contact & Company Name: Arti PuHl

Telephone: 713.953.4841

Address:

Fax:

City State Zip

E-mail Address: Arti.PuHl@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Preservative							
Filtered (✓)							
# of Containers							
Container Information							

PARAMETER ANALYSIS & METHOD

Chloride

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
SE - Sediment
NL - NAPL/Oil
W - Water
SL - Sludge
SW - Sample Wipe
T - Tissue
A - Air
Other: _____

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	REMARKS
SB-3	6-24			✓	SOL	hold
SB-2 4						hold
10						hold
20						hold
30						hold
40						hold
50						hold
60						~~hold~~ test
SB-4 4						hold
10						hold
20						hold
30						test
3						

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name:

] Cooler packed with ice (✓)

ecify Turnaround Requirements:

ipping Tracking #:

Cooler Custody Seal (✓)
☐ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp: _____

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ken Wicks	Printed Name: K Butler	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm: ARCADIS	Firm/Courier:	Firm/Courier:	Firm:
Date/Time: 6/24 1700	Date/Time: 6/24/16	Date/Time:	Date/Time:

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ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of ___

Lab Work Order #: 532308

Send Results to:

Contact & Company Name: Arti Patel	Telephone: 713.953.4841
Address:	Fax: Arti.Patel@arcadis.com
City State Zip	E-mail Address:
Project Name/Location (City, State):	Project #:
Sampler's Printed Name:	Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix
Sat 3 SB1 4	6-24			✓	Soil
10	↓			↓	↓
20					
30					

Preservative	
Filtered (✓)	
# of Containers	
Container Information	

PARAMETER ANALYSIS & METHOD

Chlorides

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
SE - Sediment
NL - NAPL/Oil
W - Water
SL - Sludge
SW - Sample Wipe
T - Tissue
A - Air
Other: _____

REMARKS

Hold
~~Hold~~ test
Hold
~~Dup~~ Hold

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Name:

Cooler packed with ice (✓)

Specify Turnaround Requirements:

Shipping Tracking #:

Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp: _____

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ken Wicks	Printed Name: K Butler	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier: MS	Firm/Courier:	Firm:
Date/Time: 6/24 1700	Date/Time: 6/24/16	Date/Time:	Date/Time:

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ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 4

Lab Work Order #

Send Results to:

Contact & Company Name: Arti patel

Telephone: 713 853 4841

Address:

Fax:

City: State: Zip:

E-mail Address: Arti.patel@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Preservative / Filtered (✓) / # of Containers / Container Information

PARAMETER ANALYSIS & METHOD

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: G. Other: H. Other:

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: 10. Other:

Matrix Key: SO - Soil, W - Water, T - Tissue, SE - Sediment, SL - Sludge, A - Air, NL - NAPL/Oil, SW - Sample Wipe, Other:

Sample ID		Collection Date	Collection Time	Type Comp	Type Grab	Matrix	Chloride	TPH-GRO	TPH-DRO	Percent moisture	pH			REMARKS
A-10 SB-4	4	6-24			✓	SOIL	X	X	X	X	X			test
	10													hold
	20													hold
	30													hold
SB-3	4													Test
	10													hold
	20													hold
	30													hold
SB-1	4													test
	10													hold
	20													hold
	30													hold
SB-2	4													~~test~~ hold
	10													hold

Run all samples

Special Instructions/Comments:

Corrections made by A. Patel 06/24/16 18 22

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name:	Cooler Custody Seal (✓)	Printed Name:	Printed Name:	Printed Name:	Printed Name:
☐ Cooler packed with ice (✓)	☐ Intact ☐ Not Intact	Signature:	Signature:	Signature:	Signature:
Specify Turnaround Requirements:	Sample Receipt:	Firm:	Firm/Courier:	Firm/Courier:	Firm:
Shipping Tracking #:	Condition/Cooler Temp:	Date/Time:	Date/Time:	Date/Time:	Date/Time:

ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 2 of 4

Lab Work Order #

Send Results to:

Contact & Company Name: Arti Patel

Address:

City: State: Zip:

Telephone: 713.953.4841

Fax:

E-mail Address: Arti.Patel@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Preservative

Present (✓)

# of Containers

Container Information

PARAMETER ANALYSIS & METHOD

Chlorides

TPH - GRO

TPH - DRO

Percent moisture

BTEX

Keys

Preservation Key: A. H_2SO_4 B. HCl C. HNO_3 D. NaOH E. None F. Other: G. Other: H. Other:

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: 10 Other:

Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/Oil SW - Sample Wipe Other:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	# of Containers	REMARKS
A-10	6-24			✓	Soil	1	hold
SB-2 20						1	hold
30						1	hold
40						1	hold
50						1	hold
60						1	hold
70						1	test
SB-5 4						1	hold
10						1	hold
20						1	hold
30						1	test
SAT-3 SB-3 4						1	hold
10						1	hold
20						1	hold
30						1	hold

RUN all

Special Instructions/Comments:

Corrections by A Patel 6/24/16 1822

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Name:

Cooler packed with ice (✓)

Specify Turnaround Requirements:

Airbill Tracking #:

Cooler Custody Seal (✓)

☐ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp:

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name:	Printed Name:	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm:	Firm/Courier:	Firm/Courier:	Firm:
Date/Time:	Date/Time:	Date/Time:	Date/Time:

ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 3 of 4

Lab Work Order #:

Send Results to:

Contact & Company Name: Arti Puri

Telephone: 713-953-4841

Address:

Fax:

City State Zip

E-mail Address: APuri@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Chloride
Sat-3	6-24			✓	SOL		X
SB-2 4							
10							
20							
30							
40							
50							
60							
SB-4 4							
10							
20							
30							
9							

Filtered (✓):

# of Containers:

Container Information:

PARAMETER ANALYSIS & METHOD

REMARKS

hold ✓
hold ✓
hold ✓
hold ✓
hold ✓
hold ✓
~~hold~~ test ✓
hold ✓
hold ✓
hold ✓
test ✓

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: ____ G. Other: ____ H. Other: ____

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: ____ 10 Other: ____

Matrix Key: SO - Soil SE - Sediment NL - NAPL/Oil W - Water SL - Sludge SW - Sample Wipe T - Tissue A - Air Other: ____

Instructions/Comments:

Corrections made by Arti 06/24/16 18:2

☐ Special QA/QC Instructions (✓):

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name:	Cooler Custody Seal (✓)	Printed Name:	Printed Name:	Printed Name:	Printed Name:
☐ Cooler packed with ice (✓)	☐ Intact ☐ Not Intact	Signature:	Signature:	Signature:	Signature:
Specify Turnaround Requirements:	Sample Receipt:	Firm:	Firm/Courier:	Firm/Courier:	Firm:
Shipping Tracking #:	Condition/Cooler Temp:	Date/Time:			

ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 4 of 4

Lab Work Order #

Send Results to:

Contact & Company Name: Arti patel

Telephone: 713.953.4841

Address:

City / State / Zip:

Fax:

E-mail Address: Arti.patel@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

PARAMETER ANALYSIS & METHOD: Chlorides

Sample ID		Collection Date	Collection Time	Type Comp	Type Grab	Matrix	Chlorides							REMARKS
Sat 3 SB-4	4	6-24			✓	soil	X							hold
↓	10	↓			↓	↓	↓							~~hold~~ test
↓	20	↓			↓	↓	↓							hold
↓	30	↓			↓	↓	↓							~~[illegible]~~ hold

Keys

Preservation Key: A. H2SO4, B. HCl, C. HNO3, D. NaOH, E. None, F. Other, G. Other, H. Other

Container Information Key: 1. 40 ml Vial, 2. 1 L Amber, 3. 250 ml Plastic, 4. 500 ml Plastic, 5. Encore, 6. 2 oz. Glass, 7. 4 oz. Glass, 8. 8 oz. Glass, 9. Other, 10. Other

Matrix Key: SO - Soil, W - Water, T - Tissue, SE - Sediment, SL - Sludge, A - Air, NL - NAPL/Oil, SW - Sample Wipe, Other

Special Instructions/Comments:

Corrections made by A. Patil 06/24/16 18:20

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name:

Cooler Custody Seal (✓): ☐ Intact ☐ Not Intact

☐ Cooler packed with ice (✓)

Specify Turnaround Requirements:

Sample Receipt:

Shipping Tracking #:

Condition/Cooler Temp:

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name:	Printed Name:	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm:	Firm/Courier:	Firm/Courier:	
Date/Time:	Date/Time:		

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ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of ___

Lab Work Order # 532368

Send Results to:

Contact & Company Name: Arti puHl | Telephone: 713 853 4841

Address: | Fax:

City: State: Zip: | E-mail Address: Arti.puHl@arcadis.com

Project Name/Location (City, State): | Project #:

Sampler's Printed Name: | Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD: Chloride	REMARKS
A-10 SB-4 4	6-24			✓	SOL					STATEA10-04 (4')	test
10										(10')	hold
20										(20')	hold
30										(30')	hold
SB-3 4										STATEA10-03 (4')	Test
10										(10')	hold
20										(20')	hold
36										(30')	hold
SB-1 4										STATEA10-01 (4')	test
10										(10')	hold
20										(20')	hold
30										(30')	hold
SB-2 4										STATEA10-02 (4')	test hold
10										(10')	hold

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Sample Name Corrections A. Pitt 07/12/

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: ___ G. Other: ___ H. Other: ___

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: ___ 10. Other: ___

Matrix Key: SO - Soil, W - Water, T - Tissue, SE - Sediment, SL - Sludge, A - Air, NL - NAPL/Oil, SW - Sample Wipe, Other: ___

Laboratory Information and Receipt

Name:

Cooler packed with ice (✓)

afy Turnaround Requirements:

ping Tracking #:

Cooler Custody Seal (✓) ☑ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp: 4.5°C

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ken Wicks	Printed Name:	Printed Name:	Printed Name: Julian Martinez
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier: MS	Firm/Courier:	Firm: Xenco
Date/Time: 6/24 1700	Date/Time: 6/24	Date/Time:	Date/Time: 6-25-16 10:30

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ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 2 of ___

Lab Work Order # 532368

Send Results to:

Contact & Company Name: Arti puri

Address:

City State Zip

Telephone: 713 953 4841

Fax:

E-mail Address: Arti.puri@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: _____

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD: Chlorides	REMARKS
A-10 SB-2 20	6-24			✓	So					STATEA10-02 (20')	hold
30										(30')	hold
40										(40')	hold
50										(50')	hold
60										(60')	hold
70										(70')	hold
SB-5 4										STATEA10-05 (4')	hold
10										(10')	test
20										(20')	hold
30										(30')	hold
SAT-3 SB-3 4											hold
10											test
20											hold
30											hold

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Sample name corrections A. Patel 07/12/

Laboratory Information and Receipt

Name:

Cooler packed with ice (✓)

Turnaround Requirements:

Tracking #:

Cooler Custody Seal (✓)
☐ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp: _____

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ken Wicks	Printed Name:	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier:	Firm/Courier:	Firm:
Date/Time: 6/24 1700	Date/Time: 6/24/16	Date/Time:	Date/Time:

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ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 3 of ___

Lab Work Order #: 532368

Send Results to:

Contact & Company Name: Arti Patel

Telephone: 713.953.4841

Address:

Fax:

City State Zip

E-mail Address: APatel@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: ___
G. Other: ___
H. Other: ___

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: ___
10. Other: ___

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: ___

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD: Chlorides	REMARKS
SB-3 4	6-24			✓	SOIL					VOA VOA USA T3-02 (4')	hold
10										(10')	hold
20										(20')	hold
30										(30')	hold
40										(40')	hold
50										(50')	hold
60										(60')	hold / test
SB-4 4										VOA VOA USA T3-04 (4')	hold
10										(10')	hold
20										(20')	hold
30										(30')	test
5											

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Sample Name Corrections A Patel 07/12

Laboratory Information and Receipt

Name:

Cooler packed with ice (✓)

Turnaround Requirements:

Tracking #:

Cooler Custody Seal (✓)

☐ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp: ___

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ken Wicks	Printed Name:	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier:	Firm/Courier:	Firm:
Date/Time: 6/24 1700	Date/Time: 6/24/23	Date/Time:	Date/Time:

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ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of ___

Lab Work Order # 532306

Send Results to:

Contact & Company Name: Arti patel

Telephone: 713.953.4841

Address:

Fax:

City State Zip

E-mail Address: Arti.Patel@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD: Chlorides
Sat 3 5'3+ 4	C-24			✓	Soil	None		1	4oz Glass	Sat 3 (4')
10	↓			↓	↓					(10')
20										(20')
30										(30')

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: _____

REMARKS

hold
~~hold~~ test
hold
~~DI~~ hold

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Sample Name corrections & Pulled 2/13/16

Laboratory Information and Receipt

Cooler Custody Seal (✓)
☐ Intact ☐ Not Intact

Cooler packed with ice (✓)

Turnaround Requirements:

Tracking #:

Sample Receipt:

Condition/Cooler Temp: _____

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ken Wicks	Printed Name: K Butler	Printed Name:	Printed Name:
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier: UPS	Firm/Courier:	Firm:
Date/Time: 6/24 1700	Date/Time: 6/24/16	Date/Time:	Date/Time:

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ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 3 of __

Lab Work Order # 532368

Send Results to:

Contact & Company Name: Afri Pahi

Telephone: 713.953.4841

Address:

Fax:

City: State: Zip:

E-mail Address: Afri.Pahi@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Preservative								
Filtered (✓)								
# of Containers								
Container Information								

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: ____ G. Other: ____ H. Other: ____

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: ____ 10. Other: ____

Matrix Key: SO - Soil, W - Water, T - Tissue, SE - Sediment, SL - Sludge, A - Air, NL - NAPL/Oil, SW - Sample Wipe, Other: ____

PARAMETER ANALYSIS & METHOD

Sample ID	Collection Date	Collection Time	Type Comp	Type Grab	Matrix	Chlorides							REMARKS
~~SB-3~~ SB-2 4	6-24			✓	Soil	VGWUSAT3-02 (4')							hold ✓
10	↓			↓	↓	(10')							hold ✓
20						(20')							hold ✓
30						(30')							hold ✓
40						(40')							hold ✓
50						(50')							hold ✓
60						(60)							~~hold~~ test ✓
SB-4 4						VGWUSAT3-04 (4')							hold ✓
10						(10')							hold ✓
20						(20')							hold ✓
30						(30')							test ✓
45													

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Sample Name Corrections A. Ball 07/12/16

Laboratory Information and Receipt

Lab Name:

Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact

☐ Cooler packed with ice (✓)

Specify Turnaround Requirements:

Sample Receipt:

Shipping Tracking #:

Condition/Cooler Temp: ____

	Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name	Illen Wicks	A Butt		
Signature	[signature]	[signature]		
Firm	Arcadis	[illegible]		
Date/Time	6/24 1700	6/24/16		

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ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of __

Lab Work Order # 532308

Send Results to:

Contact & Company Name: Arti patel

Telephone: 713.953.4841

Address:

Fax:

City: State: Zip:

E-mail Address: Arti.Patel@arcadis.com

Project Name/Location (City, State):

Project #:

Sampler's Printed Name:

Sampler's Signature:

Preservative			
Filtered (✓)			
# of Containers			
Container Information			

PARAMETER ANALYSIS & METHOD

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: ____
G. Other: ____
H. Other: ____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: ____
10. Other: ____

Matrix Key:
SO - Soil; SE - Sediment; NL - NAPL/Oil
W - Water; SL - Sludge; SW - Sample Wipe
T - Tissue; A - Air; Other: ____

Sample ID	Collection Date	Collection Time	Type Comp	Type Grab	Matrix	Chlorides	REMARKS
~~Sat 3 SB-1~~ 4 — VGWUSat 3 (4')	6-24			✓	soil		hold
10 — (10')	↓			↓	↓	↓	~~hold~~ test
20 — (20')	↓			↓	↓	↓	hold
30 — (30')	↓			↓	↓	↓	~~[illegible]~~ hold

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Sample Name corrections A. Patel 27/1/16

Laboratory Information and Receipt

Lab Name:

☐ Cooler packed with ice (✓)

Specify Turnaround Requirements:

Shipping Tracking #:

Cooler Custody Seal (✓)

☐ Intact ☐ Not Intact

Sample Receipt:

Condition/Cooler Temp: ____

	Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name	Ken Wicks	KButler		
Signature	[signature]	[signature]		
Firm	Arcadis	MS		
Date/Time	6/24 1700	6/24/16		

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: ARCADIS

Date/ Time Received: 06/25/2016 10:30:00 AM

Work Order #: 532368

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.5
#2 *Shipping container in good condition?	**N/A**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**No**
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Mary Alexis Negron
Mary Negron
Date: 06/27/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 06/28/2016

Analytical Report 556451

for

Arcadis - Roseville, CA

Project Manager: Brett Krehbiel

State A 10

06-JUL-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Table of Contents

06-JUL-17

Project Manager: **Brett Krehbiel**
Arcadis - Roseville, CA
101 Creekside Ridge
CT 200
Roseville, CA 95678

Reference: XENCO Report No(s): **556451**
State A 10
Project Address: Buckeye NM

Brett Krehbiel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 556451. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 556451 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 556451

Arcadis - Roseville, CA, Roseville, CA

State A 10

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-3-W-170627	W	06-27-17 11:03		556451-001
EB-1-W-170627	W	06-27-17 11:11		556451-002
MW-1-W-170627	W	06-27-17 11:26		556451-003
MW-2-W-170627	W	06-27-17 11:46		556451-004
DUP-01-W-170627	W	06-27-17 00:00		556451-005

CASE NARRATIVE SUMMARY

Client Name: **Arcadis - Roseville, CA**

Project Name: **State A 10**

Project ID:

Work Order Number: *556451*

Report Date: *06-JUL-17*

Date Received: *28-JUN-17*

Kelsey Brooks
Project Manager

Certificate of Analytical Results

556451

Arcadis - Roseville, CA, Roseville, CA

State A 10

Sample Id: **MW-3-W-170627** Matrix: Water Sample Depth:

Lab Sample Id: 556451-001 Date Collected: 06.27.17 11.03 Date Received: 06.28.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: MGO % Moist: Tech: MGO

Seq Number: 3021487 Date Prep: 06.30.17 13.30

Prep seq: 727067

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**23.6**	0.500	0.0858	mg/L	06.30.17 14:02		1

Sample Id: **EB-1-W-170627** Matrix: Water Sample Depth:

Lab Sample Id: 556451-002 Date Collected: 06.27.17 11.11 Date Received: 06.28.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: MGO % Moist: Tech: MGO

Seq Number: 3021487 Date Prep: 07.03.17 16.00

Prep seq: 727067

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.0858	0.500	0.0858	mg/L	07.04.17 03:41	U	1

Sample Id: **MW-1-W-170627** Matrix: Water Sample Depth:

Lab Sample Id: 556451-003 Date Collected: 06.27.17 11.26 Date Received: 06.28.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: MGO % Moist: Tech: MGO

Seq Number: 3021487 Date Prep: 06.30.17 13.30

Prep seq: 727067

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**66.7**	0.500	0.0858	mg/L	06.30.17 14:33		1

Sample Id: **MW-2-W-170627** Matrix: Water Sample Depth:

Lab Sample Id: 556451-004 Date Collected: 06.27.17 11.46 Date Received: 06.28.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: MGO % Moist: Tech: MGO

Seq Number: 3021487 Date Prep: 06.30.17 13.30

Prep seq: 727067

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**102**	2.50	0.429	mg/L	06.30.17 14:40		5

Certificate of Analytical Results

556451

Arcadis - Roseville, CA, Roseville, CA

State A 10

Sample Id: **DUP-01-W-170627** Matrix: Water Sample Depth:

Lab Sample Id: 556451-005 Date Collected: 06.27.17 00.00 Date Received: 06.28.17 10.00

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: MGO % Moist: Tech: MGO

Seq Number: 3021487 Date Prep: 06.30.17 13.30

Prep seq: 727067

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**104**	2.50	0.429	mg/L	06.30.17 14:48		5

Certificate of Analytical Results

556451

Arcadis - Roseville, CA, Roseville, CA

State A 10

Sample Id: **727067-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 727067-1-BLK Date Collected: Date Received:

Analytical Method: Inorganic Anions by EPA 300/300.1 Prep Method: E300P

Analyst: MGO % Moist: Tech: MGO

Seq Number: 3021487 Date Prep: 06.30.17 13.30

Prep seq: 727067

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.0858	0.500	0.0858	mg/L	06.30.17 13:40	U	1

CHRONOLOGY OF HOLDING TIMES

Analytical Method : Inorganic Anions by EPA 300/300.1

Client : Arcadis - Roseville, CA

Work Order #: **556451**

Project ID:

Date Received: 06/28/17

Field Sample ID	Lab Sample ID	Date Collected	Date Extracted	Max Holding Time Extracted (Days)	Time Held Extracted (Days)	Date Analyzed	Max Holding Time Analyzed (Days)	Time Held Analyzed (Days)	Q
MW-3-W-170627	556451-001	06/27/17				06/30/17	28	3	P
EB-1-W-170627	556451-002	06/27/17				07/04/17	28	7	P
MW-1-W-170627	556451-003	06/27/17				06/30/17	28	3	P
MW-2-W-170627	556451-004	06/27/17				06/30/17	28	3	P
DUP-01-W-170627	556451-005	06/27/17				06/30/17	28	3	P

F = These samples were analyzed outside the recommended holding time.
P = Samples analyzed within the recommended holding time.

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

Analytical Log

Analytical Method:	Inorganic Anions by EPA 300/300.1	Batch #:	3021487
Project Name:	State A 10	Project ID:	
Client Name:	Arcadis - Roseville, CA	WO Number:	556451

Client Sample Id	Lab Sample Id	QC Types
DUP-01-W-170627	556451-005	SMP
EB-1-W-170627	556451-002	SMP
MW-1-W-170627	556451-003	SMP
MW-2-W-170627	556451-004	SMP
MW-3-W-170627	556451-001	SMP
	556451-001 S	MS
	556451-001 SD	MSD
	727067-1-BKS	BKS
	727067-1-BLK	BLK
	727067-1-BSD	BSD

BS / BSD Recoveries

Project Name: State A 10

Work Order #: 556451 **Project ID:**

Analyst: MGO **Date Prepared:** 06/30/2017 **Date Analyzed:** 06/30/2017

Lab Batch ID: 3021487 **Sample:** 727067-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.0858	25.0	23.5	94	25.0	23.8	95	1	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: State A 10

Work Order # : 556451 **Project ID:**

Lab Batch ID: 3021487 **QC- Sample ID:** 556451-001 S **Batch #:** 1 **Matrix:** Water

Date Analyzed: 06/30/2017 **Date Prepared:** 06/30/2017 **Analyst:** MGO

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	23.6	25.0	46.8	93	25.0	47.4	95	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Attachment A Laboratory Data Package Cover Page

Project Name: **State A 10** Laboratory Number: **556451**

This Data package consists of : Laboratory Batch No(s) **727067**

This signature page, the laboratory review checklist, and the following reportable data:

[X] R1 Field chain-of-custody documentation;

[X] R2 Sample identification cross-reference;

[X] R3 Test reports (analytical data sheets) for each environmental sample that includes:
- a) Items consistent with NELAC 5
- b) dilution factors,
- c) preparation methods,
- d) cleanup methods, and
- e) if required for the project, tentatively identified compounds (TICs).

[X] R4 Surrogate Recovery data including:
- a) Calculated recovery (%R), and
- b) The laboratory's surrogate QC limits.

[X] R5 Test reports/summary forms for blank samples;

[X] R6 Test reports/summary forms for laboratory control samples (LCSs) including:
- a) LCS spiking amounts,
- b) Calculated %R for each analyte, and
- c) The laboratory's LCS QC limits.

[X] R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:
- a) Samples associated with the MS/MSD clearly identified,
- b) MS/MSD spiking amounts,
- c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
- d) Calculated %Rs and relative percent differences (RPDs) and
- e) The laboratory's MS/MSD QC limits

[X] R8 Laboratory anaytical duplicate (if applicable) recovery and precision:
- a) the amount of analyte measured in the duplicate,
- b) the calculated RPD, and
- c) the laboratory's QC limits for analytical duplicates.

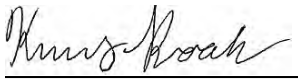
[X] R9 List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix;

[X] R10 Other problems or anomalies.

[X] Exception Report for every "No" or "Not Reviewed (NR)" item in Laboratory Review Checklist and for each analyte, matrix, and method for which the laboratory does not hold NELAC accreditation under the Texas Laboratory Accreditation Program.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies, observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.

Check, if applicable: [ ] This laboratory meets an exception under 30 TAC 25.6 and was last inspection by [ ] TCEQ or [ ] _____ on (enter date of last inspection). Any findings affecting the data in this laboratory data package are noted in the Exception Reports herein. The offical signing the cover page of the report in which these data are used is responsible for releasing this data package and is by signature affirming the above release statement is true.

Kelsey Brooks		**Project Manager**	**06-JUL-17**
Name (Printed)	Signature	Official Title (printed)	Date

A1

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO LABORATORIES	LRC Date :	06-JUL-17
Project Name:	State A 10	Laboratory Job Number :	556451
Reviewer Name:	KEB	Batch Number(s) :	727067

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	**Chain-of-Custody (COC)**					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	**Sample and Quality Control (QC) Identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test Reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results <MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soil/solid samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, were TICs reported?			X		
R4	O	**Surrogate Recovery Data**					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?			X		
R5	OI	**Test Reports/Summary Forms for Blank Samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency ?	X				
		Were method blanks taken through the entire analytical procedure, including preparation and, if applicable, cleanup procedures ?	X				
		Were Blank Concentrations <MQL?	X				
R6	OI	**Laboratory Control Samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within the QC limits?	X				
R7	OI	**Matrix Spike (MS) and Matrix Spike Duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within the laboratory QC limits?	X				
R8	OI	**Analytical Duplicate Data**					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	**Method Quantitation Limits (MQLs)**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	**Other Problems/Anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				

Attachment A (cont'd) : Laboratory Review Checklist: Reportable Data

Laboratory Name:	XENCO LABORATORIES	LRC Date :	06-JUL-17
Project Name:	State A 10	Laboratory Job Number :	556451
Reviewer Name:	KEB	Batch Number(s) :	727067

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial Calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and the highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and Continuing Calibration Verification (ICCV and CCV) and continuing calibration blank (**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB <MDL?			X		
S3	O	**Mass Spectral Tuning**					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	**Internal Standard (IS)**					
		Were IS area counts and retention times within the method-required QC limits?			X		
S5	OI	**Raw Data (NELAC 5.5.10)**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual Column Confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively Identified Compounds (TICs)**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) Results**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial Dilutions, Post Digestions Spikes, and Method of Standard Additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method Detection Limit (MDL) Studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency Test Reports**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards Documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/Analyte Identification Procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of Analyst Competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/Validation Documentation for Methods (NELAC Chapter 5)**					
		Are all methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory Standard Operating Procedures (SOPs)**					
		Are laboratory SOPs current and on file for each method performed?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted to the TCEQ-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report Identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Attachment A (cont'd): Laboratory Review Checklist: Exception Reports

Laboratory Name: XENCO LABORATORIES	LRC Date: 06-JUL-17
Project Name: State A 10	Laboratory Job Number: 556451
Reviewer Name: KEB	Batch Number(s) : 727067

ER# [1]	DESCRIPTION

1 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No is checked on the LRC).

A4

DCS Summary 556451

Arcadis - Roseville, CA, Roseville, CA

State A 10

Analytical Method: Inorganic Anions by EPA 300/300.1 Matrix: Water

Parameter	Spike Amount	Actual Amount	Units
Chloride	0.250	0.177	mg/L

ARCADIS
Infrastructure Water Environment Buildings

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # 5564451

Send Results to:

Contact & Company Name: Brett Krehbiel / ARCADIS	Telephone: 916-786-5382
Address: 701 Creekside Ridge Court Suite 200	Fax:
City: Roseville State: CA Zip: 95678	E-mail Address: Brett.Krehbiel@arcadis.com
Project Name/Location (City, State): Stock A 10 Buckeye, NM	Project #:
Sampler's Printed Name: Jerry Silvernell	Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	Cl⁻
MW-3-W-170627	06/27/17	1103		X	W			1		
EB01-W-170627	06/27/17	1111		X	W			1		
MW-1-W-170627	06/27/17	1126		X	W			1		
MW-2-W-170627	06/27/17	1146		X	W			1		
DUP-01-W-170627	06/27/17			X	W			1		

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil; SE - Sediment; NL - NAPL/Oil
W - Water; SL - Sludge; SW - Sample Wipe
T - Tissue; A - Air; Other: _____

REMARKS

Stock A-10 Samples

Temp: 4.9°C IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 4.7°C

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name: Xenco	Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact
☐ Cooler packed with ice (✓)	
Specify Turnaround Requirements: Standard	Sample Receipt:
Shipping Tracking #:	Condition/Cooler Temp: _____

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Jerry Silvernell	Printed Name: Brianne Wickner	Printed Name:	Printed Name: Mary A Negron
Signature:	Signature: BrianneWickner	Signature:	Signature:
Firm: ARCADIS	Firm/Courier:	Firm/Courier:	Firm: Xenco
Date/Time: 06/27/17 1602	Date/Time: 06/27/17 1602	Date/Time:	Date/Time: 6/28/17 1000

20730826 CofC AR Form 01.12.2007

Distribution: WHITE – Laboratory returns with results; YELLOW – Lab copy; PINK – Retained by ARCADIS

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: ARCADIS

Date/ Time Received: 06/28/2017 10:00:00 AM

Work Order #: 556451

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.7
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**N/A**
#21 VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: JKR

PH Device/Lot#: 213315

Checklist completed by: Jessica Kramer

Jessica Kramer

Date: 06/28/2017

Checklist reviewed by:

Date:

Analytical Report 560293

for

Arcadis - Houston

Project Manager: Jonathan Olsen

HES Transfer Sites

23-AUG-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

23-AUG-17

Project Manager: **Jonathan Olsen**
Arcadis - Houston
10205 Westheimer Rd., Suite 800
Houston, TX 77042

Reference: XENCO Report No(s): **560293**
HES Transfer Sites
Project Address: Buckeye, NM

Jonathan Olsen:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 560293. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 560293 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

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Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 560293

Arcadis - Houston, Houston, TX

HES Transfer Sites

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
State A10-07(4')	S	08-14-17 11:22		560293-001
State A10-06(4')	S	08-14-17 12:17		560293-002

CASE NARRATIVE

Client Name: Arcadis - Houston

Project Name: HES Transfer Sites

Project ID:
Work Order Number(s): *560293*

Report Date: *23-AUG-17*
Date Received: *08/16/2017*

Sample receipt non conformances and comments:

Level II Reporting

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 560293

Arcadis - Houston, Houston, TX

Project Name: HES Transfer Sites

Project Id:

Contact: Jonathan Olsen

Project Location: Buckeye, NM

Date Received in Lab: Wed Aug-16-17 10:00 am

Report Date: 23-AUG-17

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	560293-001		560293-002									
	Field Id:	State A10-07(4')		State A10-06(4')									
	Depth:												
	Matrix:	SOIL		SOIL									
	Sampled:	Aug-14-17 11:22		Aug-14-17 12:17									
Inorganic Anions by EPA 300/300.1	***Extracted:***	Aug-22-17 10:30		Aug-22-17 10:30									
	Analyzed:	Aug-22-17 18:24		Aug-22-17 18:47									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Chloride		16.5	4.92	120	4.96								

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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Houston - Dallas - San Antonio - Atlanta - Midland/Odessa - Tampa/Lakeland - Phoenix - Latin America

	Phone	Fax
4147 Greenbriar Dr, Stafford, TX 77477	(281) 240-4200	(281) 240-4280
9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282	(602) 437-0330	

BS / BSD Recoveries

Project Name: HES Transfer Sites

Work Order #: 560293 **Project ID:**

Analyst: MGO **Date Prepared:** 08/22/2017 **Date Analyzed:** 08/22/2017

Lab Batch ID: 3025725 **Sample:** 729750-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<4.90	245	228	93	248	236	95	3	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: HES Transfer Sites

Work Order # : 560293 **Project ID:**

Lab Batch ID: 3025725 **QC- Sample ID:** 560112-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/22/2017 **Date Prepared:** 08/22/2017 **Analyst:** MGO

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	697	246	924	92	246	917	89	1	90-110	20	X

Lab Batch ID: 3025725 **QC- Sample ID:** 560113-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/22/2017 **Date Prepared:** 08/22/2017 **Analyst:** MGO

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	14.2	246	279	108	246	277	107	1	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # 560293

Send Results to:

Contact & Company Name: Jonathan Olsen/Arcadis
Telephone: 713-953-4874
Address: 10205 Westheimer Road Suite 800
Fax: NA
City: Houston State: TX Zip: 77042
E-mail Address: jonathan.olsen@arcadis.com
Project Name/Location (City, State): HES Transfer Sites/Buckeye, NM
Project #: B0048625.1701
Sampler's Printed Name: Ryan Nanny
Sampler's Signature:

Sample ID	Collection Date	Collection Time	Type (✓) Comp	Type (✓) Grab	Matrix	Preservative	Filtered (✓)	# of Containers	Container Information	Chlorides	REMARKS
StateA10-07(4')	8-14-17	1122		✓	SO	E	—	2	7	1	Run Sample.
StateA10-06(4')	8-14-17	1217		✓	SO	E	—	2	7	1	Run Sample.

PARAMETER ANALYSIS & METHOD

Keys

Preservation Key:
A. H_2SO_4
B. HCL
C. HNO_3
D. NaOH
E. None
F. Other: _____
G. Other: _____
H. Other: _____

Container Information Key:
1. 40 ml Vial
2. 1 L Amber
3. 250 ml Plastic
4. 500 ml Plastic
5. Encore
6. 2 oz. Glass
7. 4 oz. Glass
8. 8 oz. Glass
9. Other: _____
10. Other: _____

Matrix Key:
SO - Soil
W - Water
T - Tissue
SE - Sediment
SL - Sludge
A - Air
NL - NAPL/Oil
SW - Sample Wipe
Other: _____

Temp: 1.4 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 1.2

Special Instructions/Comments:

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt

Lab Name: Xenco
☑ Cooler packed with ice (✓)
Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact
Specify Turnaround Requirements: Standard TAT
Sample Receipt:
Shipping Tracking #:
Condition/Cooler Temp: 26.0

Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name: Ryan Nanny	Printed Name:	Printed Name:	Printed Name: Shawnee Smith
Signature:	Signature:	Signature:	Signature:
Firm: Arcadis	Firm/Courier:	Firm/Courier:	Firm: Xenco
Date/Time: 8-15-17 1600	Date/Time:	Date/Time:	Date/Time: 8-16-17 10:00

20730826 CofC AR Form 08.27.2015

Distribution: WHITE – Laboratory returns with results YELLOW – Lab copy PINK – Retained by Arcadis

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Arcadis - Houston

Date/ Time Received: 08/16/2017 10:00:00 AM

Work Order #: 560293

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**Yes**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**No**
#21 VOC samples have zero headspace?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Shawnee Smith Date: 08/16/2017

Checklist reviewed by: Kelsey Brooks Date: 08/16/2017

Analytical Report 594588

for

ARCADIS

Project Manager: Brett Krehbiel

State A-10

B0048625.0A10

09-AUG-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-26), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-15)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)

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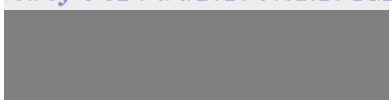

09-AUG-18

Project Manager: **Brett Krehbiel**
ARCADIS
1004 N. Big Spring St.
Midland, TX 79701

Reference: XENCO Report No(s): **594588**
State A-10
Project Address:

Brett Krehbiel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 594588. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 594588 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Julian Martinez
Odessa Laboratory Director

Sample Cross Reference 594588

ARCADIS, Midland, TX

State A-10

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
State-A10-01-W	S	08-02-18 12:15		594588-001
State-A10-02-S	S	08-02-18 12:25		594588-002
State-A10-03-E	S	08-02-18 13:37		594588-003
State-A10-Comp	S	08-02-18 12:05		594588-004

Version: 1.%

CASE NARRATIVE

Client Name: ARCADIS

Project Name: State A-10

Project ID: *B0048625.0A10*
Work Order Number(s): *594588*

Report Date: *09-AUG-18*
Date Received: *08/03/2018*

This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory.

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3059178 Total Metals by EPA 6010B
Lab Sample ID 594588-004 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Antimony, Arsenic, Calcium, Iron, Magnesium, Manganese, Tin recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Aluminum recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 594588-004.
The Laboratory Control Sample for Aluminum, Magnesium, Calcium, Iron, Arsenic, Manganese, Antimony, Tin is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results

594588

ARCADIS, Midland, TX

State A-10

Sample Id: **State-A10-01-W** Matrix: Soil Sample Depth:

Lab Sample Id: 594588-001 Date Collected: 08.02.18 12.15 Date Received: 08.03.18 10.55

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: OJS % Moist: Tech: OJS

Seq Number: 3058935 Date Prep: 08.03.18 16.25

Prep seq: 7659737

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**223**	5.00	0.858	mg/kg	08.04.18 03:10		1

Sample Id: **State-A10-02-S** Matrix: Soil Sample Depth:

Lab Sample Id: 594588-002 Date Collected: 08.02.18 12.25 Date Received: 08.03.18 10.55

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: OJS % Moist: Tech: OJS

Seq Number: 3058935 Date Prep: 08.03.18 16.25

Prep seq: 7659737

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**283**	5.00	0.858	mg/kg	08.04.18 03:17		1

Sample Id: **State-A10-03-E** Matrix: Soil Sample Depth:

Lab Sample Id: 594588-003 Date Collected: 08.02.18 13.37 Date Received: 08.03.18 10.55

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: OJS % Moist: Tech: OJS

Seq Number: 3058935 Date Prep: 08.03.18 16.25

Prep seq: 7659737

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**580**	5.01	0.860	mg/kg	08.04.18 03:24		1

Certificate of Analytical Results

594588

ARCADIS, Midland, TX

State A-10

Sample Id: **State-A10-Comp** Matrix: Soil Sample Depth:

Lab Sample Id: 594588-004 Date Collected: 08.02.18 12.05 Date Received: 08.03.18 10.55

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: OJS % Moist: Tech: OJS

Seq Number: 3058935 Date Prep: 08.03.18 16.25

Prep seq: 7659737

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	**504**	5.00	0.858	mg/kg	08.04.18 03:37		1

Analytical Method: TCLP Mercury by SW-846 1311/7470A Prep Method: SW7470P

Analyst: ANJ % Moist: Tech: AVM

Seq Number: 3059170 Date Prep: 08.07.18 08.30

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7659890

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	<0.0000263	0.000200	0.0000263	mg/L	08.07.18 13:53	U	1

Analytical Method: TCLP 8 Metals by SW 1311/6010B Prep Method: 3010A

Analyst: DEP % Moist: Tech: AHI

Seq Number: 3059293 Date Prep: 08.07.18 10.30

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7659912

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<0.0168	0.0500	0.0168	mg/L	08.07.18 16:34	U	5
Barium	7440-39-3	**0.996**	0.0500	0.000700	mg/L	08.07.18 16:34		5
Cadmium	7440-43-9	**0.000855**	0.0250	0.000656	mg/L	08.07.18 16:34	J	5
Chromium	7440-47-3	<0.00681	0.0500	0.00681	mg/L	08.07.18 16:34	U	5
Lead	7439-92-1	**0.00983**	0.0500	0.00916	mg/L	08.07.18 16:34	J	5
Selenium	7782-49-2	**0.0658**	0.100	0.0278	mg/L	08.07.18 16:34	J	5
Silver	7440-22-4	<0.00802	0.100	0.00802	mg/L	08.07.18 16:34	U	5

Certificate of Analytical Results

594588

ARCADIS, Midland, TX

State A-10

Sample Id: **State-A10-Comp** Matrix: Soil Sample Depth:

Lab Sample Id: 594588-004 Date Collected: 08.02.18 12.05 Date Received: 08.03.18 10.55

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3058982 Date Prep: 08.04.18 09.00

Prep seq: 7659797

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<7.99	15.0	7.99	mg/kg	08.04.18 16:02	U	1
Diesel Range Organics (DRO)	C10C28DRO	**76.5**	15.0	8.11	mg/kg	08.04.18 16:02		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<8.11	15.0	8.11	mg/kg	08.04.18 16:02	U	1
Total TPH	PHC635	**76.5**	15.0	7.99	mg/kg	08.04.18 16:02		1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	91	70 - 135	%		
o-Terphenyl	96	70 - 135	%		

Analytical Method: TCLP SVOCs by SW-846 1311/8270D Prep Method: 3510C

Analyst: EKL % Moist: Tech: MGP

Seq Number: 3059312 Date Prep: 08.07.18 08.00

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7659870

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
1,4-Dichlorobenzene	106-46-7	<0.00474	0.0250	0.00474	mg/L	08.07.18 22:57	U	1
2,4,5-Trichlorophenol	95-95-4	<0.00447	0.0250	0.00447	mg/L	08.07.18 22:57	U	1
2,4,6-Trichlorophenol	88-06-2	<0.00543	0.0250	0.00543	mg/L	08.07.18 22:57	U	1
2,4-Dinitrotoluene	121-14-2	<0.00384	0.0250	0.00384	mg/L	08.07.18 22:57	U	1
2-methylphenol	95-48-7	<0.00426	0.0250	0.00426	mg/L	08.07.18 22:57	U	1
3&4-Methylphenol	15831-10-4	<0.00420	0.0250	0.00420	mg/L	08.07.18 22:57	U	1
Hexachlorobenzene	118-74-1	<0.00451	0.0250	0.00451	mg/L	08.07.18 22:57	U	1
Hexachlorobutadiene	87-68-3	<0.00495	0.0250	0.00495	mg/L	08.07.18 22:57	U	1
Hexachloroethane	67-72-1	<0.00514	0.0250	0.00514	mg/L	08.07.18 22:57	U	1
Nitrobenzene	98-95-3	<0.00508	0.0250	0.00508	mg/L	08.07.18 22:57	U	1
Pentachlorophenol	87-86-5	<0.00261	0.0500	0.00261	mg/L	08.07.18 22:57	U	1
Pyridine	110-86-1	<0.00370	0.0500	0.00370	mg/L	08.07.18 22:57	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	77	28 - 114	%		
Phenol-d6	69	23 - 117	%		
Nitrobenzene-d5	87	26 - 110	%		
2-Fluorobiphenyl	88	29 - 112	%		
2,4,6-Tribromophenol	91	31 - 132	%		
Terphenyl-D14	84	20 - 141	%		

Certificate of Analytical Results

594588

ARCADIS, Midland, TX

State A-10

Sample Id: **State-A10-Comp** Matrix: Soil Sample Depth:

Lab Sample Id: 594588-004 Date Collected: 08.02.18 12.05 Date Received: 08.03.18 10.55

Analytical Method: TCLP VOCs By SW846 8260B Prep Method: 5030B

Analyst: SAD % Moist: Tech: SAD

Seq Number: 3059298 Date Prep: 08.07.18 18.00

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7660013

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.00925	0.250	0.00925	mg/L	08.08.18 05:06	U	50
Methyl ethyl ketone	78-93-3	<0.0660	2.50	0.0660	mg/L	08.08.18 05:06	U	50
Carbon Tetrachloride	56-23-5	<0.0121	0.250	0.0121	mg/L	08.08.18 05:06	U	50
Chlorobenzene	108-90-7	<0.00551	0.250	0.00551	mg/L	08.08.18 05:06	U	50
Chloroform	67-66-3	<0.00535	0.250	0.00535	mg/L	08.08.18 05:06	U	50
1,4-Dichlorobenzene	106-46-7	<0.0111	0.250	0.0111	mg/L	08.08.18 05:06	U	50
1,2-Dichloroethane	107-06-2	<0.0142	0.250	0.0142	mg/L	08.08.18 05:06	U	50
1,1-Dichloroethene	75-35-4	<0.00888	0.250	0.00888	mg/L	08.08.18 05:06	U	50
Tetrachloroethylene	127-18-4	<0.0173	0.250	0.0173	mg/L	08.08.18 05:06	U	50
Trichloroethylene	79-01-6	<0.0109	0.250	0.0109	mg/L	08.08.18 05:06	U	50
Vinyl Chloride	75-01-4	<0.0116	0.100	0.0116	mg/L	08.08.18 05:06	U	50

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	100	75 - 131	%		
1,2-Dichloroethane-D4	99	63 - 144	%		
Toluene-D8	109	80 - 117	%		
4-Bromofluorobenzene	102	74 - 124	%		

Certificate of Analytical Results

594588

ARCADIS, Midland, TX

State A-10

Sample Id: **7659737-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7659737-1-BLK Date Collected: Date Received:

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Analyst: OJS % Moist: Tech: OJS

Seq Number: 3058935 Date Prep: 08.03.18 16.25

Prep seq: 7659737

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Chloride	16887-00-6	<0.858	5.00	0.858	mg/kg	08.04.18 01:44	U	1

Sample Id: **7659797-1-BLK** Matrix: Solid Sample Depth:

Lab Sample Id: 7659797-1-BLK Date Collected: Date Received:

Analytical Method: TPH by SW8015 Mod Prep Method: 1005

Analyst: ARM % Moist: Tech: ARM

Seq Number: 3058982 Date Prep: 08.04.18 09.00

Prep seq: 7659797

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Gasoline Range Hydrocarbons (GRO)	PHC610	<8.00	15.0	8.00	mg/kg	08.04.18 11:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<8.13	15.0	8.13	mg/kg	08.04.18 11:45	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<8.13	15.0	8.13	mg/kg	08.04.18 11:45	U	1
Total TPH	PHC635	<8.00	15.0	8.00	mg/kg	08.04.18 11:45	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
1-Chlorooctane	96	70 - 135	%		
o-Terphenyl	101	70 - 135	%		

Certificate of Analytical Results

594588

ARCADIS, Midland, TX

State A-10

Sample Id: **7659870-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7659870-1-BLK Date Collected: Date Received:

Analytical Method: TCLP SVOCs by SW-846 1311/8270D Prep Method: 3510C

Analyst: EKL % Moist: Tech: MGP

Seq Number: 3059312 Date Prep: 08.06.18 08.30

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7659870

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
1,4-Dichlorobenzene	106-46-7	<0.000947	0.00500	0.000947	mg/L	08.06.18 16:52	U	1
2,4,5-Trichlorophenol	95-95-4	<0.000893	0.00500	0.000893	mg/L	08.06.18 16:52	U	1
2,4,6-Trichlorophenol	88-06-2	<0.00109	0.00500	0.00109	mg/L	08.06.18 16:52	U	1
2,4-Dinitrotoluene	121-14-2	<0.000767	0.00500	0.000767	mg/L	08.06.18 16:52	U	1
2-methylphenol	95-48-7	<0.000851	0.00500	0.000851	mg/L	08.06.18 16:52	U	1
3&4-Methylphenol	15831-10-4	<0.000839	0.00500	0.000839	mg/L	08.06.18 16:52	U	1
Hexachlorobenzene	118-74-1	<0.000902	0.00500	0.000902	mg/L	08.06.18 16:52	U	1
Hexachlorobutadiene	87-68-3	<0.000989	0.00500	0.000989	mg/L	08.06.18 16:52	U	1
Hexachloroethane	67-72-1	<0.00103	0.00500	0.00103	mg/L	08.06.18 16:52	U	1
Nitrobenzene	98-95-3	<0.00102	0.00500	0.00102	mg/L	08.06.18 16:52	U	1
Pentachlorophenol	87-86-5	<0.000522	0.0100	0.000522	mg/L	08.06.18 16:52	U	1
Pyridine	110-86-1	<0.000741	0.0100	0.000741	mg/L	08.06.18 16:52	U	1

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
2-Fluorophenol	68	28 - 114	%		
Phenol-d6	54	23 - 117	%		
Nitrobenzene-d5	82	26 - 110	%		
2-Fluorobiphenyl	78	29 - 112	%		
2,4,6-Tribromophenol	67	31 - 132	%		
Terphenyl-D14	89	20 - 141	%		

Sample Id: **7659890-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7659890-1-BLK Date Collected: Date Received:

Analytical Method: TCLP Mercury by SW-846 1311/7470A Prep Method: SW7470P

Analyst: ANJ % Moist: Tech: AVM

Seq Number: 3059170 Date Prep: 08.07.18 08.30

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7659890

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Mercury	7439-97-6	<0.0000263	0.000200	0.0000263	mg/L	08.07.18 12:40	U	1

Certificate of Analytical Results

594588

ARCADIS, Midland, TX

State A-10

Sample Id: **7659912-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7659912-1-BLK Date Collected: Date Received:

Analytical Method: TCLP 8 Metals by SW 1311/6010B Prep Method: 3010A

Analyst: DEP % Moist: Tech: AHI

Seq Number: 3059293 Date Prep: 08.07.18 10.30

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7659912

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Arsenic	7440-38-2	<0.00336	0.0100	0.00336	mg/L	08.07.18 16:17	U	1
Barium	7440-39-3	<0.000140	0.0100	0.000140	mg/L	08.07.18 16:17	U	1
Cadmium	7440-43-9	<0.000131	0.00500	0.000131	mg/L	08.07.18 16:17	U	1
Chromium	7440-47-3	<0.00136	0.0100	0.00136	mg/L	08.07.18 16:17	U	1
Lead	7439-92-1	<0.00183	0.0100	0.00183	mg/L	08.07.18 16:17	U	1
Selenium	7782-49-2	<0.00555	0.0200	0.00555	mg/L	08.07.18 16:17	U	1
Silver	7440-22-4	<0.00160	0.0200	0.00160	mg/L	08.07.18 16:17	U	1

Sample Id: **7660013-1-BLK** Matrix: Water Sample Depth:

Lab Sample Id: 7660013-1-BLK Date Collected: Date Received:

Analytical Method: TCLP VOCs By SW846 8260B Prep Method: 5030B

Analyst: SAD % Moist: Tech: SAD

Seq Number: 3059298 Date Prep: 08.07.18 18.00

Subcontractor: SUB: TX104704215-18-26 Prep seq: 7660013

Parameter	CAS Number	Result	MQL	SDL	Units	Analysis Date	Flag	Dil Factor
Benzene	71-43-2	<0.000925	0.0250	0.000925	mg/L	08.08.18 04:29	U	5
Methyl ethyl ketone	78-93-3	<0.00660	0.250	0.00660	mg/L	08.08.18 04:29	U	5
Carbon Tetrachloride	56-23-5	<0.00121	0.0250	0.00121	mg/L	08.08.18 04:29	U	5
Chlorobenzene	108-90-7	<0.000551	0.0250	0.000551	mg/L	08.08.18 04:29	U	5
Chloroform	67-66-3	<0.000535	0.0250	0.000535	mg/L	08.08.18 04:29	U	5
1,4-Dichlorobenzene	106-46-7	<0.00111	0.0250	0.00111	mg/L	08.08.18 04:29	U	5
1,2-Dichloroethane	107-06-2	<0.00142	0.0250	0.00142	mg/L	08.08.18 04:29	U	5
1,1-Dichloroethene	75-35-4	<0.000888	0.0250	0.000888	mg/L	08.08.18 04:29	U	5
Tetrachloroethylene	127-18-4	<0.00173	0.0250	0.00173	mg/L	08.08.18 04:29	U	5
Trichloroethylene	79-01-6	<0.00109	0.0250	0.00109	mg/L	08.08.18 04:29	U	5
Vinyl Chloride	75-01-4	<0.00116	0.0100	0.00116	mg/L	08.08.18 04:29	U	5

Surrogate	% Recovery	Limits	Units	Analysis Date	Flag
Dibromofluoromethane	100	75 - 131	%		
1,2-Dichloroethane-D4	105	63 - 144	%		
Toluene-D8	106	80 - 117	%		
4-Bromofluorobenzene	99	74 - 124	%		

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: State A-10

Work Orders : 594588,

Project ID: B0048625.0A10

Lab Batch #: 3059312 **Sample:** 7659870-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/06/18 16:52

SURROGATE RECOVERY STUDY

TCLP SVOCs by SW-846 1311/8270D Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	34.0	50.0	68	28-114	
Phenol-d6	27.1	50.0	54	23-117	
Nitrobenzene-d5	40.8	50.0	82	26-110	
2-Fluorobiphenyl	39.1	50.0	78	29-112	
2,4,6-Tribromophenol	33.7	50.0	67	31-132	
Terphenyl-D14	44.3	50.0	89	20-141	

Lab Batch #: 3059312 **Sample:** 7659870-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/06/18 17:16

SURROGATE RECOVERY STUDY

TCLP SVOCs by SW-846 1311/8270D Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	33.5	50.0	67	28-114	
Phenol-d6	26.6	50.0	53	23-117	
Nitrobenzene-d5	41.8	50.0	84	26-110	
2-Fluorobiphenyl	40.7	50.0	81	29-112	
2,4,6-Tribromophenol	41.3	50.0	83	31-132	
Terphenyl-D14	43.6	50.0	87	20-141	

Lab Batch #: 3059312 **Sample:** 7659870-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/06/18 17:40

SURROGATE RECOVERY STUDY

TCLP SVOCs by SW-846 1311/8270D Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	30.4	50.0	61	28-114	
Phenol-d6	25.0	50.0	50	23-117	
Nitrobenzene-d5	36.2	50.0	72	26-110	
2-Fluorobiphenyl	34.6	50.0	69	29-112	
2,4,6-Tribromophenol	34.9	50.0	70	31-132	
Terphenyl-D14	37.6	50.0	75	20-141	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: State A-10

Work Orders : 594588,

Project ID: B0048625.0A10

Lab Batch #: 3059312 **Sample:** 594588-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/L **Date Analyzed:** 08/07/18 22:33

TCLP SVOCs by SW-846 1311/8270D Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
2-Fluorophenol	40.3	50.0	81	28-114	
Phenol-d6	36.1	50.0	72	23-117	
Nitrobenzene-d5	45.6	50.0	91	26-110	
2-Fluorobiphenyl	45.7	50.0	91	29-112	
2,4,6-Tribromophenol	47.4	50.0	95	31-132	
Terphenyl-D14	44.3	50.0	89	20-141	

Lab Batch #: 3059298 **Sample:** 7660013-1-BKS / BKS **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/08/18 02:40

TCLP VOCs By SW846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0471	0.0500	94	75-131	
1,2-Dichloroethane-D4	0.0470	0.0500	94	63-144	
Toluene-D8	0.0493	0.0500	99	80-117	
4-Bromofluorobenzene	0.0518	0.0500	104	74-124	

Lab Batch #: 3059298 **Sample:** 7660013-1-BSD / BSD **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/08/18 02:58

TCLP VOCs By SW846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0471	0.0500	94	75-131	
1,2-Dichloroethane-D4	0.0477	0.0500	95	63-144	
Toluene-D8	0.0483	0.0500	97	80-117	
4-Bromofluorobenzene	0.0508	0.0500	102	74-124	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: State A-10

Work Orders : 594588,

Project ID: B0048625.0A10

Lab Batch #: 3059298 **Sample:** 594588-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/L **Date Analyzed:** 08/08/18 03:16

TCLP VOCs By SW846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0463	0.0500	93	75-131	
1,2-Dichloroethane-D4	0.0495	0.0500	99	63-144	
Toluene-D8	0.0490	0.0500	98	80-117	
4-Bromofluorobenzene	0.0538	0.0500	108	74-124	

Lab Batch #: 3059298 **Sample:** 594588-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/L **Date Analyzed:** 08/08/18 03:34

TCLP VOCs By SW846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0467	0.0500	93	75-131	
1,2-Dichloroethane-D4	0.0477	0.0500	95	63-144	
Toluene-D8	0.0489	0.0500	98	80-117	
4-Bromofluorobenzene	0.0530	0.0500	106	74-124	

Lab Batch #: 3059298 **Sample:** 7660013-1-BLK / BLK **Batch:** 1 **Matrix:** Water

Units: mg/L **Date Analyzed:** 08/08/18 04:29

TCLP VOCs By SW846 8260B Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Dibromofluoromethane	0.0502	0.0500	100	75-131	
1,2-Dichloroethane-D4	0.0525	0.0500	105	63-144	
Toluene-D8	0.0531	0.0500	106	80-117	
4-Bromofluorobenzene	0.0497	0.0500	99	74-124	

Lab Batch #: 3058982 **Sample:** 7659797-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/04/18 11:45

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.3	100	96	70-135	
o-Terphenyl	50.7	50.0	101	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

Form 2 - Surrogate Recoveries

Project Name: State A-10

Work Orders : 594588,

Project ID: B0048625.0A10

Lab Batch #: 3058982 **Sample:** 7659797-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/04/18 12:04

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	55.0	50.0	110	70-135	

Lab Batch #: 3058982 **Sample:** 7659797-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/04/18 12:24

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	100	125	70-135	
o-Terphenyl	53.9	50.0	108	70-135	

Lab Batch #: 3058982 **Sample:** 594450-009 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/18 13:03

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	99.8	121	70-135	
o-Terphenyl	45.5	49.9	91	70-135	

Lab Batch #: 3058982 **Sample:** 594450-009 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/04/18 13:23

TPH by SW8015 Mod Analytes	SURROGATE RECOVERY STUDY Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	99.7	127	70-135	
o-Terphenyl	50.2	49.9	101	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Version: 1.%

BS / BSD Recoveries

Project Name: State A-10

Work Order #: 594588 **Project ID:** B0048625.0A10

Analyst: OJS **Date Prepared:** 08/03/2018 **Date Analyzed:** 08/04/2018

Lab Batch ID: 3058935 **Sample:** 7659737-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<0.858	250	274	110	250	274	110	0	90-110	20	

Analyst: ANJ **Date Prepared:** 08/07/2018 **Date Analyzed:** 08/07/2018

Lab Batch ID: 3059170 **Sample:** 7659890-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TCLP Mercury by SW-846 1311/7470A Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Mercury	<0.0000263	0.00200	0.00180	90	0.00200	0.00179	90	1	80-120	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

BS / BSD Recoveries

Project Name: State A-10

Work Order #: 594588 **Project ID:** B0048625.0A10

Analyst: DEP **Date Prepared:** 08/07/2018 **Date Analyzed:** 08/07/2018

Lab Batch ID: 3059293 **Sample:** 7659912-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TCLP 8 Metals by SW 1311/6010B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Arsenic	<0.00336	1.00	0.968	97	1.00	0.975	98	1	75-125	20	
Barium	<0.000140	1.00	0.978	98	1.00	0.974	97	0	75-125	20	
Cadmium	<0.000131	1.00	1.03	103	1.00	1.02	102	1	75-125	20	
Chromium	<0.00136	1.00	1.02	102	1.00	1.02	102	0	75-125	20	
Lead	<0.00183	1.00	1.03	103	1.00	1.03	103	0	75-125	20	
Selenium	<0.00555	1.00	0.986	99	1.00	0.983	98	0	75-125	20	
Silver	<0.00160	0.500	0.470	94	0.500	0.469	94	0	75-125	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

BS / BSD Recoveries

Project Name: State A-10

Work Order #: 594588 **Project ID:** B0048625.0A10

Analyst: EKL **Date Prepared:** 08/06/2018 **Date Analyzed:** 08/06/2018

Lab Batch ID: 3059312 **Sample:** 7659870-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TCLP SVOCs by SW-846 1311/8270D Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
1,4-Dichlorobenzene	<0.000947	0.0500	0.0374	75	0.0500	0.0310	62	19	37-111	30	
2,4,5-Trichlorophenol	<0.000893	0.0500	0.0402	80	0.0500	0.0346	69	15	39-125	30	
2,4,6-Trichlorophenol	<0.00109	0.0500	0.0397	79	0.0500	0.0341	68	15	42-125	30	
2,4-Dinitrotoluene	<0.000767	0.0500	0.0398	80	0.0500	0.0350	70	13	41-128	30	
2-methylphenol	<0.000851	0.0500	0.0377	75	0.0500	0.0338	68	11	36-105	30	
3&4-Methylphenol	<0.000839	0.0500	0.0371	74	0.0500	0.0337	67	10	35-96	30	
Hexachlorobenzene	<0.000902	0.0500	0.0389	78	0.0500	0.0326	65	18	39-128	30	
Hexachlorobutadiene	<0.000989	0.0500	0.0371	74	0.0500	0.0315	63	16	31-120	30	
Hexachloroethane	<0.00103	0.0500	0.0385	77	0.0500	0.0320	64	18	37-109	30	
Nitrobenzene	<0.00102	0.0500	0.0407	81	0.0500	0.0350	70	15	37-114	30	
Pentachlorophenol	<0.000522	0.0500	0.0367	73	0.0500	0.0306	61	18	10-137	40	
Pyridine	<0.000741	0.0500	0.0146	29	0.0500	0.0102	20	35	16-135	40	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

BS / BSD Recoveries

Project Name: State A-10

Work Order #: 594588 **Project ID:** B0048625.0A10

Analyst: SAD **Date Prepared:** 08/07/2018 **Date Analyzed:** 08/08/2018

Lab Batch ID: 3059298 **Sample:** 7660013-1-BKS **Batch #:** 1 **Matrix:** Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TCLP VOCs By SW846 8260B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000925	0.250	0.238	95	0.250	0.245	98	3	68-123	25	
Methyl ethyl ketone	<0.00660	1.25	1.16	93	1.25	1.22	98	5	49-135	25	
Carbon Tetrachloride	<0.00121	0.250	0.214	86	0.250	0.223	89	4	68-135	25	
Chlorobenzene	<0.000551	0.250	0.248	99	0.250	0.243	97	2	78-124	25	
Chloroform	<0.000535	0.250	0.225	90	0.250	0.235	94	4	71-119	25	
1,4-Dichlorobenzene	<0.00111	0.250	0.262	105	0.250	0.252	101	4	80-119	25	
1,2-Dichloroethane	<0.00142	0.250	0.232	93	0.250	0.246	98	6	64-130	25	
1,1-Dichloroethene	<0.000888	0.250	0.235	94	0.250	0.238	95	1	68-116	25	
Tetrachloroethylene	<0.00173	0.250	0.255	102	0.250	0.253	101	1	79-122	25	
Trichloroethylene	<0.00109	0.250	0.232	93	0.250	0.233	93	0	74-123	25	
Vinyl Chloride	<0.00116	0.250	0.226	90	0.250	0.235	94	4	59-124	25	

Analyst: ARM **Date Prepared:** 08/04/2018 **Date Analyzed:** 08/04/2018

Lab Batch ID: 3058982 **Sample:** 7659797-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	4.91	1000	965	97	1000	901	90	7	70-135	20	
Diesel Range Organics (DRO)	2.55	1000	1010	101	1000	937	94	7	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Version: 1.%

Form 3 - MS Recoveries

Project Name: State A-10

Work Order #: 594588

Lab Batch #: 3059312 **Project ID:** B0048625.0A10

Date Analyzed: 08/07/2018 **Date Prepared:** 08/07/2018 **Analyst:** EKL

QC- Sample ID: 594588-004 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/L

TCLP SVOCs by SW-846 1311/8270D	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
1,4-Dichlorobenzene	<0.00474	0.250	0.208	83	37-111	
2,4,5-Trichlorophenol	<0.00447	0.250	0.209	84	39-125	
2,4,6-Trichlorophenol	<0.00543	0.250	0.205	82	42-125	
2,4-Dinitrotoluene	<0.00384	0.250	0.205	82	41-128	
2-methylphenol	<0.00426	0.250	0.198	79	36-105	
3&4-Methylphenol	<0.00420	0.500	0.361	72	35-96	
Hexachlorobenzene	<0.00451	0.250	0.132	53	39-128	
Hexachlorobutadiene	<0.00495	0.250	0.217	87	31-120	
Hexachloroethane	<0.00514	0.250	0.209	84	37-109	
Nitrobenzene	<0.00508	0.250	0.221	88	37-114	
Pentachlorophenol	<0.00261	0.250	0.234	94	10-137	
Pyridine	<0.00370	0.250	0.105	42	16-135	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: State A-10

Work Order # : 594588 **Project ID:** B0048625.0A10

Lab Batch ID: 3058935 **QC- Sample ID:** 594587-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/04/2018 **Date Prepared:** 08/03/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	1040	250	1370	132	250	1310	108	4	90-110	20	X

Lab Batch ID: 3058935 **QC- Sample ID:** 594588-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/04/2018 **Date Prepared:** 08/03/2018 **Analyst:** OJS

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	504	250	780	110	250	763	104	2	90-110	20	

Lab Batch ID: 3059170 **QC- Sample ID:** 594248-009 S **Batch #:** 1 **Matrix:** Solid

Date Analyzed: 08/07/2018 **Date Prepared:** 08/07/2018 **Analyst:** ANJ

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TCLP Mercury by SW-846 1311/7470A Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Mercury	<0.0000263	0.00200	0.00178	89	0.00200	0.00176	88	1	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: State A-10

Work Order # : 594588 **Project ID:** B0048625.0A10

Lab Batch ID: 3059170 **QC- Sample ID:** 594499-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/07/2018 **Date Prepared:** 08/07/2018 **Analyst:** ANJ

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TCLP Mercury by SW-846 1311/7470A Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Mercury	<0.0000263	0.00200	0.00183	92	0.00200	0.00181	91	1	75-125	20	

Lab Batch ID: 3059293 **QC- Sample ID:** 594248-001 S **Batch #:** 1 **Matrix:** Solid

Date Analyzed: 08/07/2018 **Date Prepared:** 08/07/2018 **Analyst:** DEP

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TCLP 8 Metals by SW 1311/6010B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Arsenic	4.73	5.00	8.25	70	5.00	8.65	78	5	75-125	20	X
Barium	0.421	5.00	4.29	77	5.00	4.55	83	6	75-125	20	
Cadmium	<0.000656	5.00	4.28	86	5.00	4.48	90	5	75-125	20	
Chromium	0.00901	5.00	4.28	85	5.00	4.47	89	4	75-125	20	
Lead	<0.00916	5.00	4.30	86	5.00	4.49	90	4	75-125	20	
Selenium	0.0849	5.00	4.40	86	5.00	4.60	90	4	75-125	20	
Silver	<0.00802	2.50	1.97	79	2.50	2.09	84	6	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: State A-10

Work Order # : 594588 **Project ID:** B0048625.0A10

Lab Batch ID: 3059298 **QC- Sample ID:** 594588-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/08/2018 **Date Prepared:** 08/07/2018 **Analyst:** SAD

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TCLP VOCs By SW846 8260B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00925	2.50	2.38	95	2.50	2.40	96	1	76-110	25	
Methyl ethyl ketone	<0.0660	12.5	12.1	97	12.5	12.1	97	0	59-114	25	
Carbon Tetrachloride	<0.0121	2.50	2.20	88	2.50	2.21	88	0	77-119	25	
Chlorobenzene	<0.00551	2.50	2.50	100	2.50	2.45	98	2	78-110	25	
Chloroform	<0.00535	2.50	2.25	90	2.50	2.29	92	2	79-111	25	
1,4-Dichlorobenzene	<0.0111	2.50	2.65	106	2.50	2.61	104	2	76-112	25	
1,2-Dichloroethane	<0.0142	2.50	2.35	94	2.50	2.38	95	1	72-111	25	
1,1-Dichloroethene	<0.00888	2.50	2.33	93	2.50	2.36	94	1	74-124	25	
Tetrachloroethylene	<0.0173	2.50	2.53	101	2.50	2.51	100	1	78-117	25	
Trichloroethylene	<0.0109	2.50	2.34	94	2.50	2.30	92	2	70-123	25	
Vinyl Chloride	<0.0116	2.50	2.30	92	2.50	2.26	90	2	65-114	25	

Lab Batch ID: 3058982 **QC- Sample ID:** 594450-009 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/04/2018 **Date Prepared:** 08/04/2018 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	15.7	998	882	87	997	881	87	0	70-135	20	
Diesel Range Organics (DRO)	3.05	998	938	94	997	984	98	5	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

CHEVRON PM JASON MICHELSON

ARCADIS

ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page ___ of ___

Lab Work Order # 594588

Send Results to:

Contact & Company Name: ARCADIS BRETT KREHBIEL
Telephone: 432 312 7687 (m) 916 786 5382
Address: 101 CREEKSIDE RIDGE COURT SUITE 200
Fax:
City: ROSEVILLE State: CA Zip: 95678
E-mail Address: brett.krehbiel@arcadis.com
Project Name/Location (City, State): STATE A-10
Project #: B0048625.0A10
Sampler's Printed Name: KEITH HANSEN
Sampler's Signature: [signature]

Preservative	NONE					NONE
Filtered (✓)						
# of Containers	4	1	1	1	1	1
Container Information	7	8	8	8	8	8

PARAMETER ANALYSIS & METHOD

Sample ID	Collection Date	Collection Time	Type Comp	Type Grab	Matrix	CHLORIDES	TCLP MERCURY SW 7470A	TCLP METALS SW846 6010B	TCLP SVOCS EPA 8270C	TCLP VOA'S EPA 8260B	TPH SW8015B		REMARKS
STATE-A10-01-W	8.2.18	1215		✓	SO	X							
STATE-A10-02-S	8.2.18	1225		✓	SO	X							
STATE-A10-03-E	8.2.18	1337		✓	SO	X							
STATE-A10-COMP	8.2.18	1205	✓		SO	X	X	X	X	X	X		

Keys

Preservation Key: A. H_2SO_4 B. HCL C. HNO_3 D. NaOH E. None F. Other: ____ G. Other: ____ H. Other: ____

Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: ____ 10. Other: ____

Matrix Key: SO - Soil, W - Water, T - Tissue, SE - Sediment, SL - Sludge, A - Air, NL - NAPL/Oil, SW - Sample Wipe, Other: ____

Special Instructions/Comments:

☐ **Special QA/QC Instructions(✓):**

Laboratory Information and Receipt

Lab Name: XENCO
☑ Cooler packed with ice (✓)
Specify Turnaround Requirements: 24 HR.
Shipping Tracking #: 6606 3917 5021
Cooler Custody Seal (✓) ☐ Intact ☐ Not Intact
Sample Receipt:
Condition/Cooler Temp: 4.4

	Relinquished By	Received By	Relinquished By	Laboratory Received By
Printed Name	Keith Hansen	Brittany Cox	Brittany Cox	Katie Lowe
Signature	[signature]	[signature]	[signature]	[signature]
Firm / Firm/Courier	ARCADIS	M.S	M.S	Xenco
Date/Time	8.2.18 / 1552	8-2-18 3:52	8-2-18 4:00	8/3/18 10:55

20730826 CofC AR Form 08.27.2015

Distribution: WHITE – Laboratory returns with results YELLOW – Lab copy PINK – Retained by Arcadis

Final 1.000

ORIGIN ID:HOBA (575) 392-7550
**
MAIL SERVICES ETC, LLC
4008 N GRIMES

HOBBS, NM 88240
UNITED STATES US

SHIP DATE: 02AUG18
ACTWGT: 19.00 LB MAN
CAD: 0909328/CAFE3210
DIMS: 19x14x11 IN

BILL RECIPIENT

TO XENCO LABORATORIES
XENCO LABORATORIES
1211 W FLORIDA AVE

MIDLAND TX 79701

(432) 563-1800 REF:
INV:
PO: DEPT:

551C1/3395/184C

FedEx Express

J181118842001uv

FRI - 03 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 0201 6606 3917 5021

41 MAFA

79701
TX-US LBB

Part # 156148-434 RRD 09/16

Inter-Office Shipment

IOS Number **111610**

Date/Time: 08/03/18 11:10
Lab# From: **Midland**
Lab# To: **Houston**

Created by: Katie Lowe
Delivery Priority:
Air Bill No.: 772897208672

Please send report to: Kelsey Brooks
Address: 1211 W. Florida Ave, Midland TX 79701
Phone:
E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
594588-004	S	State-A10-Comp	08/02/18 12:05	SW6010B	Total Metals by EPA 6010B	08/06/18	01/29/19	KEB	AG AL AS B BA BE CA CI	
594588-004	W	State-A10-Comp	08/02/18 12:05	SW7470A_TCLP	TCLP Mercury by SW-846 1311/7470A	08/06/18	08/30/18	KEB	HG	
594588-004	W	State-A10-Comp	08/02/18 12:05	SW8260BTCLP	TCLP VOCs By SW846 8260B	08/06/18	08/16/18	KEB	BZ CLBZ CTCL DCA12 D(	
594588-004	W	State-A10-Comp	08/02/18 12:05	SW8270CTCLP	TCLP SVOCs by SW-846 8270C	08/06/18	08/09/18	KEB	DCBZ14 DNT24 HCBU HC	

Inter Office Shipment or Sample Comments:

Relinquished By: Katie Lowe

Date Relinquished: 08/03/2018

Received By: Rene Vandenberghe

Date Received: 08/04/2018 10:00

Cooler Temperature: 3.4

XENCO Laboratories

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 111610

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient
Temperature Measuring device used : hou-068

Sent By: Katie Lowe **Date Sent:** 08/03/2018 11:10 AM

Received By: Rene Vandenberghe **Date Received:** 08/04/2018 10:00 AM

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	3.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received with appropriate temperature?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**No**	
#5 *Custody Seals Signed and dated for Containers/coolers	**N/A**	
#6 *IOS present?	**Yes**	
#7 Any missing/extra samples?	**No**	
#8 IOS agrees with sample label(s)/matrix?	**Yes**	
#9 Sample matrix/ properties agree with IOS?	**Yes**	
#10 Samples in proper container/ bottle?	**Yes**	
#11 Samples properly preserved?	**Yes**	
#12 Sample container(s) intact?	**Yes**	
#13 Sufficient sample amount for indicated test(s)?	**Yes**	
#14 All samples received within hold time?	**Yes**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ **Contacted by :** _____ **Date:** _____

Checklist reviewed by: _____ Date: 08/04/2018
Rene Vandenberghe

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: ARCADIS

Date/ Time Received: 08/03/2018 10:55:00 AM

Work Order #: 594588

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.4	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	TPH received in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**Yes**	TCLP methods sent to Stafford
#18 Water VOC samples have zero headspace?	**N/A**	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst: PH Device/Lot#:

Checklist completed by: Katie Lowe Date: 08/03/2018

Checklist reviewed by: Kelsey Brooks Date: 08/03/2018

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: Arcadis U.S., Inc 630 Plaza Drive Highlands Ranch, CO 80129	OGRID: 329073
	Action Number: 8600
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	1/19/2023