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October 23, 2019

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

Re: Vacuum Glorieta West Unit O-40 Trunk Line Remedial Plan #: 1RP-3259 and 1RP-3252 2018 Site Assessment Report Lea County, New Mexico

Dear whom it concerns,

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

• Vacuum Glorieta West Unit O-40 Trunk Line 2018 Site Assessment Report

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

Please do not hesitate to call Scott Foord with Arcadis at 713-953-4853 or myself at 832-854-5601, should you have any questions.

Sincerely

m ena Jason Michelson

Encl. Vacuum Glorieta West Unit O-40 Trunk Line 2018 Site Assessment Report

C.C. Amy Barnhill, Chevron/MCBU

www.arcadis.com



New Mexico Oil Conservation Division – District I Environmental Specialist 1625 N French Drive Hobbs, New Mexico 88240

Subject:

Site Assessment Report 2018 HES Transfer Site O-40 Trunk Line from the Vacuum Glorieta West Unit Battery NMOCD Case No. 1RP-3259 and 1RP-3252 Lea County, New Mexico

Dear whom it concerns:

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) prepared this Site Assessment Report (Report) for O-40 Trunk Line from the Chevron Mid-Continent Business Unit (MCBU) Vacuum Glorieta West Unit (VGWU) Battery 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 October 2013, September 2016, December 2017, July 2018, and October 2018. The purpose of this Report is to present soil boring and monitoring well locations, monitoring well construction details, analytical results of samples collected, and the data evaluation performed as part of the investigations referenced above following the December 5, 2012 release of approximately 149 barrels (bbls) of produced water.

SITE DESCRIPTION AND BACKGROUND

The following site description and background section provides an overview of the site location and 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) and is directly east of the VGWU Battery. Lovington, New Mexico (the closest town), is approximately 14 miles northeast of the site and the closest agricultural area is

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ENVIRONMENT

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approximately 7 miles northeast of the site. New Mexico Highway 238 is located approximately 0.4 mile east of the site.

The site is located in the western edge of the Permian Basin, a 75,000-square-mile area in Texas and New Mexico that is populated by numerous oil and gas production wells. In New Mexico, the Permian Basin extends to Roosevelt County to the north, Chaves and Eddy County to the west, and to Texas to the south.

Nearby Water Wells and Surface Water

Based on review of satellite imagery, no surface-water bodies have been identified within a 0.6-mile radius of the site (GoogleEarth 2018). In October 2013, Arcadis staff field verified that there are no surface-water bodies located within 1,000 feet of the site.

In January 2019, Arcadis reviewed information obtained from the New Mexico Office of the State Engineer (NMOSE) online database (NMOSE 2019), which indicated that no water-supply wells were located within 1,000 feet of the site. The NMOSE online database identified 259 water-supply wells within a 5-mile radius of the site (NMOSE 2019). A domestic water-supply well, located approximately 1,440 feet northeast (i.e., hydraulically cross-gradient) of the site, was identified as the closest designated-use well to 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). Average annual 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 evaporation rates. Average annual evaporation 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 4,001 feet above mean sea level. 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 approximately 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 approximately 400,000 to 500,000 years old, is relatively flat with minor erosional incisions and near-surface caliche layer ranging in thickness from 3- to 13-feet (Bachman 1980). Deposition of sand and formation of the dune field began approximately 60,000 years ago, with additional development beginning approximately 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 Ogallala Formation to the west of the site, the Dockum Group groundwater is not a major resource in the area, with poor potential water production rates and elevated natural dissolved solids.

Water-supply wells located on the southern High Plains east of Mescalero Ridge in central Lea County and near the site, as discussed in the Nearby Water Wells and Surface Water section of this report, are completed in the High Plains Aquifer (HPA). The HPA consists primarily of the 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 generally toward the east-southeast (Tillery 2008).

INITIAL RELEASE RESPONSE

Response Actvities

A release of approximately 149 bbls of produced water occurred at the site (primarily pasture land) on December 5, 2012 due to a leak from an underground fiberglass line. Chevron personnel from the Mid-Continent Business Unit (MCBU) stopped the release and recovered approximately 35 bbls of fluids using a vacuum truck. On December 5, 2012, Chevron MCBU personnel excavated visually impacted soil in the area to a depth of approximately 2 feet bgs. Information regarding the disposal of the excavated soil was not made available to Arcadis.

Pursuant to New Mexico Oil Conservation Division (NMOCD) requirements (NMOCD 1993), Chevron MCBU submitted a Notification of Release and Correction (Form C-141) to the NMOCD, detailing the location, volume of release, and initial and planned cleanup efforts for the site. The original C-141 form is included as **Attachment 1**.

Six discrete confirmation soil samples were collected from the base of the excavation on January 22, 2013 (**Figure 2**). Soil sample containers were transported on ice, under chain of custody procedures, to Cardinal Laboratories Environmental Analytical Services in Hobbs, NM for the following analyses:

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8021B
- Total petroleum hydrocarbons as gasoline range organics (TPH-GRO) and total petroleum hydrocarbons as diesel range organics (TPH-DRO) by USEPA Method 8015M
- Chloride by USEPA Method SM4500CI-B

Confirmation Soil Sample Results

The analytical results for BTEX, TPH-GRO, TPH-DRO, and chloride for the six discrete confirmation soil samples collected in January 2013 are provided in **Table 1** and summarized below:

- BTEX compounds were not detected above the laboratory reporting limits (LRLs).
- TPH-DRO and TPH-GRO were not detected above LRLs.
- Chloride was detected in all six confirmation samples, at concentrations ranging from 6,480 milligrams per kilogram (mg/kg) (VGWU #040 Sample #4) to 12,000 mg/kg (VGWU #040 Sample #6).

The complete laboratory analytical results with chain of custody documentation are included in **Attachment 2**. Chloride results from 2013 were compared to the New Mexico Administrative Code's (NMAC's) closure criteria (CC) published in 2009 (NMAC 2009). Chloride concentrations in all six confirmation soil samples were above the 2009 CC of 500 mg/kg, which prompted additional site assessment activities.

2013 SOIL INVESTIGATIONS

Site Assessment Activities

In October 2013, Arcadis conducted site assessment activities to characterize the lateral and vertical extents of potential soil impacts at the site. Soil boring locations were selected based on the results of confirmation soil sampling completed at the site in January 2013, locations of pipelines and other equipment at the site, and the extent of the release as documented by Chevron MCBU personnel during the initial response activities.

To evaluate the potential extent of impacts to soil at the site, Arcadis advanced the following nine soil borings on October 22 and 23, 2013 (**Figure 2**):

- VGWU 40-01
- VGWU 40-02
- VGWU 40-03
- VGWU 40-04
- VGWU 40-05
- VGWU 40-06
- VGWU 40-07
- VGWU 40-08
- VGWU 40-09

Prior to conducting drilling activities, each boring location was cleared for subsurface utilities with an air knife. The air knife could not be advanced more than 2 to 3 inches bgs due to the presence of a thick caliche layer. Each soil boring was then advanced to a total depth of approximately 30 feet bgs using air rotary drilling equipment.

Soil was continuously logged for stratigraphic characteristics according to the United Soil Classification System (USCS). The soil samples were field screened for the presence of volatile organic compounds using a photo ionization detector (PID), in combination with visual and olfactory screening methods, for

evidence of petroleum hydrocarbons. Field personnel recorded PID readings, soil types, and other pertinent geologic data on boring logs (**Attachment 3**). No staining or elevated PID readings were observed. Lithologic data indicated the subsurface material consisted primarily of caliche (soil carbonate) profiles including "caprock," nodular, and sandy caliche layers from approximately 0 to 30 feet bgs.

Six soil samples were collected from each boring location beginning at a depth of 2 feet bgs (the approximate depth of the soil excavation in the initial release response activities) and continuing at 5-foot intervals from 5 to 30 feet bgs. A total of 63 samples were collected in clean, laboratory-supplied glass jars, labeled, placed in an ice-chilled cooler, and submitted under appropriate chain of custody protocols to TestAmerica Laboratories in Houston, TX. Soil samples collected from each boring were analyzed for chloride by USEPA Method 9056.

Following sampling, the boreholes were filled with soil cuttings from the total depth to ground surface. The ground surface was restored to match the surrounding conditions.

Soil Sample Results

The analytical results for chloride concentrations in the 63 soil assessment samples are provided in **Table 1** and summarized below. Laboratory analytical results with chain of custody documentation are provided in **Attachment 2**.

Chloride was detected in 62 of the 63 soil assessment samples at concentrations ranging from 6 mg/kg (VGWU 40- 05 at 15 feet bgs) to 5,200 mg/kg (VGWU 40- 04 at 5 feet bgs). Chloride was detected above the 2009 NMAC CC concentration of 500 mg/kg in 22 of the 63 soil assessment samples. The depth at which soil samples were collected with chloride concentration exceedances ranged from 2 feet bgs (VGWU 40-07) to 30 feet bgs (VGWU 40-02; **Figure 2**).

2016 SOIL INVESTIGATIONS

Soil Delineation Activities

In September 2016, Arcadis conducted further site assessment activities to delineate chloride-impacted soil at the site. Soil boring locations were selected based on the results of site assessment soil sampling completed at the site in October 2013, locations of pipelines and other equipment at the site, and the extent of the release as documented by Chevron MCBU personnel during the initial response activities. Soil borings locations were proposed in pairs such that one boring would be advanced outside of the release area. Arcadis then stepped out 20 to 30 lateral feet from the first boring, in the opposite direction of the release area, to advance a second boring.

Arcadis advanced a total 10 soil borings on September 12 and 13, 2016 (Figure 2):

- VGWU 40-10
- VGWU 40-11
- VGWU 40-12
- VGWU 40-13
- VGWU 40-14
- VGWU 40-15
- VGWU 40-16

- VGWU 40-17
- VGWU 40-18
- VGWU 40-19

In addition, VGWUO40-02 was reinstalled in its original location in order to collect additional samples from deeper depths.

Prior to conducting drilling activities, each boring location was cleared for subsurface utilities with an air knife to a depth of 4 feet bgs. Soil was logged for lithologic characteristics according to the USCS.

Soil samples were collected from each of the 10 boring locations at 2 and 4 feet bgs. Arcadis used Quantab® field screening methods to quantify chloride concentrations in soil prior to sample collection (Boyer 2004). If chloride field screenings resulted in chloride concentrations above 200 mg/kg, borings were advanced further until concentrations were below 200 mg/kg.

A total of 26 soil samples were collected in clean, laboratory-supplied glass jars, labeled, placed in an icechilled cooler, and submitted under appropriate chain of custody protocols to Xenco Laboratories (Xenco) in Midland, TX, a Texas-certified laboratory. Soil samples collected from each boring were analyzed for chloride by USEPA Method 300/300.1.

Following sampling, the boreholes were filled with soil cuttings from the total depth to ground surface. The ground surface was restored to match the surrounding conditions.

Soil Sample Results

The analytical results for chloride concentrations in the 26 soil assessment samples are provided in **Table 1** and summarized below. Laboratory analytical results with chain of custody documentation are provided in **Attachment 2**.

Chloride was detected in 23 of the 26 soil samples at concentrations ranging from 10.1 mg/kg (VGWU 40-13 at 10 feet bgs) to 1,980 mg/kg (VGWU 40- 10 at 2 feet bgs). Chloride was detected above the 2009 NMAC CC concentration of 500 mg/kg in 5 of the 26 soil samples. The depth at which soil samples were collected with chloride concentration exceedances ranged from 4 feet bgs (VGWU 40-13 and VGWU 40-16) to 70 feet bgs (VGWU 40-10; **Figure 2**).

2017 AND 2018 GROUNDWATER ASSESSMENT

Monitoring Well Installation and Groundwater Sampling

Soil delineation sampling conducted in 2016 and chloride field screening suggested potential impacts near groundwater at VGWU O-40. Arcadis installed groundwater monitoring well VGWUO40-MW1 on December 4, 2017 to evaluate to potential impact of groundwater (**Figure 3**)

The monitor well location was hand cleared using air knife to a minimum depth of 8 feet bgs and was advanced to a total of 150 feet bgs. The monitor well was constructed within the open borehole using nominal 4-inch outside diameter (OD) schedule 40 poly vinyl chloride (PVC) casing. The screened interval extends across the saturated thickness of the aquifer (119.26 feet to 149.26 feet bgs) and constructed 0.10-inch machine-slotted PVC casing. Depth to groundwater was measured following installation at approximately 132 feet bgs.

Soil was continuously logged for lithologic characteristics according to the USCS (**Attachment 3**). After well installation and development, one groundwater grab sample was collected from the newly installed well. In July and October 2018, additional groundwater samples were collected VGWUO40-MW1. Groundwater samples collected during each of the 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. Laboratory analytical results with chain of custody documentation are provided in **Attachment 4**.

Groundwater Sample Results

Groundwater analytical results were 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 a concentration of 470 micrograms per liter (mg/L) in VGWUO40-MW1 during the December 2017 sampling, 556 mg/L in July 2018, and 630 mg/L in October 2018. Detected chloride concentrations during each groundwater sampling event exceed the NMAC human heath standard value of 250 mg/L. The cumulative groundwater analytical results for chloride are provided in **Table 2**.

2018 GEOPHYSICAL SURVEY

On October 25, 2018, Arcadis performed an electromagnetic conductivity survey over accessible areas of the site covering approximately 4 acres (**Figures 4** through **6**). Two inaccessible flooded areas, from recent rainfall events, were encountered within the survey area and are depicted in blue cross-hatch in **Figures 4** through **6**. 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 4**. In order to produce a more robust model, data from 13 discrete frequencies were collected along the two transect lines (93 kHz, 80kHz, 63kHz, 38.3kHz, 21.9kHz, 18.3kHz, 12.4 kHz, 5.3kHz, 2.9 kHz, 2.4kHz, 1.5 kHz, 0.63 kHz, and 0.45kHz). The data were inverse-modeled using the software IX1Dv3 by Interpex to produce electrical resistivity cross-sections of the subsurface. 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 4 through 6 present color-filled contour maps for:

- 63kHz GEM2 data (4 to 8-foot sensing depth)
- 18.3kHz GEM2 data (6 to 10-foot sensing depth)
- 5.3kHz GEM2 data (8 to 12-foot sensing depth), respectively.

Figures 7 and **8** present GEM-2 2D modelling results along the A-A' and B-B' profiles. Locations of metallic flow line (based on field observations and aerial photographs) and 2018 shallow soil sample locations (collected on the day of the geophysical survey October 25, 2018) are denoted in the figures.

The color scale used in **Figures 4** through **8** 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 within 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. The data output for the GEM-2 model profiles presented in **Figure 7** and **8** 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 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.

In general, an elevated EC response is observed throughout the spill area surveyed with elevated EC values >100 mS/m shown in yellow to red colors (**Figures 4** through **6**). In general, the shape of the elevated EC areas correlates with buried flow lines that run east-west through the red-outlined spill area. The highest magnitude EC response (>200 mS/m) was observed in the center of the outlined spill area, immediately west of soil sample location VGWUO40-22. The 2x magnitude of the EC response in this area, relative to other elevated EC values measured throughout the survey area, suggest a greater degree of impact and/or a potential source area for the spill.

The west to east GEM-2 A-A' profile shown in **Figure 7** crossed the above mentioned central >200 mS/m EC area. The A-A' model resolves a confined "perched" high conductivity zone that extends from approximately 1 to 15 feet bgs, providing some vertical delineation of the elevated EC response and suggesting that produced water impacts may not extend to deeper soils. The south to north GEM-2 B-B' profile shown in **Figure 8** intersects the western edge of the high >200 mS/m EC zone. The B-B' model resolves three discontinuous confined "perched" high conductivity zones that extend to a maximum depth of 6 feet bgs.

2018 SOIL INVESTIGATIONS

Site Assessment Activates

In conjunction with the geophysical survey, and for calibration purposes, as well as to provide site specific laboratory data, Arcadis collected 5 surface soil samples (VGWU 40-20, VGWU 40-21, VGWU 40-22, VGWU 40-23, and VGWU 40-24) on October 25, 2018, using a hand auger from a depth of half foot bgs (**Figure 2**). The samples were collected in clean, laboratory-supplied sample containers, labeled, placed on ice, cooled to approximately 4 degrees Celsius, and submitted to Xenco under chain-of-custody protocol for analysis of chloride by USEPA Method 300.1.

Soil cuttings from each boring were placed back in the borehole.

Soil Sample Results

The analytical data from the soil samples collected in October 2018 are compared to the closure criteria (CC) outlined in Title 19, Chapter 15, Part 29 (19.15.29) of the NMAC concerning natural resources and wildlife, oil and gas, and releases which became effective on August 14, 2018. Since depth to groundwater at the site has been confirmed to be over 100 feet bgs, the closure criteria for chloride concentrations in the soil is 20,000 mg/kg.

Chloride was detected in 3 of the 5 surface soil samples collected in October 2018 at concentrations ranging from 27.5 mg/kg (VGWU 40- 22) to 972 mg/kg (VGWU 40- 23). Chloride concentrations detected in the surface soil samples did not exceed the 2018 NMAC CC of 20,000 mg/kg. Analytical results for chloride concentrations in the 5 soil samples are provided in Table 1

CONCLUSION

Potential migration of remaining chloride to groundwater is not expected due to the relatively small volume of unrecovered material, low precipitation (WRCC 2019a), high evapotranspiration rates (WRCC 2019b), and fine-grained nature of caliche layers present beneath the site. In addition, the geophysical survey provide data that indicate high conductivity zones at the site do not extent passed approximately 15 feet bgs which further demonstrates that the remaining soil concentrations associated with the release do not pose a significant risk to groundwater resources.

Soil data presented in this report support a conclusion that impacted soil associated with the December 5, 2012 release at the site poses no significant threat to groundwater resources or other receptors.

Although impacted soil poses little threat to the groundwater at the site, chloride concentrations detected in groundwater samples collected from VGWUO40-MW1 in December 2017, July 2018, and October 2018 exceed the NMAC human heath standard value of 250 mg/L. Chloride concentrations ranged from 459 mg/L in December 2017 to 630 mg/L in October 2018. Further investigations are needed to determine the extent of chloride-impacts in the groundwater and the source of impact.

CLOSING

Arcadis proposes installing and sampling two groundwater monitoring well to further assess chloride concentrations in groundwater at the site.

If you have any questions or comments regarding the information presented in this Report, please contact Scott Foord 713953.4853 or at William.Foord@arcadis.com.

Sincerely,

Arcadis U.S., Inc.

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Scott Foord **Project Manager**

Copies. Jason Michelson (CEMC)

Greg Cutshall Program Manager

Bradford Billings 07/09/2021 OCD

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Enclosures:

Tables

- 1 Soil Sampling Analytical Results
- 2 Groundwater Gauging Data and Analytical Results

Figures

- 1 Site Location Map
- 2 Soil Analytical Results
- 3 Groundwater Analytical Results
- 4 GEM-2 Conductivity Map 63kHz
- 5 GEM-2 Conductivity Map 18.3kHz
- 6 GEM-2 Conductivity Map 5.3kHz
- 7 Modelled GEM-2 Profile Section A-A'
- 8 Modelled GEM-2 Profile Section B-B'

Attachments

- 1 C-141 Form
- 2 Laboratory Analytical Results and Chain of Custody
- 3 Soil Boring Logs and Monitor Well Logs

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- Western Regional Climate Center. 2019b. Artesia, New Mexico, monthly average pan evaporation. <u>http://www.wrcc.dri.edu/htmlfiles/westevap.final.html#NEW MEXICO</u>. Viewed on January 2.

TABLES



Table 1 Soil Analytical Results Chevron EMC Vacuum Glorieta West Unit O-40 Trunk Line Lea County, New Mexico

	Boring 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
		NMAC Clos	ure Criteria ^(a)	10				50	1,0	000	20,000	
	VGWU #040 Sample #1	1/22/2013	2	<0.050	< 0.050	< 0.050	<0.150		<10.0	<10.0	11,000	
	VGWU #040 Sample #2	1/22/2013	2	<0.050	< 0.050	<0.050	<0.150		<10.0	<10.0	9,760	
	VGWU #040 Sample #3	1/22/2013	2	<0.050	<0.050	<0.050	<0.150		<10.0	<10.0	11,600	
	VGWU #040 Sample #4	1/22/2013	2	<0.050	<0.050	<0.050	<0.150		<10.0	<10.0	6,480	
	VGWU #040 Sample #5	1/22/2013	2	<0.050	<0.050	<0.050	<0.150		<10.0	<10.0	9,920	
	VGWU #040 Sample #6	1/22/2013	2	<0.050	<0.050	< 0.050	<0.150		<10.0	<10.0	12,000	
		10/23/2013	2								1,000	5
		10/23/2013	5						-		2,100	4
		10/23/2013	10						-		400	6
	VGWU 40- 01	10/23/2013	15								350	5
		10/23/2013	20						-		33	8
		10/23/2013	25						-		15	4
		10/23/2013	30						-		180	3
		10/22/2013	2								2,600	6
		10/22/2013	5	-			-				4,300	10
		10/22/2013	10								350 5 330 5 331 8 15 4 180 3 2,600 6 4,300 10 4,700 3 3,900 6 2,600 7 3,100 3 3,600 4 93 3,600 5 910 3 37 3 23 3 14 1 8 2 27 2 1,700 6 5,200 9 360 6	
		10/22/2013	15								3,900	6
	VGVVU 40- 02	10/22/2013	20								2,600	7
		10/23/2013	25								3,100	3
		10/23/2013	30								3,600	4
		6/23/2016	80								93	
		10/23/2013	2								3,600	5
		10/23/2013	5								910	3
		10/23/2013	10								37 37 23 31 14	3
	VGWU 40- 03	10/23/2013	15								23	3
		10/23/2013	20								14	1
		10/23/2013	25								8	2
		10/23/2013	30								27	2
		10/22/2013	2								1,700	6
		10/22/2013	5								5,200	9
		10/22/2013	10								360	6
	VGWU 40- 04	10/22/2013	15								93	8
		10/22/2013	20								23	6
		10/22/2013	25								71	12
		10/22/2013	30								21	8
		10/23/2013	2								54	1
		10/23/2013	5								53	8
		10/23/2013	10								10	300 6 93 8 23 6 71 12 21 8 54 1 53 8 10 2
	VGWU 40- 05	10/23/2013	15								6	1
		10/23/2013	20								6	2
		10/23/2013	25								7	3
		10/23/2013	30								7	5
		10/23/2013	2								51	2
		10/23/2013	5								27	6
		10/23/2013	10								7	4
	VGWU 40- 06	10/23/2013	15								<4.4	9
		10/23/2013	20								6	4
		10/23/2013	25								7	4
		10/23/2013	30								10	4
		10/23/2013	2								2,400	4
		10/23/2013	5								130	2
		10/23/2013	10								33	3
	VGWU 40- 07	10/23/2013	15								96	5
		10/23/2013	20								14	3
		10/23/2013	20								8	4
		10/23/2013	30								۵ ۵	्र २
	1	10/20/2010	50									

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Table 1 Soil Analytical Results Chevron EMC Vacuum Glorieta West Unit O-40 Trunk Line Lea County, New Mexico

	Boring 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
Ī		NMAC Clos	ure Criteria ^(a)	10				50	1,0	000	20,000	
ľ		10/23/2013	2								2,000	3
		10/23/2013	5								Chloride (mg/kg) % Moisture 20,000 2,000 3 700 6 2,600 8 11 13 46 5 130 4 61 7 2,500 5 1,800 2 900 4 2,300 10 580 9 70 7 130 5 1,980 428 259 920 44.2 410.0 87 753 754 753 714 10.1 87 710 87 10.1 81.00 329.00	
		10/23/2013	10								2,600	8
	VGWU 40- 08	10/23/2013	15								11	13
		10/23/2013	20								46	5
		10/23/2013	25								130	4
		10/23/2013	30								61	7
Ĩ		10/23/2013	2								2,500	5
		10/23/2013	5								1,800	2
		10/23/2013	10								900	4
	VGWU 40- 09	10/23/2013	15								$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	
		10/23/2013	20								580	9
		10/23/2013	25								70	7
		10/23/2013	30								130	5
Ī		9/12/2016	2								1,980	
		9/12/2016	4	-	-		-				RO (y) Chloride (mg/kg) % M 20,000 2,000 700 2,600 111 4 130 - 2,600 - 111 - 46 - 130 - 2,500 - 1,800 - 900 2,300 580 - 70 - 130 - 428 - 920 - 44.2 - 920 - 44.2 - 920 - 44.2 - 920 - 44.2 - 920 - 44.2 - 920 - 44.2 - - - 3753 - 714 - 10.1 - 87 - 10.0	
	VGW0040-10	9/12/2016	7								259	
		9/12/2016	70								920	
Ī		9/12/2016	2								44.2	
	VGW0040-11	9/12/2016	4								<10.0	
Ī		9/13/2016	2								87	
	VGW0040-12	9/13/2016	4								54	
Ī		9/12/2016	2								753	
	VGWUO40-13	9/12/2016	4								714	
L		9/12/2016	10								10.1	
Ī	VGWU040-14	9/12/2016	2								87	
	VGW0040-14	9/12/2016	4								101	
	VGWU040-15	9/12/2016	2								<10.0	
L	VGW0040-13	9/12/2016	4								<10.0	
		9/13/2016	2								329.00	
	VGWUO40-16	9/13/2016	4								881.00	
		9/13/2016	50								16.40	0
T	VGWU040-17	9/13/2016	2								52.8	
		9/13/2016	4								34.8	3 6 8 13 5 4 7 5 2 4 10 9 7 5
		9/13/2016	2								65.30	
	VGWUO40-18	9/13/2016	4								318.00	3 6 8 13 5 4 7 2 4 7 5 2 4 7 5 2 4 7 5
		9/13/2016	70								142.00	
	VGWUO40-19	9/13/2016	2								54.2	
ļ		9/13/2016	4								59.6	
ļ	VGWUO40-20	10/25/2018	0.5								<4.95	
ļ	VGWUO40-21	10/25/2018	0.5								938.0	
ļ	VGWUO40-22	10/25/2018	0.5								27.5	
ļ	VGWUO40-23	10/25/2018	0.5								972	
ſ	VGWUO40-24	10/25/2018	0.5								<5.01	

Legend:

ogona.	
%	Percent
mg/kg	Miligram(s) per kilogram
<	Analyte was not detected above the specified method reporting limit
	Not Analyzed/Not Listed
bgs	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

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

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Table 2

Groundwater Gauging Data and Analytical Results Chevron EMC Vacuum Glorieta West Unit O-40 Trunk Line Lea County, New Mexico

Monitoring W

O-40 Trunk Line											
ell ID	Date	DTW (ft btoc)	Chloride ¹ (mg/L)								

ARCADIS Design & Consultancy for natural and built assets

	250		
	12/7/2017	149.3	470
	12/7/2017 (DUP)		459
	7/31/2018	134.8	556
VGVV0040-IVIVVI	7/31/2018 (DUP)		526
	10/25/2018	135.0	630
	10/25/2018 (DUP)		628

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:

###	Analytical value is greater than or equal to NMAC closure criteria
	Not applicable or not measured
NMAC	New Mexico Administrative Code
DUP	Field duplicate sample
DTW	Depth to Water
mg/L	Miligram(s) per liter
BTOC	Below top of casing
ft	Feet

FIGURES

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Received by OCD: 10/28/2019 8:04:07 AM
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CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM

C:Users/PAI01041/OneDrive - ARCADIS/BIM 360 Docs/CHEVRON CORPORATION/HES-0-40 TL/2018/B0048611.1701/01-DWG/1701-GWAR-Fig3.dwg LAYOUT: 3 SAVED: 12/21/2018 4:25 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 12/21/2018 4:27 PM BY: ANJANEYAKUMAR, PAVAN KUMAR



Released to Imaging: 7/9/2021 2:17:22 PM

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM C:\Users\PAI01041\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\HES-0-40 TL\2018\B0048611.1701\01-DWG\1701-GWAR-Fig2.dwg LAYOUT: 2 SAVED: 12/21/2018 4:25 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 12/21/2018 4:26 PM BY: ANJANEYAKUMAR, PAVAN KUMAR



Released to Imaging: 7/9/2021 2:17:22 PM



VGWU O-40 TRUNK LINE CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY **VGWU BATTERY** LEA COUNTY, NEW MEXICO





Released to Imaging: 7/9/2021 2:17:22 PM

VGWU BATTERY LEA COUNTY, NEW MEXICO





VGWU BATTERY LEA COUNTY, NEW MEXICO

Released to Imaging: 7/9/2021 2:17:22 PM



Received by OCD: 10/28/2019 8:04:07 AM



ARCADIS Design & Consultancy for natural and built assets

VGWU O-40 TRUNK LINE CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY **VGWU BATTERY** LEA COUNTY, NEW MEXICO

FIGURE 7

Received by OCD: 10/28/2019 8:04:07 AM



ATTACHMENT 1.

C-141 Form

State of New Mexico **Energy Minerals and Natural Resources**

Form C-141 Revised August 8, 2011

Page 29 of 210

Oil Conservation Division 1220 South St. Francis Dr.

1220 S. St. Flan	Santa Fe, NM 87505											
			Rele	ease Notific	cation	n and Co	orrective A	ction				
						OPERA '	ГOR		🛛 Initia	al Report		Final Report
Name of Co	ompany CH	IEVRON U	S.A Inc.			Contact Day	vid Pagano			-		-
Address	56 Texas C	amp Road, l	Lovingto	n, NM 88260		Telephone l	No. Office: 575	-396-4414	ext 275	Cellular: 50)5-787	-9816
Facility Nat trunk line	me Vacu	um Gloriett	a West U	nit Battery SWI	D	Facility Typ	e Production	Tank Batte	ery			
Surface Ow	vner Stat	e of New Me	exico	Mineral C	Owner	State of N	ew Mexico		API No	. OGRI	D No.	B-155
				LOCA		N OF RE	LEASE					
Unit Letter	Section	Township	Range	Feet from the	North	South Line	Feet from the	East/We	est Line	County	-	
G	36	17.0S	34.0E								Lea	l
	Latitude32.795081Longitude -103.511756											
	NATURE OF RELEASE											
Type of Release Spill to Land Volume of Release 149bbls of Volume Recovered 35bbls of Produced												
						Produced	Water	V	Water			
Source of Re	elease Wa	ter Injection S	Station Put	mp		Date and H	lour of Occurrent	ce I	Date and $12/5/12.0$	Hour of Dis	covery	r.
Was Immedi	ate Notice (liven?				If YES. To	Whom?		12/3/12 0	0.00AW		
			Yes] No 🗌 Not R	equired	Geoffrey Leking						
By Whom?	David Paga	no				Date and H	Hour					
Was a Water	course Read	hed?				If YES. Vo	olume Impacting	the Water	course.			
			Yes 🗵	No		, .						
If a Waterco	urse was Im	pacted, Descr	ibe Fully. ³	*								
N/A												
Describe Cau	use of Probl	em and Reme	dial Actio	n Taken.*								
6" buried fib	erglass trun	k line from V	GWU Bat	tery to the O-40S	WD leal	ked undergrou	and approx 700 fe	eet west/so	uthwest o	of the batter	y. Cau	se of leak
will be deter	mined when	line is excava	ated.	5		U						
Describe Are	ea Affected	and Cleanup A	Action Tal	ken.*								
		1										
Release occu	rred in past	ure area just 1	00 feet no	orth of CVU 457 v	well. Or	n discovery, v	acuum truck cont	tacted and	vacuume	d up the star	nding f	luids.
feet and sent	off for disp	osal.	ered fiquid	is placed hauled o	II to disj	posai. Next s	teps are for the vi	isually con	itaminateo	u son to be a	excava	ted up to 2
I hereby cert	ify that the i	nformation gi	ven above	e is true and comp	lete to t	he best of my	knowledge and u	understand	that purs	uant to NM	OCD r	ules and
regulations a	ll operators	are required t	o report a	nd/or file certain r	elease n	otifications a	nd perform corre	ctive action	ns for rele	eases which	may e	ndanger
should their	operations h	ave failed to a	acceptant	v investigate and r	emediat	e contaminati	ion that pose a th	reat to grou	und water	surface wa	ter hu	man health
or the enviro	nment. In a	ddition, NMC	CD accer	otance of a C-141	report d	loes not reliev	ve the operator of	responsibi	ility for co	ompliance v	ith an	y other
federal, state	, or local lav	vs and/or regu	ilations.				1	1	5	1		,
							<u>OIL CON</u>	SERVA	TION	DIVISIO	<u>)N</u>	
Signature												
Signature.						Annroved by	Environmental S	Specialist.				
Printed Nam	e: David	Pagano				r ippioved by		specialist.				
Title: Hea	<u>lth & Envi</u> ro	onmental Spec	cialist			Approval Da	te:	Ex	piration 1	Date:		
E-mail Addr	ess: david	.pagano@che	evron.com		T	Conditions of	f Approval:					

Phone: 505-787-9816 Date: 12/12/12 * Attach Additional Sheets If Necessary

Attached

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011

Page 30 of 210

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

	Santa Fe, INM 8/505											
Release Notification and Corrective Action												
						OPERA	ΓOR	Init:	al Report	Final Repor		
Name of Co	ompany: C	HEVRON U	J.S.A. Inc			Contact: Lu	ke Welch		1			
Address: 56	6 Texas Ca	mp Road, Lo	ovington	NM 88260		Telephone No.: Office: (713) 372-0292 Mobile: (832) 627-9171						
Facility Nat Trunk Line	me: Vacuu	m Glorietta	West Uni	t Battery SWD		Facility Typ	e: Production T	ank Battery				
Surface Ow	ner: State	of New Mex	tico	Mineral C)wner:	State of Nev	v Mexico	API N	o. OGRID	No. B-155		
				LOCA	ATIO	N OF REI	LEASE					
Unit Letter	Section	Township	Range	Feet from the	North	/South Line	Feet from the	East/West Line	County			
В	1	17.0S	36E						Lea			
	Latitude 32 705081° Longitude 103 511756°											
NATURE OF RELEASE												
Type of Rele	ase: Spill to	Land		INAI	UKE	Volume of H	LASE Release: 149 bbls	of Volume	Recovered: 3	5 bbls of Produced		
Type of free	user spin to	Build				Produced W	ater	Water				
Source of Re	lease: Wate	r Injection Sta	ation Pum	p		Date and Ho	our of Occurrence	: Date and	Hour of Dis	covery:		
Was Immedi	ate Notice C	Given?				If YES, To	Whom?	12/3/12	J8:00 AM			
		ע 🛛	les 🔲 🛛	No 🗌 Not Requ	uired	Geoffrey Le	king					
By Whom?	David Paga	no				Date and Hour: 11/5/12 2:20						
Was a Water	course Read	ched?	Yes 🕅 1	No		If YES, Vol	ume Impacting th	e Watercourse.				
If a Watawaa				*								
If a watercou N/A	If a Watercourse was Impacted, Describe Fully.* N/A											
Describe Cau	use of Probl	em and Reme	dial Actio	n Taken.*								
6" buried fib	erglass trun	k line from V	GWU Bat	terv to the O-40SV	WD lea	ked undergrou	und approx. 700 fe	eet west/southwes	t of the batter	V.		
							TT					
Describe Are	a Affected	and Cleanup A	Action Tal	ken.*								
Release occu	rred in past	ure area just 1	00 feet no	orth of CVU 457 v	vell. Or	n discovery, va	cuum truck conta	cted and vacuume	d up the stan	ding fluids.		
Recovered 3	5 bbls of flu	ids and recov	ered liquid	ls placed hauled o	off to di	sposal. Visual	ly contaminated s	oil was excavated	up to 2 feet.	onfirm the extent		
of soil impac	son commi sts.	ation samples	were con	ected from the bas		e excavation.	All additional site	assessment was c		commune extent		
		1.1										
Analytical re	sults of the	additional ass	essment a	re attached.	lete to	the best of my	knowledge and u	nderstand that pu	suant to NM	OCD rules and		
regulations a	ll operators	are required t	o report a	nd/or file certain r	elease 1	notifications a	nd perform correct	tive actions for re	leases which	may endanger		
public health	or the envi	ronment. The	acceptan	ce of a C-141 repo	ort by th	ne NMOCD m	arked as "Final R	eport" does not re	lieve the ope	rator of liability		
should their of or the enviro	operations h	ave failed to a	adequately	investigate and r	emedia	te contaminati does not reliev	on that pose a thr	eat to ground wate	er, surface wa compliance v	iter, human health		
federal, state	, or local lay	ws and/or regu	ulations.		report		e the operator of	responsionity for	compliance v	in any other		
							OIL CON	SERVATION	DIVISI	<u> </u>		
Signature:												
						Approved by	Environmental S	pecialist:				
Printed Nam	e: Luke We	lch						-				
Title: Project	Manager					Approval Dat	e:	Expiration	Date:			
E-mail Addr	ess: LWelch	@chevron.co	m			Conditions of	Approval:					
2 mail / loui						Contactions of	-pprovui.		Attached			
Date: Phone: (713) 372-0292												

Date: Ph * Attach Additional Sheets If Necessary ATTACHMENT 2.

Laboratory Analytical Results and Chain of Custody



January 29, 2013

DAVID PAGANO 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 01/22/13 16:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. 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/ga/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,

Celez D. Keine

Celey D. Keene Lab Director/Quality Manager



		Chevron - DAVID PA HCR 60 Bo	Lovington GANO ox 423		
		Lovington	NM, 00200		
		Fax To:	None		
Received:	01/22/2013			Sampling Date:	01/22/2013
Reported:	01/29/2013			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: VGWU #040 SAMPLE #1 (H300179-05)

BTEX 8021B	mg/l	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/29/2013	ND	1.81	90.3	2.00	13.2	
Toluene*	<0.050	0.050	01/29/2013	ND	1.92	96.0	2.00	13.2	
Ethylbenzene*	<0.050	0.050	01/29/2013	ND	1.99	99.7	2.00	13.4	
Total Xylenes*	<0.150	0.150	01/29/2013	ND	6.04	101	6.00	13.5	
Total BTEX	<0.300	0.300	01/29/2013	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 %	6 89.4-12	6						
Chloride, SM4500Cl-B	mg/l	(g	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11000	16.0	01/25/2013	ND	400	100	400	0.00	
TPH 8015M	mg/l	(g	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/26/2013	ND	205	103	200	19.4	
DRO >C10-C28	<10.0	10.0	01/26/2013	ND	198	99.0	200	15.1	
Surrogate: 1-Chlorooctane	90.1 %	65.2-14	0						
Surrogate: 1-Chlorooctadecane	96.4 %	63.6-15	4						

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



		Chevron - DAVID PA HCR 60 Bo	Lovington GANO ox 423 NM 88260		
		Fax To:	None		
Received:	01/22/2013			Sampling Date:	01/22/2013
Reported:	01/29/2013			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: VGWU #040 SAMPLE #2 (H300179-06)

BTEX 8021B	mg/	kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2013	ND	1.81	90.3	2.00	13.2	
Toluene*	<0.050	0.050	01/26/2013	ND	1.92	96.0	2.00	13.2	
Ethylbenzene*	<0.050	0.050	01/26/2013	ND	1.99	99.7	2.00	13.4	
Total Xylenes*	<0.150	0.150	01/26/2013	ND	6.04	101	6.00	13.5	
Total BTEX	<0.300	0.300	01/26/2013	ND					
Surrogate: 4-Bromofluorobenzene (PID	102 %	6 89.4-12	6						
Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9760	16.0	01/25/2013	ND	400	100	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	<10.0	10.0	01/24/2013	ND	205	103	200	19.4	
DRO >C10-C28	<10.0	10.0	01/24/2013	ND	198	99.0	200	15.1	
Surrogate: 1-Chlorooctane	65.6 9	65.2-14	0						
Surrogate: 1-Chlorooctadecane	80.1 9	63.6-15	4						

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



		Chevron - DAVID PA HCR 60 Bo	Lovington GANO ox 423		
		Eovington Eov. To:	Nono		
		Tax 10.	None		
Received:	01/22/2013			Sampling Date:	01/22/2013
Reported:	01/29/2013			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: VGWU #040 SAMPLE #3 (H300179-07)

BTEX 8021B	mg/l	(g	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2013	ND	1.81	90.3	2.00	13.2	
Toluene*	<0.050	0.050	01/26/2013	ND	1.92	96.0	2.00	13.2	
Ethylbenzene*	<0.050	0.050	01/26/2013	ND	1.99	99.7	2.00	13.4	
Total Xylenes*	<0.150	0.150	01/26/2013	ND	6.04	101	6.00	13.5	
Total BTEX	<0.300	0.300	01/26/2013	ND					
Surrogate: 4-Bromofluorobenzene (PID	103 %	89.4-12	6						
Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11600	16.0	01/25/2013	ND	400	100	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	<10.0	10.0	01/24/2013	ND	205	103	200	19.4	
DRO >C10-C28	<10.0	10.0	01/24/2013	ND	198	99.0	200	15.1	
Surrogate: 1-Chlorooctane	82.1 %	65.2-14)						
Surrogate: 1-Chlorooctadecane	97.2 %	63.6-15-	4						

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Celey D. Keene, Lab Director/Quality Manager



		Chevron - DAVID PA HCR 60 Bo	Lovington GANO ox 423		
		Lovington	INIM, 88200		
		Fax To:	None		
Received:	01/22/2013			Sampling Date:	01/22/2013
Reported:	01/29/2013			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: VGWU #040 SAMPLE #4 (H300179-08)

BTEX 8021B	mg/	kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2013	ND	1.81	90.3	2.00	13.2	
Toluene*	<0.050	0.050	01/26/2013	ND	1.92	96.0	2.00	13.2	
Ethylbenzene*	<0.050	0.050	01/26/2013	ND	1.99	99.7	2.00	13.4	
Total Xylenes*	<0.150	0.150	01/26/2013	ND	6.04	101	6.00	13.5	
Total BTEX	<0.300	0.300	01/26/2013	ND					
Surrogate: 4-Bromofluorobenzene (PID	103 %	6 89.4-12	6						
Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6480	16.0	01/25/2013	ND	400	100	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	<10.0	10.0	01/26/2013	ND	205	103	200	19.4	
DRO >C10-C28	<10.0	10.0	01/26/2013	ND	198	99.0	200	15.1	
Surrogate: 1-Chlorooctane	89.8 9	65.2-14	0						
Surrogate: 1-Chlorooctadecane	103 9	63.6-15	4						

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager


Analytical Results For:

		Chevron - DAVID PA HCR 60 Bo	Lovington GANO ox 423		
		Lovington	NM, 88260		
		Fax To:	None		
Received:	01/22/2013			Sampling Date:	01/22/2013
Reported:	01/29/2013			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: VGWU #040 SAMPLE #5 (H300179-09)

BTEX 8021B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2013	ND	1.81	90.3	2.00	13.2	
Toluene*	<0.050	0.050	01/26/2013	ND	1.92	96.0	2.00	13.2	
Ethylbenzene*	<0.050	0.050	01/26/2013	ND	1.99	99.7	2.00	13.4	
Total Xylenes*	<0.150	0.150	01/26/2013	ND	6.04	101	6.00	13.5	
Total BTEX	<0.300	0.300	01/26/2013	ND					
Surrogate: 4-Bromofluorobenzene (PID	101 %	6 89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9920	16.0	01/25/2013	ND	400	100	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/24/2013	ND	205	103	200	19.4	
DRO >C10-C28	<10.0	10.0	01/24/2013	ND	198	99.0	200	15.1	
Surrogate: 1-Chlorooctane	68.8 9	65.2-14	0						
Surrogate: 1-Chlorooctadecane	77.8 9	63.6-15	4						

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



Analytical Results For:

		Chevron - DAVID PA HCR 60 Bo	Lovington GANO ox 423 NM 88260		
		Fax To:	None		
Received:	01/22/2013			Sampling Date:	01/22/2013
Reported:	01/29/2013			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: VGWU #040 SAMPLE #6 (H300179-10)

BTEX 8021B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/26/2013	ND	1.81	90.3	2.00	13.2	
Toluene*	<0.050	0.050	01/26/2013	ND	1.92	96.0	2.00	13.2	
Ethylbenzene*	<0.050	0.050	01/26/2013	ND	1.99	99.7	2.00	13.4	
Total Xylenes*	<0.150	0.150	01/26/2013	ND	6.04	101	6.00	13.5	
Total BTEX	<0.300	0.300	01/26/2013	ND					
Surrogate: 4-Bromofluorobenzene (PID	102 %	6 89.4-12	6						
Chloride, SM4500Cl-B	mg/	kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12000	16.0	01/25/2013	ND	400	100	400	0.00	
TPH 8015M	mg/	kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/26/2013	ND	205	103	200	19.4	
DRO >C10-C28	<10.0	10.0	01/26/2013	ND	198	99.0	200	15.1	
Surrogate: 1-Chlorooctane	92.8 %	65.2-14	0						
Surrogate: 1-Chlorooctadecane	100 %	63.6-15	4						

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Celey D. Keene, Lab Director/Quality Manager



Notes and Definitions

I	ND	Analyte NOT DETECTED at or above the reporting limit
l	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

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager

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Received by OCD: 10/28/2019 8:04:07 AM



THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Houston 6310 Rothway Street Houston, TX 77040 Tel: (713)690-4444

TestAmerica Job ID: 600-81631-1 Client Project/Site: HES Transfer Sites, Lea County NM

For: ARCADIS U.S., Inc. 2929 Briarpark Drive Suite 300 Houston, Texas 77042

Attn: Mr. Jonathan Olsen

Authorized for release by: 11/5/2013 2:16:31 PM Cathy Upton, Data Delivery Analyst (713)690-4444 cathy.upton@testamericainc.com

Designee for

Sachin Kudchadkar, Senior Project Manager (713)690-4444 sachin.kudchadkar@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Visit us at: www.testamericainc.com Released to Imaging: 7/9/2021 2:17:22 PM

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Total Access

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Ask-

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Case Narrative

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

Job ID: 600-81631-1

Laboratory: TestAmerica Houston

Narrative

Job Narrative 600-81631-1

Comments

No additional comments.

Receipt

The samples were received on 10/25/2013 9:57 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.2° C and 5.6° C.

General Chemistry

Method(s) 9056: The matrix spike (MS) recovery for batch 119258 was outside control limits for Chloride. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 9056: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 119258 were outside control limits for Chloride. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Method(s) 9056: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 119606 were outside control limits for Chloride. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Industrial Hygiene

No analytical or quality issues were noted.

3 5

TestAmerica Job ID: 600-81631-1

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

Method	Method Description	Protocol	Laboratory	
9056	Anions, Ion Chromatography	SW846	TAL HOU	- A
Moisture	Percent Moisture	EPA	TAL HOU	
Protocol Re	ferences:			5
EPA = L	JS Environmental Protection Agency			
SW846	= "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third E	dition, November 1986 And Its Updates.		
Laboratory	References:			
TAL HO	U = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)69	90-4444		0
				0
				0
				3
				13

Protocol References:

Laboratory References:

TestAmerica Houston

Page 44 of 210

Sample Summary

TestAmerica Job ID: 600-81631-1

5

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
600-81631-15	VGWU 040-04 (102213) 2'	Solid	10/22/13 15:36	10/25/13 09:57
600-81631-16	VGWU 040-04 (102213) 5'	Solid	10/22/13 15:38	10/25/13 09:57
600-81631-17	VGWU 040-04 (102213) 10'	Solid	10/22/13 15:42	10/25/13 09:57
600-81631-18	VGWU 040-04 (102213) 15'	Solid	10/22/13 15:45	10/25/13 09:57
600-81631-19	VGWU 040-04 (102213) 20'	Solid	10/22/13 15:48	10/25/13 09:57
600-81631-20	VGWU 040-04 (102213) 25'	Solid	10/22/13 15:50	10/25/13 09:57
600-81631-21	VGWU 040-04 (102213) 30'	Solid	10/22/13 15:55	10/25/13 09:57
600-81631-22	VGWU 040-02 (102213) 2'	Solid	10/22/13 16:06	10/25/13 09:57
600-81631-23	VGWU 040-02 (102213) 5'	Solid	10/22/13 16:07	10/25/13 09:57
600-81631-24	VGWU 040-02 (102213) 10'	Solid	10/22/13 16:10	10/25/13 09:57
600-81631-25	VGWU 040-02 (102213) 15'	Solid	10/22/13 16:14	10/25/13 09:57
600-81631-26	VGWU 040-02 (102213) 20'	Solid	10/22/13 16:18	10/25/13 09:57
600-81631-27	VGWU 040-02 (102313) 25'	Solid	10/23/13 09:57	10/25/13 09:57
600-81631-28	VGWU 040-02 (102313) 30'	Solid	10/23/13 10:20	10/25/13 09:57
600-81631-29	VGWU 040-01 (102313) 2'	Solid	10/23/13 10:29	10/25/13 09:57
600-81631-30	VGWU 040-01 (102313) 5'	Solid	10/23/13 10:31	10/25/13 09:57
600-81631-31	VGWU 040-01 (102313) 10'	Solid	10/23/13 10:33	10/25/13 09:57
600-81631-32	VGWU 040-01 (102313) 15'	Solid	10/23/13 10:36	10/25/13 09:57
600-81631-33	VGWU 040-01 (102313) 20'	Solid	10/23/13 10:38	10/25/13 09:57
600-81631-34	VGWU 040-01 (102313) 25'	Solid	10/23/13 10:41	10/25/13 09:57
600-81631-35	VGWU 040-01 (102313) 30'	Solid	10/23/13 10:45	10/25/13 09:57
600-81631-36	VGWU 040-03 (102313) 2'	Solid	10/23/13 10:59	10/25/13 09:57
600-81631-37	VGWU 040-03 (102313) 5'	Solid	10/23/13 11:01	10/25/13 09:57
600-81631-38	VGWU 040-03 (102313) 10'	Solid	10/23/13 11:03	10/25/13 09:57
600-81631-39	VGWU 040-03 (102313) 15'	Solid	10/23/13 11:07	10/25/13 09:57
600-81631-40	VGWU 040-03 (102313) 20'	Solid	10/23/13 11:10	10/25/13 09:57
600-81631-41	VGWU 040-03 (102313) 25'	Solid	10/23/13 11:15	10/25/13 09:57
600-81631-42	VGWU 040-03 (102313) 30'	Solid	10/23/13 11:18	10/25/13 09:57
600-81631-50	VGWU 040-06 (102313) 2'	Solid	10/23/13 12:13	10/25/13 09:57
600-81631-51	VGWU 040-06 (102313) 5'	Solid	10/23/13 12:15	10/25/13 09:57
600-81631-52	VGWU 040-06 (102313) 10'	Solid	10/23/13 12:18	10/25/13 09:57
600-81631-53	VGWU 040-06 (102313) 15'	Solid	10/23/13 12:24	10/25/13 09:57
600-81631-54	VGWU 040-06 (102313) 20'	Solid	10/23/13 12:26	10/25/13 09:57
600-81631-55	VGWU 040-06 (102313) 25'	Solid	10/23/13 12:28	10/25/13 09:57
600-81631-56	VGWU 040-06 (102313) 30'	Solid	10/23/13 12:30	10/25/13 09:57
600-81631-57	VGWU 040-05 (102313) 2'	Solid	10/23/13 12:46	10/25/13 09:57
600-81631-58	VGWU 040-05 (102313) 5'	Solid	10/23/13 12:47	10/25/13 09:57
600-81631-59	VGWU 040-05 (102313) 10'	Solid	10/23/13 12:49	10/25/13 09:57
600-81631-60	VGWU 040-05 (102313) 15'	Solid	10/23/13 12:53	10/25/13 09:57
600-81631-61	VGWU 040-05 (102313) 20'	Solid	10/23/13 12:55	10/25/13 09:57
600-81631-62	VGWU 040-05 (102313) 25'	Solid	10/23/13 12:56	10/25/13 09:57
600-81631-63	VGWU 040-05 (102313) 30'	Solid	10/23/13 12:58	10/25/13 09:57
600-81631-64	VGWU 040-07 (102313) 2'	Solid	10/23/13 13:14	10/25/13 09:57
600-81631-65	VGWU 040-07 (102313) 5'	Solid	10/23/13 13:16	10/25/13 09:57
600-81631-66	VGWU 040-07 (102313) 10'	Solid	10/23/13 13:17	10/25/13 09:57
600-81631-67	VGWU 040-07 (102313) 15'	Solid	10/23/13 13:18	10/25/13 09:57
600-81631-68	VGWU 040-07 (102313) 20'	Solid	10/23/13 13:20	10/25/13 09:57
600-81631-69	VGWU 040-07 (102313) 25'	Solid	10/23/13 13:24	10/25/13 09:57
600-81631-70	VGWU 040-07 (102313) 30'	Solid	10/23/13 13:27	10/25/13 09:57
600-81631-85	VGWU 040-08 (102313) 2'	Solid	10/23/13 14:43	10/25/13 09:57
600-81631-86	VGWU 040-08 (102313) 5'	Solid	10/23/13 14:44	10/25/13 09:57
600-81631-87	VGWU 040-08 (102313) 10'	Solid	10/23/13 14:48	10/25/13 09:57
600-81631-88	VGWU 040-08 (102313) 15'	Solid	10/23/13 14:50	10/25/13 09:57

TestAmerica Houston

Released to Imaging: 7/9/2021 2:17:22 PM

Sample Summary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	
600-81631-89	VGWU 040-08 (102313) 20'	Solid	10/23/13 14:54	10/25/13 09:57	
600-81631-90	VGWU 040-08 (102313) 25'	Solid	10/23/13 14:57	10/25/13 09:57	
600-81631-91	VGWU 040-08 (102313) 30'	Solid	10/23/13 14:58	10/25/13 09:57	5
600-81631-99	VGWU 040-09 (102313) 2'	Solid	10/23/13 15:47	10/25/13 09:57	່ວ
600-81631-100	VGWU 040-09 (102313) 5'	Solid	10/23/13 15:48	10/25/13 09:57	
600-81631-101	VGWU 040-09 (102313) 10'	Solid	10/23/13 15:50	10/25/13 09:57	
600-81631-102	VGWU 040-09 (102313) 15'	Solid	10/23/13 15:53	10/25/13 09:57	
600-81631-103	VGWU 040-09 (102313) 20'	Solid	10/23/13 15:56	10/25/13 09:57	
600-81631-104	VGWU 040-09 (102313) 25'	Solid	10/23/13 15:58	10/25/13 09:57	
600-81631-105	VGWU 040-09 (102313) 30'	Solid	10/23/13 16:00	10/25/13 09:57	8
					Q
					3

TestAmerica Houston

TestAmerica Job ID: 600-81631-1

Client Sample Results

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM TestAmerica Job ID: 600-81631-1

Client Sample ID: VGWU 040- Date Collected: 10/22/13 15:36 Date Received: 10/25/13 09:57	04 (102213)) 2'					Lab Sam	ple ID: 600-81 Matri	631-15 ix: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.0		1.0		%		· ·	10/28/13 08:43	1
Percent Solids	94		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1700		43		mg/Kg	ւ.		10/29/13 23:49	10
Client Sample ID: VGWU 040-	04 (102213)) 5'					Lab Sam	ple ID: 600-81	631-16
Date Collected: 10/22/13 15:38 Date Received: 10/25/13 09:57								Matri	ix: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.9		1.0		%			10/28/13 08:43	1
Percent Solids	91		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5200		440		mg/Kg			10/30/13 00:44	100
Client Sample ID: VGWU 040- Date Collected: 10/22/13 15:42 Date Received: 10/25/13 09:57	04 (102213)) 10'					Lab Samı	ple ID: 600-81 Matri	631-17 ix: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.9		1.0		%			10/28/13 08:43	1
Percent Solids	94		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble		• •				_			
	Result	Qualifier		MDL	Unit	— –	Prepared	Analyzed	DILFac
Chloride	360		4.3		mg/Kg	¥.		10/30/13 01:02	1
Client Sample ID: VGWU 040- Date Collected: 10/22/13 15:45	04 (102213)) 15'					Lab Sam	ple ID: 600-81 Matri	631-18 ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.5		1.0		%			10/28/13 08:43	1
Percent Solids	92		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	93		4.3		mg/Kg	¢		10/30/13 01:20	1

5 6

Client Sample ID: VGWU 040-04 (102213) 20'

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-19

5 6 7

Date Collected: 10/22/13 15:48 Date Received: 10/25/13 09:57								Matri	ix: Solid
General Chemistry	Posult	Qualifier	DI	Ы	Unit	D	Propared	Applyzod	Dil Eac
Percent Meieture			1.0		0/m		Flepaleu	10/28/13 08:43	
Percent Moisture	0.3		1.0		70 0/			10/28/13 08:43	1
Percent Solids	94		1.0		70			10/20/13 00.43	I
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	23		4.3		mg/Kg	<u></u>		10/30/13 01:38	1
Client Sample ID: VGWU 040-	04 (102213)	25'					Lab Sami	ole ID: 600-81	631-20
Date Collected: 10/22/13 15:50		-						Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	12		1.0		%		· ·	10/28/13 08:43	1
Percent Solids	88		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	71		4.5		mg/Kg	₿ ¢		10/30/13 01:57	1
Date Collected: 10/22/13 15:55 Date Received: 10/25/13 09:57 General Chemistry								Matri	ix: Solid
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	DILFac
Percent Moisture	7.6		1.0		%			10/28/13 08:43	1
Percent Solids	92		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	21		4.3		mg/Kg	<u></u>		10/30/13 02:51	1
Client Sample ID: VGWU 040- Date Collected: 10/22/13 16:06 Date Received: 10/25/13 09:57	02 (102213)) 2'					Lab Sam	ole ID: 600-81 Matri	631-22 ix: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.6		1.0		%		-	10/28/13 08:43	1
Percent Solids	94		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2600		42		mg/Kg	\\\		10/30/13 03:09	10

TestAmerica Houston

Chloride

2600

Client Sample ID: VGWU 040-02 (102213) 5'

Client: ARCADIS U.S., Inc.

Date Collected: 10/22/13 16:07

Date Received: 10/25/13 09:57

Client Sample Results

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Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-23

5 6 7

General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.6		1.0		%			10/28/13 08:43	1
Percent Solids	90		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4300		440		mg/Kg	<u>\$</u>		10/30/13 03:28	100
Client Sample ID: VGWU 040-	02 (102213) 10'					Lab Sam	ple ID: 600-81	631-24
Date Collected: 10/22/13 16:10 Date Received: 10/25/13 09:57								Matri	ix: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.7		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4700		410		mg/Kg	- -		10/30/13 03:46	100
Date Collected: 10/22/13 16:14 Date Received: 10/25/13 09:57								Matri	ix: Solid
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.7		1.0		%			10/28/13 08:43	1
Percent Solids	94		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3900		420		mg/Kg	₿ ₽		10/30/13 04:04	100
Client Sample ID: VGWU 040-	02 (102213)	20'					Lab Sam	ple ID: 600-81	631-26
Date Collected: 10/22/13 16:18 Date Received: 10/25/13 09:57								Matri	ix: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.6		1.0		%			10/28/13 08:43	1
Percent Solids	93		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									

TestAmerica Houston

Analyzed

10/30/13 04:59

Chlori

Released to Imaging: 7/9/2021 2:17:22 PM

Analyte

Chloride

RL

43

MDL Unit

mg/Kg

D

₽

Prepared

Result Qualifier

2600

Dil Fac

10

Client: ARCADIS U.S., Inc.

Client Sample Results

TestAmerica Job ID: 600-81631-1

Project/Site: HES Transfer Sites, Lea	County NM								
Client Sample ID: VGWU 040- Date Collected: 10/23/13 09:57 Date Received: 10/25/13 09:57	02 (102313)	25'					Lab Samı	ole ID: 600-81 Matri	631-27 ix: Solid
General Chemistry	D#	0			11		Durante	A	D!!
	Result	Quaimer		KL		D	Prepared	Analyzeu	
Percent Moisture	3.5		1.0		70 0/			10/20/13 00.43	1
Percent Solids	97		1.0		70			10/20/13 00.43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3100		210		mg/Kg	<u></u>		10/30/13 05:17	50
Client Sample ID: VGWU 040-	02 (102313)	30'					Lah Sami	ole ID: 600-81	631-28
Date Collected: 10/23/13 10:20		,					Lub Ourin		
Date Received: 10/25/13 09:57								Wau	x. 3011u
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.9		1.0		%			10/28/13 08:43	1
Percent Solids	96		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3600		210		mg/Kg	\\\\		10/30/13 05:35	50
Client Sample ID: VGWU 040-	01 (102313)	2'					Lab Sam	ole ID: 600-81	631-29
Date Collected: 10/23/13 10:29		,						Matri	ix: Solid
Date Received: 10/25/13 09:57									
	Result	Qualifier	RI	RI	Unit	п	Prenared	Analyzed	Dil Fac
Percent Moisture	19		1.0			_ _	Tieparea	10/28/13 08:43	1
Percent Solids			1.0		%			10/28/13 08:43	1
			1.0		70			10/20/10 00:10	·
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1000		21		mg/Kg	\		10/30/13 06:30	5
Client Sample ID: VGWU 040-	01 (102313)) 5'					Lab Sam	ole ID: 600-81	631-30
Date Collected: 10/23/13 10:31		·						Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.0		1.0		%			10/28/13 08:43	1
Percent Solids	96		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2100		21		mg/Kg	<u></u>		10/30/13 06:48	5

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

Client Sample ID: VGWU 040-	01 (102313)) 10'					Lab Sam	ole ID: 600-81	631-31	
Date Collected: 10/23/13 10:33							Matrix: Solid			
Date Received: 10/25/13 09:57								inati		
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	6.3		1.0		%			10/28/13 08:43	1	
Percent Solids	94		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	400		8.5		mg/Kg	¢		10/30/13 07:06	2	
Client Sample ID: VGWU 040-	01 (102313) 15'					Lab Sam	ole ID: 600-81	631-32	
Date Collected: 10/23/13 10:36								Matri	ix: Solid	
Date Received: 10/25/13 09:57										
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	5.3		1.0		%			10/28/13 08:43	1	
Percent Solids	95		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	350		4.2		mg/Kg	⇒		10/30/13 07:24	1	
Date Received: 10/25/13 09:57								Wath	ix. 30iiu	
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	7.6	· ·	1.0		%			10/28/13 08:43	1	
Percent Solids	92		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	33		4.3		mg/Kg	 		10/30/13 07:42	1	
Client Sample ID: VGWU 040-	01 (102313) 25'					Lab Sam	ole ID: 600-81	631-34	
Date Collected: 10/23/13 10:41	•							Matri	ix: Solid	
Date Received: 10/25/13 09:57										
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	3.8		1.0		%			10/28/13 08:43	1	
Percent Solids	96		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	15	_	4.2	_	mg/Kg	¢		10/30/13 08:01	1	

Client Sample ID: VGWU 040-01 (102313) 30'

Client: ARCADIS U.S., Inc.

Date Collected: 10/23/13 10:45

Date Received: 10/25/13 09:57

General Chemistry

Analyte

Client Sample Results

RL

RL Unit

D

Result Qualifier

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Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-35

Prepared Analyzed Dil Fac 10/28/13 08:43 1 6

Percent Moisture	3.5		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	180		4.1		mg/Kg	<u></u>		10/30/13 08:55	1
Client Sample ID: VGWU 040-	03 (102313)) 2'					Lab Sam	ole ID: 600-81	631-36
Date Collected: 10/23/13 10:59		, ,						Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry	Beault	Qualifiar	ы	ы	Unit		Bronorod	Applyzod	
Percent Meieture		Quaimer		KL			Frepareu	40/29/12 09:42	
Percent Moisture	4.0		1.0		70 0/			10/20/13 00.43	1
Percent Solids	95		1.0		70			10/20/13 00.43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3600		210		mg/Kg	— <u> </u>		10/30/13 10:26	50
Client Sample ID: VGWU 040-	03 (102313)) 5'					Lab Sam	ole ID: 600-81	631-37
Date Collected: 10/23/13 11:01								Matri	ix: Solid
Date Received: 10/25/13 09:57									
 _									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.7		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry Soluble									
Analyte	Posult	Qualifier	PI	МПІ	Unit	п	Propared	Analyzed	Dil Eac
			8.2		ma/Ka	— –	riepaieu	10/30/13 10:45	2
Chioride	910		0.2		ng/itg			10/30/13 10.43	2
Client Sample ID: VGWU 040-	03 (102313)) 10'					Lab Sam	ole ID: 600-81	631-38
Date Collected: 10/23/13 11:03								Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry	Desult	0			1114		Description	A	D!! [
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.7		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37		4.1		mg/Kg	<u></u>		10/30/13 11:03	1

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

Client Sample ID: VGWU 040- Date Collected: 10/23/13 11:07 Date Received: 10/25/13 09:57	03 (102313)) 15'					Lab Sam	ple ID: 600-81 Matri	631-39 ix: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.8		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble	.	o				_	- ·		
Analyte	Result	Qualifier		MDL	Unit	— D	Prepared	Analyzed	Dil Fac
Chloride	23		4.1		mg/Kg	74		10/31/13 21:21	1
Client Sample ID: VGWU 040-	03 (102313)) 20'					Lab Sam	ple ID: 600-81	631-40
Date Collected: 10/23/13 11:10								Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.4		1.0		%			10/28/13 08:43	1
Percent Solids	99		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14		4.1		mg/Kg	¢		10/31/13 22:16	1
Client Sample ID: VGWU 040-	03 (102313) 25'					Lab Sam	ole ID: 600-81	631-41
Date Collected: 10/23/13 11:15	-							Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.0		1.0		%			10/28/13 08:43	1
Percent Solids	98		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.5		4.1		mg/Kg	¢		10/31/13 22:34	1
Client Sample ID: VGWU 040-	03 (102313) 30'					Lab Sam	ole ID: 600-81	631-42
Date Collected: 10/23/13 11:18								Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.8		1.0		%			10/28/13 08:43	1
Percent Solids	98		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27		4.1		mg/Kg	¤		10/31/13 22:52	1

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

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Client Sample ID: VGWU 040-	06 (102313)) 2'					Lab Sample ID: 600-81631-50 Matrix: Solid			
Date Received: 10/25/13 09:57								Wath	. O 0110	
Γ										
General Chemistry	Result	Qualifier	RI	RI	Unit	п	Prenared	Analyzed	Dil Fac	
Percent Moisture	22		1.0				Tioparoa	10/28/13 08:43	1	
Percent Solids	98		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	51		4.1		mg/Kg	¢		10/31/13 23:10	1	
Client Sample ID: VGWU 040-	06 (102313)	5'					Lah Samr		631-51	
Date Callested: 40/02/42 40:45	00 (102313)	, 5					Lab Samp			
Date Collected: 10/23/13 12:15								Matri	ix: Solid	
Date Received: 10/25/13 09:57										
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	5.8		1.0		%			10/28/13 08:43	1	
Percent Solids	94		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble	Booult	Qualifier	ы	MDI	Unit		Bronorod	Applyzod		
			<u> </u>	MDL	ma/Ka		Flepaleu	10/31/13 23:28	2	
Chionae	21		0.0		mg/rtg			10/31/13 23.20	2	
Client Sample ID: VGWU 040-	06 (102313)) 10'					Lab Samp	ole ID: 600-81 Matri	631-52	
Date Received: 10/25/13 09:57										
Gonoral Chomistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analvzed	Dil Fac	
Percent Moisture	3.8		1.0		%			10/28/13 08:43	1	
Percent Solids	96		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	6.9		4.2		mg/Kg	\\\\		11/01/13 00:23	1	
Client Sample ID: VGWU 040-	06 (102313)) 15'					Lab Sam	ole ID: 600-81	631-53	
Date Collected: 10/23/13 12:24		,						Matri	ix: Solid	
Date Received: 10/25/13 09:57										
General Chemistry	Beault	Qualifier	ы	ים	Unit	~	Droporod	Analyzad		
Analyte Percent Meieture	Kesult			KL			Prepared	40/28/13 09:42		
Percent Moisture	8.9		1.0		70 0/2			10/28/13 00.43	1	
	91		1.0		70			10/20/13 00.43	I	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	ND		4.4		mg/Kg	— \		11/01/13 00:41	1	

TestAmerica Houston

Released to Imaging: 7/9/2021 2:17:22 PM

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

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Client Sample ID: VGWU 040-06 (102313) 20'							Lab Sample ID: 600-81631-54			
te Collected: 10/23/13 12:26 te Received: 10/25/13 09:57							• • • •	Matri	x: Solid	
Date Received: 10/25/13 09:57										
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	3.8		1.0		%			10/28/13 08:43	1	
Percent Solids	96		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	6.0		4.2		mg/Kg	¢		11/01/13 00:59	1	
Client Sample ID: VGWU 040	0-06 (102313)) 25'					Lab Sam	ole ID: 600-81	631-55	
Date Collected: 10/23/13 12:28								Matri	x: Solid	
Date Received: 10/25/13 09:57										
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	4.3		1.0		%			10/28/13 08:43	1	
Percent Solids	96		1.0		%			10/28/13 08:43	1	
General Chemistry - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	7.1		4.2		mg/Kg	<u>Å</u>		11/01/13 01:18	1	
Date Collected: 10/23/13 12:30 Date Received: 10/25/13 09:57								Matri	x: Solid	
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture			1.0				rioparoa	10/28/13 08:43	1	
Percent Solids	96		1.0		%			10/28/13 08:43	1	
Conoral Chamistry Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	10		4.2		mg/Kg			11/01/13 01:36	1	
Client Sample ID: VGWU 040	05 (102212)	2'					Lab Sami		621 57	
Dete Collected: 40/22/42 42:46	-03 (102313)	/ 2					Lab Sam		v Colid	
Date Collected: 10/23/13 12:46								Matri	x: 50110	
Date Received: 10/25/13 09:57										
General Chemistry										
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Percent Moisture	1.0		1.0		%			10/28/13 08:43		
Percent Solids									1	
	99		1.0		%			10/28/13 08:43	1 1	
General Chemistry - Soluble	99		1.0		%			10/28/13 08:43	1 1	
General Chemistry - Soluble Analyte	99 Result	Qualifier	1.0	MDL	% Unit	D	Prepared	10/28/13 08:43 Analyzed	1 1 	

Client Sample ID: VGWU 040-05 (102313) 5'

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-58

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Date Collected: 10/23/13 12:47 Date Received: 10/25/13 09:57								Matri	x: Solid
General Chemistry						_			
Analyte	Result	Qualifier	RL	RL		D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.8		1.0		%			10/28/13 08:43	1
	92		1.0		70			10/20/13 00:43	'
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	53		4.3		mg/Kg	<u>Å</u>		11/01/13 02:49	1
Client Sample ID: VGWU 040-	05 (102313) 10'					Lab Sam	ole ID: 600-81	631-59
Date Collected: 10/23/13 12:49 Date Received: 10/25/13 09:57								Matri	x: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.5		1.0		%			10/28/13 08:43	1
Percent Solids	98		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.5		4.1		mg/Kg	÷		11/01/13 03:07	1
Date Collected: 10/23/13 12:53 Date Received: 10/25/13 09:57								Matri	x: Solid
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.4		1.0		%			10/28/13 08:43	1
Percent Solids	99		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride 	5.7		4.1		mg/Kg	¢		11/01/13 04:02	1
Client Sample ID: VGWU 040-0 Date Collected: 10/23/13 12:55 Date Received: 10/25/13 09:57	05 (102313)) 20'					Lab Sam	ole ID: 600-81 Matri	631-61 x: Solid
– General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.2		1.0		%			10/28/13 08:43	1
Percent Solids	98		1.0		%			10/28/13 08:43	1
– General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.0		4.1		mg/Kg	¢		11/01/13 04:20	1

Client Sample ID: VGWU 040-05 (102313) 25'

Client Sample ID: VGWU 040-05 (102313) 30'

Client Sample ID: VGWU 040-07 (102313) 2'

Client Sample ID: VGWU 040-07 (102313) 5'

Client: ARCADIS U.S., Inc.

General Chemistry

Percent Moisture

Percent Solids

Analyte

Analyte

Chloride

Analyte

Analyte

Chloride

Analyte

Analyte

Chloride

Analyte

Analyte

Chloride

Date Collected: 10/23/13 12:56 Date Received: 10/25/13 09:57

General Chemistry - Soluble

Date Collected: 10/23/13 12:58 Date Received: 10/25/13 09:57

General Chemistry - Soluble

Date Collected: 10/23/13 13:14 Date Received: 10/25/13 09:57

General Chemistry - Soluble

Date Collected: 10/23/13 13:16

Date Received: 10/25/13 09:57

General Chemistry - Soluble

General Chemistry

Percent Moisture

Percent Solids

General Chemistry

Percent Moisture

Percent Solids

General Chemistry

Percent Moisture

Percent Solids

Client Sample Results

RL

1.0

1.0

RL 4.1

RL

1.0

1.0

RL

4.2

RL 1.0

1.0

RL

21

RL

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1.0

RL

4.1

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RL Unit

%

%

mg/Kg

MDL Unit D

D

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Prepared

Prepared

Result Qualifier

Qualifier

1.6

98

Result

130

4.2

96

2400

4.9

95

6.8

3.5

97

7.1

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TestAmerica Job ID: 600-81631-1

Lab Cample ID: 600 94624 62

			Lab Samp	Die ID: 000-0 I Matri	031-02 x: Solid	
				matri		
ы	Unit		Branarad	Apolyzod		5
	0/m		Frepareu	Analyzeu		
	%			10/28/13 08:43	1	6
						7
IDL	Unit	D	Prepared	Analyzed	Dil Fac	_
	mg/Kg	\$		11/01/13 04:38	1	8
			Lab Samp	ole ID: 600-81	631-63	Q
				Matri	x: Solid	
RL	Unit	D	Prepared	Analyzed	Dil Fac	
	%			10/28/13 08:43	1	
	%			10/28/13 08:43	1	
1DL	Unit	D	Prepared	Analyzed	Dil Fac	13
	mg/Kg			11/01/13 04:56	1	
			Lab Samp	ole ID: 600-81	631-64	
				Matri	x: Solid	
RL	Unit	D	Prepared	Analyzed	Dil Fac	
	%			10/28/13 08:43	1	
	%			10/28/13 08:43	1	
IDL	Unit	D	Prepared	Analyzed	Dil Fac	
	mg/Kg	— <u> </u>	•	11/01/13 05:14	5	

TestAmerica Houston

Lab Sample ID: 600-81631-65

Analyzed

10/28/13 08:43

10/28/13 08:43

Analyzed

11/01/13 05:51

Matrix: Solid

Dil Fac

Dil Fac

1

1

1

Client Sample ID: VGWU 040-07 (102313) 10'

Client: ARCADIS U.S., Inc.

Date Collected: 10/23/13 13:17

Client Sample Results

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Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-66

Date Received: 10/25/13 09:57									
	Posult	Qualifier	PI	PI	Unit	п	Propared	Analyzod	Dil Eac
Parcent Maisture	3.5		1.0				Trepared		1
Percent Solide	97		1.0		%			10/28/13 08:43	1
	57		1.0		70			10/20/13 00.43	
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	33		4.1		mg/Kg	<u></u>		11/01/13 06:45	1
Client Sample ID: VGWU 040-	07 (102313) 15'					Lab Sami	ole ID: 600-81	631-67
Date Collected: 10/23/13 13:18		, ,						Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.4		1.0		%			10/28/13 08:43	1
Percent Solids	95		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	96		4.2		mg/Kg	<u></u>		11/01/13 08:16	1
Client Sample ID: VGWU 040-	07 (102313	20'					Lab Sam	ole ID: 600-81	631-68
Date Collected: 10/23/13 13:20		-						Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry		0.115				_	<u> </u>		
Analyte	Result	Qualifier	RL	RL		D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.1		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14		4.1		mg/Kg	Å		11/01/13 08:35	1
Client Sample ID: VGWU 040-	07 (102313) 25'					Lab Sam	ole ID: 600-81	631-69
Date Collected: 10/23/13 13:24								Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.9		1.0		%			10/28/13 08:43	1
Percent Solids	96		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble		• • • •				_	_ .		
Analyte	Result	Qualifier	RL	MDL	Unit	— D	Prepared	Analyzed	Dil Fac
Chloride	8.1		4.2		mg/Kg	ф.		11/01/13 08:53	1

Client Sample Results

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TestAmerica Job ID: 600-81631-1

Client Sample ID: VGWU 040-07 (102313) 30'	
Project/Site: HES Transfer Sites, Lea County NM	
Client: ARCADIS U.S., Inc.	

Lab Sample ID: 600-81631-70

Date Collected: 10/23/13 13:27 Date Received: 10/25/13 09:57								Matri	x: Solic
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.3		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.3		4.1		mg/Kg	₽		11/02/13 00:33	1
Client Sample ID: VGWU 040-	08 (102313)) 2'					Lab Sam	ole ID: 600-81	631-85
Date Collected: 10/23/13 14:43								Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.3		1.0		%			10/28/13 08:43	1
Percent Solids	97		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2000		21		mg/Kg	¢.		11/02/13 01:28	5
Date Received: 10/25/13 09:57 General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.1		1.0		%			10/28/13 08:43	1
Percent Solids	94		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	700		8.5		mg/Kg	¢		11/02/13 01:46	2
Client Sample ID: VGWU 040-	08 (102313)) 10'					Lab Sam	ole ID: 600-81	631-87
Date Collected: 10/23/13 14:48								Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.3		1.0		%			10/28/13 08:43	1
Percent Solids	92		1.0		%			10/28/13 08:43	1
– General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

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Client Sample ID: VGWU 040-	08 (102313) 15'					Lab Sam	ole ID: 600-81	631-88
Date Collected: 10/23/13 14:50	•	, ,						Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13		1.0		%			10/28/13 08:43	1
Percent Solids	87		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		4.6		mg/Kg	æ		11/02/13 02:23	1
Client Sample ID: VGWU 040-	08 (102313) 20'					Lab Sam	ole ID: 600-81	631-89
Date Collected: 10/23/13 14:54								Matri	ix: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.7		1.0		%			10/28/13 08:43	1
Percent Solids	95		1.0		%			10/28/13 08:43	1
Concret Chemistry Soluble									
Analyte	Posult	Qualifier	DI	МПІ	Unit	п	Propared	Analyzod	Dil Eac
					ma/Ka	— ~	riepareu	11/02/13 02:41	1
	40		7.2		ing/itg			11/02/13 02.41	
Client Sample ID: VGWU 040-	08 (102313	25'					Lab Sam	ole ID: 600-81	631-90
Data Collected: 10/22/12 14:57		, 20					Lab Gam	Motri	
Date Collected: 10/23/13 14:57								watri	x: 50110
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.5		1.0		%			10/28/13 08:43	1
Percent Solids	96		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	130		4.2		mg/Kg	<u>Å</u>		11/02/13 03:35	1
Client Sample ID: VGWU 040-	08 (102313)	30'					Lab Sam	ole ID: 600-81	631-91
Date Collected: 10/23/13 14:58		,						Matri	iv: Solid
Date Received: 10/25/13 09:57								matri	
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analvzed	Dil Fac
Percent Moisture	74		1.0		%			10/28/13 08:43	1
Percent Solids	03		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble	_					_		_	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	61		4.3		mg/Kg	¢		11/02/13 03:54	1

Client: ARCADIS U.S., Inc.

Client Sample Results

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TestAmerica Job ID: 600-81631-1

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Client Sample ID: VGWU 040	-09 (102313) 2'					Lab Sam	ole ID: 600-81	631-99
Date Collected: 10/23/13 15:47	•						Matri	x: Solid	
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.5		1.0		%			10/28/13 08:43	1
Percent Solids	95		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2500		42		mg/Kg	¢		11/02/13 04:12	10
Client Sample ID: VGWU 040	-09 (102313)) 5'					Lab Samp	e ID: 600-816	31-100
Date Collected: 10/23/13 15:48								Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.3		1.0		%			10/28/13 08:43	1
Percent Solids	98		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1800		20		mg/Kg			11/02/13 04:30	5
Client Sample ID: VGWU 040 Date Collected: 10/23/13 15:50 Date Received: 10/25/13 09:57	-09 (102313)) 10'					Lab Samp	le ID: 600-816 Matri	31-101 x: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.3		1.0		%			10/28/13 08:43	1
Percent Solids	96		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	900		8.4		mg/Kg	<u></u>		11/02/13 04:48	2
Client Sample ID: VGWU 040	-09 (102313) 15'					Lab Samp	e ID: 600-816	31-102
Date Collected: 10/23/13 15:53								Matri	x: Solid
Date Received: 10/25/13 09:57									
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.8		1.0		%			10/28/13 08:43	1
Percent Solids	90		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2300		22		mg/Kg	<u>☆</u>		11/02/13 05:43	5

Client Sample Results

5 6 7

TestAmerica Job ID: 600-81631-1

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

Client Sample ID: VGWU 040-0	Lab Sample ID: 600-81631-103								
Date Collected: 10/23/13 15:56 Date Received: 10/25/13 09:57								Matri	x: Solid
General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.9		1.0		%			10/28/13 08:43	1
Percent Solids	91		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	580		8.8		mg/Kg	¢		11/02/13 06:01	2
Client Sample ID: VGWU 040-	09 (102313)) 25'					Lab Sampl	e ID: 600-816	31-104
Date Collected: 10/23/13 15:58								Matri	x: Solid
Date Received: 10/25/13 09:57									
– General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.6		1.0		%			10/28/13 08:43	1
Percent Solids	93		1.0		%			10/28/13 08:43	1
General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	70		4.3		mg/Kg	<u>Å</u>		11/02/13 06:19	1
Client Sample ID: VGWU 040-0	09 (102313)) 30'					Lab Sampl	e ID: 600-816	31-105
Date Collected: 10/23/13 16:00							-	Matri	x: Solid
Date Received: 10/25/13 09:57									
– General Chemistry									
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.5		1.0		%			10/28/13 08:43	1
Percent Solids	95		1.0		%			10/28/13 08:43	1
– General Chemistry - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	130		4.2		mg/Kg	<u></u>		11/02/13 07:14	1

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RER

Definitions/Glossary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

TestAmerica Job ID: 600-81631-1 Qualifiers **General Chemistry** Qualifier **Qualifier Description** MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable. MS/MSD Recovery and/or RPD exceeds the control limits Glossary 7 Abbreviation These commonly used abbreviations may or may not be present in this report. Listed under the "D" column to designate that the result is reported on a dry weight basis %R Percent Recovery CNF Contains no Free Liquid DER Duplicate error ratio (normalized absolute difference)

Dil Fac	Dilution Factor	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision level concentration	
MDA	Minimum detectable activity	
EDL	Estimated Detection Limit	
MDC	Minimum detectable concentration	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
NC	Not Calculated	
ND	Not detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	

RL	Reporting Limit or Requested Limit (Rad	liochemistry)		
		.	 	

RPD Relative Percent Difference, a measure of the relative difference between two points

- TEF Toxicity Equivalent Factor (Dioxin)
- TEQ Toxicity Equivalent Quotient (Dioxin)

Relative error ratio

QC Sample Results

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM TestAmerica Job ID: 600-81631-1

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Method: 9056 - Anions, Ion Chromatography Lab Sample ID: MB 600-119139/1-A **Client Sample ID: Method Blank** Matrix: Solid Prep Type: Soluble Analysis Batch: 119258 MB MB Result Qualifier RL MDL Unit D Dil Fac Analyte Prepared Analvzed 4.0 10/29/13 23:13 Chloride ND mg/Kg Lab Sample ID: MB 600-119139/27-A **Client Sample ID: Method Blank** Matrix: Solid **Prep Type: Soluble** Analysis Batch: 119258 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac Chloride ND 4.0 mg/Kg 10/30/13 08:19 Lab Sample ID: LCS 600-119139/28-A **Client Sample ID: Lab Control Sample** Matrix: Solid **Prep Type: Soluble** Analysis Batch: 119258 Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Chloride 200 197 mg/Kg 98 90 - 110 Lab Sample ID: LCS 600-119139/2-A **Client Sample ID: Lab Control Sample** Matrix: Solid **Prep Type: Soluble** Analysis Batch: 119258 Analyte Chlorid Lab Sample ID: 600-81631-15 MS Client Sample ID: VGWU 040-04 (102213) 2' Matrix: Solid Prep Type: Soluble Analysis Batch: 119258 Sample Sample Spike MS MS %Rec. Added Analyte Result Qualifier Result Qualifier Unit D Limits %Rec Chloride 1700 1060 F 80 - 120 2570 mg/Kg 78 Lab Sample ID: 600-81631-15 MSD Client Sample ID: VGWU 040-04 (102213) 2' Matrix: Solid **Prep Type: Soluble** Analysis Batch: 119258 Spike MSD MSD RPD Sample Sample %Rec. Result Qualifier Added Result Qualifier Analyte Unit D %Rec Limits RPD Limit ☆ 1060 82 Chloride 1700 2600 mg/Kg 80 - 120 1 20 Lab Sample ID: 600-81631-25 MS Client Sample ID: VGWU 040-02 (102213) 15' Matrix: Solid **Prep Type: Soluble** Analysis Batch: 119258 MS MS Sample Sample Spike %Rec. Added Analyte Result Qualifier Result Qualifier Unit D %Rec Limits ö Chloride 3900 10600 13500 mg/Kg 90 80 - 120 Lab Sample ID: 600-81631-25 MSD Client Sample ID: VGWU 040-02 (102213) 15' Matrix: Solid **Prep Type: Soluble** Analysis Batch: 119258 Spike MSD MSD %Rec. RPD Sample Sample Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit

	Spike	LCS	LCS				%Rec.	
e	Added	Result	Qualifier	Unit	D	%Rec	Limits	
e	200	198		mg/Kg		99	90 _ 110	

Chloride 10600 Ř 90 3900 13400 mg/Kg 80 - 120 1 20

QC Sample Results

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites	Lea County M	NM						TestAm	erica Job ID: 6	300-81631-1
		NIVI								
Lab Sample ID: 600-81631-35	MS					Clier	nt Sam	ple ID: V	GWU 040-01	(102313) 30'
Matrix: Solid									Prep Ty	pe: Soluble
Analysis Batch: 119258	Commis	Comula	Calka		MO				% D = =	
Amelute	Sample	Sample	Spike	Ma	o Mio	11		% Dee	%Rec.	
		Qualifier	Added	Resul			<u>ש</u>	%Rec	Limits	
Chionae	180		104	254		mg/Kg	**	75	80 - 120	
Lab Sample ID: 600-81631-35	MSD					Clier	nt Sam	ple ID: V	GWU 040-01	(102313) 30'
Matrix: Solid									Prep Ty	pe: Soluble
Analysis Batch: 119258										
	Sample	Sample	Spike	MSE	MSD				%Rec.	RPD
Analyte	Result	Qualifier	Added	Resul	t Qualifier	Unit	D	%Rec	Limits	RPD Limit
Chloride	180		104	257	ſ F	mg/Kg	\$	78	80 - 120	1 20
Lab Sample ID: MB 600-11922	29/1-Δ							Client	Sample ID: M	ethod Blank
Matrix: Solid								onone	Pren Ty	ne: Soluble
Analysis Batch: 119416									The Fig	pe. Oolubie
Analysis Batch. 119410		МВ МВ								
Analyte	R	esult Qualifier		RL	MDL Unit		р і	Prepared	Analyzed	Dil Fac
Chloride				4.0	mg/l	Kg		···puiou	10/31/13 20	:45 1
					0	0				
Lab Sample ID: MB 600-11922	29/27-A							Client S	Sample ID: Me	ethod Blank
Matrix: Solid									Prep Ty	pe: Soluble
Analysis Batch: 119416										
		MB MB								
Analyte	R	esult Qualifier		RL	MDL Unit		DI	Prepared	Analyzed	Dil Fac
Chloride		ND		4.0	mg/l	٢g			11/01/13 06	.09 1
Lab Sample ID: LCS 600-1192	29/28-A						Clien	t Sample	e ID: Lab Con	trol Sample
Matrix: Solid									Prep Ty	pe: Soluble
Analysis Batch: 119416										
			Spike	LCS	S LCS				%Rec.	
Analyte			Added	Resul	t Qualifier	Unit	D	%Rec	Limits	
Chloride			200	187	7	mg/Kg		94	90 - 110	
Lab Sample ID: LCS 600 1102	20/2 A						Clion	t Samal		trol Samala
Matrix: Solid	2312 - A						Clien	t Sampi	Bron Tu	no: Solublo
Analysis Batch: 119416									Fiep iy	pe. Soluble
Analysis Batch. 119410			Snike	LCS					%Rec	
Analyte				Result	t Qualifier	Unit	п	%Rec	Limits	
Chloride			200	196	<u> </u>	mg/Kg		98	90 - 110	
Lab Sample ID: 600-81631-39	MS					Clier	nt Sam	ple ID: V	GWU 040-03	(102313) 15'
Matrix: Solid									Prep Ty	pe: Soluble
Analysis Batch: 119416										
	Sample	Sample	Spike	MS	6 MS				%Rec.	
Analyte	Result	Qualifier	Added	Resul	t Qualifier	Unit	D	%Rec	Limits	
Chloride	23		103	111		mg/Kg	¢	86	80 - 120	
Lab Sample ID: 600-81631-39	MSD					Clie	nt Sami	ole ID: V	GWU 040-03	(102313) 15'
Matrix: Solid									Prep Ty	pe: Soluble
Analysis Batch: 119416										
	Sample	Sample	Spike	MSE	MSD				%Rec.	RPD
Analyte	Result	Qualifier	Added	Resul	t Qualifier	Unit	D	%Rec	Limits	RPD Limit
Chloride	23		103	110)	mg/Kg	¢	85	80 - 120	1 20

QC Sample Results

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 600-81631-56 M Matrix: Solid Analysis Batch: 119416	IS					Client	Samp	le ID: V	GWU 040-0 Prep	6 (1023 ⁻ Type: S	13) 30' oluble
Analysis Batch. 113410	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	10		104	96.9		mg/Kg	<u>\$</u>	84	80 - 120		
_ Lab Sample ID: 600-81631-56 N	ISD					Client	Samp	le ID: V	GWU 040-0	6 (1023 ⁻	13) 30'
Matrix: Solid									Prep	Type: S	oluble
Analysis Batch: 119416											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	10		104	97.7		mg/Kg	¢	84	80 - 120	1	20
	IS					Client	Samp	le ID: V	GWU 040-0	7 (1023	13) 10'
Matrix: Solid									Prep	Type: S	oluble
Analysis Batch: 119416											
	Sample	Sample	Spike	MS	MS		_		%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	<u>D</u>	%Rec	Limits		
Chloride	33		104	115		mg/Kg	44 1	80	80 - 120		
Lab Sample ID: 600-81631-66 N	ISD					Client	Samp	le ID: V	GWU 040-0	7 (1023	13) 10'
Matrix: Solid									Prep	Type: S	oluble
Analysis Batch: 119416											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	33		104	116		mg/Kg	¢	81	80 - 120	1	20
	1/4 A							Client C		Mathad	Diank
Lab Sample ID: MB 600-119474	H/1-A							Client a	Bron	Method Type: S	Biank
Analysis Batch: 119606									гтер	i ype. S	oluble
Analysis Batch. 113000		МВ МВ									
Analyte	R	esult Qualifier		RL	MDL Unit	[) Р	repared	Analyz	ed	Dil Fac
Chloride		ND		4.0	mg/K	g –		-	11/01/13	23:57	1
_											
Lab Sample ID: LCS 600-11947	4/2-A										
Matrix: Solid							Client	Sample	ID: Lab C	ontrol S	ample
							Client	Sample	ID: Lab Co Prep	ontrol S Type: S	ample oluble
Analysis Batch: 119606							Client	Sample	e ID: Lab Co Prep	ontrol S Type: S	ample oluble
Analysis Batch: 119606			Spike	LCS	LCS		Client	Sample	ID: Lab Co Prep %Rec.	ontrol S Type: S	ample oluble
Analysis Batch: 119606			Spike Added	LCS Result	LCS Qualifier	Unit	Client	Sample %Rec	B ID: Lab Co Prep %Rec. Limits	ontrol S Type: S	ample oluble
Analysis Batch: 119606 Analyte Chloride			Spike Added 200	LCS Result 197	LCS Qualifier	_ <mark>Unit</mark> mg/Kg	Client	Sample %Rec 98	Prep %Rec. Limits 90 - 110	ontrol S Type: S	ample oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N			Spike Added 200	LCS Result 197	LCS Qualifier	- Unit mg/Kg	Client	Sample %Rec 98	• ID: Lab C Prep %Rec. Limits 90 - 110	ontrol S Type: S	ample oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid	15		Spike Added 200	LCS Result 197	LCS Qualifier	Unit mg/Kg Client	Client	Sample %Rec 98	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep	ontrol S Type: S 7 (1023 Type: S	ample oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606	15		Spike Added 200	LCS Result 197	LCS Qualifier	Unit mg/Kg Client	Client	Sample %Rec 98	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep	7 (1023 ⁻⁷ Type: S	ample oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 M Matrix: Solid Analysis Batch: 119606	1S Sample	Sample	Spike Added 200 Spike	LCS Result 197 MS	LCS Qualifier	Unit mg/Kg Client	Client	Sample %Rec 98	e ID: Lab C Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec.	7 (1023) Type: S	ample oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606 Analyte	IS Sample Result	Sample Qualifier	Spike Added 200 Spike Added	LCS Result 197 MS Result	LCS Qualifier MS Qualifier	Unit mg/Kg Client	Client D Samp	Sample %Rec 98 le ID: V0 %Rec	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits	7 (1023 ⁻ Type: S	ample oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606 Analyte Chloride	IS Sample Result 9.3	Sample Qualifier	Spike 200 Spike Added 103	LCS Result 197 MS Result 96.9	LCS Qualifier MS Qualifier	- Unit mg/Kg Client	Client D Samp D Samp	Sample %Rec 98 le ID: V0 %Rec 85	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits 80 - 120	7 (1023 Type: S	ample oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 M Matrix: Solid Analysis Batch: 119606 Analyte Chloride	IS Sample Result 9.3	Sample Qualifier	Spike Added 200 Spike Added 103	LCS Result 197 MS Result 96.9	LCS Qualifier MS Qualifier	Unit mg/Kg Client Unit mg/Kg	Client D Samp D	Sample %Rec 98 le ID: V0 %Rec 85	Bill: Lab Constraints %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits 80 - 120	7 (1023) 7 (1023) 7 (1023) 7 (1023)	ample oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid	IS Sample Result 9.3	Sample Qualifier	Spike Added 200 Spike Added 103	LCS Result 197 MS Result 96.9	LCS Qualifier MS Qualifier	Unit mg/Kg Client Unit mg/Kg Client	Client D Samp D x Samp	Sample %Rec 98 Ie ID: V0 %Rec 85 Ie ID: V0	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits 80 - 120 GWU 040-0	7 (1023) 7 (1023) 7 (1023)	ample oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606	IS Sample Result 9.3	Sample Qualifier	Spike Added 200 Spike Added 103	LCS Result 197 MS Result 96.9	LCS Qualifier MS Qualifier	Unit mg/Kg Client Unit mg/Kg Client	Client D Samp D Samp	%Rec 98 98 98 1e ID: V0 %Rec 85 95	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits 80 - 120 GWU 040-0 Prep	7 (1023 ⁻ 7 (1023 ⁻ 7 (1023 ⁻ 7 (1023 ⁻ 7 (1023 ⁻ 7 (1023 ⁻	ample oluble 13) 30' oluble 13) 30' oluble
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 M Matrix: Solid Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 M Matrix: Solid Analysis Batch: 119606	IS Sample Result 9.3 ISD Sample	Sample Qualifier	Spike 200 Spike Added 103 Spike	LCS Result 197 MS Result 96.9	LCS Qualifier MS Qualifier	Unit mg/Kg Client Unit mg/Kg Client	Client D Samp D S	Sample %Rec 98 le ID: V0 %Rec 85 le ID: V0	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits 80 - 120 GWU 040-0 Prep %Rec.	7 (1023 [,] 7 (1023 [,] 7 (1023 [,] 7 (1023 [,] 7 (1023 [,] 7 (1023 [,] 7 (1023 [,]	ample oluble 13) 30' oluble 13) 30' oluble RPD
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 M Matrix: Solid Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 M Matrix: Solid Analysis Batch: 119606 Analyte	IS Sample Result 9.3 ISD Sample Result	Sample Qualifier	Spike Added 200 Spike Added 103 Spike Added	LCS Result 197 MS Result 96.9 MSD Result	LCS Qualifier MS Qualifier MSD Qualifier	Unit Unit Unit Unit Unit	Client D Samp D Samp	Sample %Rec 98 le ID: V(%Rec %Rec	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits 80 - 120 GWU 040-0 Prep %Rec. Limits	7 (1023 7 (1023) 7 (1023) 7 (1023) 7 (1023) 7 (1023) 7 (1023) 7 (1023)	ample oluble 13) 30' oluble 13) 30' oluble RPD Limit
Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606 Analyte Chloride Lab Sample ID: 600-81631-70 N Matrix: Solid Analysis Batch: 119606 Analyte Chloride	IS Sample Result 9.3 ISD Sample Result 9.3	Sample Qualifier Sample Qualifier	Spike Added 200 Spike Added 103 Spike Added 103	LCS Result 197 MS Result 96.9 MSD Result 98.1	LCS Qualifier MS Qualifier MSD Qualifier	Unit mg/Kg Client Unit mg/Kg Client	Client D_ Samp D_ Samp D_ 	Sample %Rec 98 le ID: V0 %Rec 85 le ID: V0 %Rec 85 le ID: V0 %Rec 85	e ID: Lab Co Prep %Rec. Limits 90 - 110 GWU 040-0 Prep %Rec. Limits 80 - 120 GWU 040-0 Prep %Rec. Limits 80 - 120	ontrol S Type: S 7 (1023' Type: S 7 (1023' Type: S	ample oluble 13) 30' oluble 13) 30' oluble RPD Limit 20

TestAmerica Houston

TestAmerica Job ID: 600-81631-1

Client: ARCADIS U.S., Inc.

QC Sample Results

TestAmerica Job ID: 600-81631-1

_											
Lab Sample ID: 600-81631-101 MS						Client	Samp	ole ID: V	GWU 040-0	9 (1023 [,]	13) 10'
Matrix: Solid									Prep	Type: S	oluble
Analysis Batch: 119606											
	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	900		209	998	4	mg/Kg	¢	47	80 - 120		
Lab Sample ID: 600-81631-101 MSI	C					Client	Samp	ole ID: V	GWU 040-0	9 (1023 [,]	13) 10'
Matrix: Solid									Prep	Type: S	oluble
Analysis Batch: 119606											
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	900		209	1010	4	mg/Kg	ÿ	51	80 - 120	1	20
Method: Moisture - Percent Me	oisture										
- Lab Sample ID: 600-81631-16 DU						Clier	nt Sam	ple ID: \	VGWU 040-	-04 (1022	213) 5'
Matrix: Solid									Prep T	ype: To	tal/NA
Analysis Batch: 119025											
-	Sample	Sample		DU	DU						RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Limit
Percent Moisture	8.9			10		%				11	20
Percent Solids	91			90		%				1	20
Lab Sample ID: 600-81631-25 DU						Client	Samp	ole ID: V	GWU 040-0	2 (1022 [,]	13) 15'
Matrix: Solid									Prep T	ype: To	tal/NA
Analysis Batch: 119025											
	Sample	Sample		DU	DU						RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Limit
Percent Moisture	5.7			4.8		%				17	20
Percent Solids	94			95		%				0.9	20
- Lab Sample ID: 600-81631-36 DU						Clier	nt Sam	ple ID: \	VGWU 040-	-03 (1023	313) 2'
Matrix: Solid									Prep T	ype: To	tal/NA
Analysis Batch: 119025											
	Sample	Sample		DU	DU						RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Limit
Percent Moisture	4.8			4.6		%				4	20
Percent Solids	95			95		%				0.2	20
Lab Sample ID: 600-81631-53 DU						Client	Samp	ole ID: V	GWU 040-0	6 (1023 [,]	13) 15'
Matrix: Solid									Prep T	ype: To	tal/NA
Analysis Batch: 119025											
	Sample	Sample		DU	DU						RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Limit
Percent Moisture	8.9			8.8		%				0.5	20
Percent Solids	91			91		%				0.05	20
Lab Sample ID: 600-81631-63 DU Matrix: Solid						Client	Samp	ole ID: V	GWU 040-0 Prep T	5 (1023 [,] ype: To	13) 30' tal/NA
Analysis Batch: 119025										-	
	Sample	Sample		DU	DU						RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Limit

TestAmerica Houston

a

%

%

4.9

95

Percent Moisture

Percent Solids

5.1

95

4

0.2

20

20

QC Sample Results

TestAmerica Job ID: 600-81631-1

Method: Moisture - Percent Moisture (Continued)

Lab Sample ID: 600-81631-87 DU Matrix: Solid Analysis Batch: 119025					Clien	t Sample ID: \	VGWU 040-08 (1023 [,] Prep Type: To	13) 10' tal/NA
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	8.3		7.9		%		4	20
Percent Solids	92		92		%		0.4	20
- Lab Sample ID: 600-81631-104 DU					Clien	t Sample ID: \	VGWU 040-09 (1023 [,]	13) 25'
Matrix: Solid							Prep Type: To	tal/NA
Analysis Batch: 119025								
-	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	6.6		6.5		%		1	20
Percent Solids	93		93		%		0.08	20

5

QC Association Summary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

General	Chemistry
Contonan	U i i i i i i i i i i i i i i i i i i i

Analysis Batch: 119025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-15	VGWU 040-04 (102213) 2'	Total/NA	Solid	Moisture	
600-81631-16	VGWU 040-04 (102213) 5'	Total/NA	Solid	Moisture	
600-81631-16 DU	VGWU 040-04 (102213) 5'	Total/NA	Solid	Moisture	
600-81631-17	VGWU 040-04 (102213) 10'	Total/NA	Solid	Moisture	
600-81631-18	VGWU 040-04 (102213) 15'	Total/NA	Solid	Moisture	
600-81631-19	VGWU 040-04 (102213) 20'	Total/NA	Solid	Moisture	
600-81631-20	VGWU 040-04 (102213) 25'	Total/NA	Solid	Moisture	
600-81631-21	VGWU 040-04 (102213) 30'	Total/NA	Solid	Moisture	
600-81631-22	VGWU 040-02 (102213) 2'	Total/NA	Solid	Moisture	
600-81631-23	VGWU 040-02 (102213) 5'	Total/NA	Solid	Moisture	
600-81631-24	VGWU 040-02 (102213) 10'	Total/NA	Solid	Moisture	
600-81631-25	VGWU 040-02 (102213) 15'	Total/NA	Solid	Moisture	
600-81631-25 DU	VGWU 040-02 (102213) 15'	Total/NA	Solid	Moisture	
600-81631-26	VGWU 040-02 (102213) 20'	Total/NA	Solid	Moisture	
600-81631-27	VGWU 040-02 (102313) 25'	Total/NA	Solid	Moisture	
600-81631-28	VGWU 040-02 (102313) 30'	Total/NA	Solid	Moisture	
600-81631-29	VGWU 040-01 (102313) 2'	Total/NA	Solid	Moisture	
600-81631-30	VGWU 040-01 (102313) 5'	Total/NA	Solid	Moisture	
600-81631-31	VGWU 040-01 (102313) 10'	Total/NA	Solid	Moisture	
600 81631 32	VGWU 040-01 (102313) 15		Solid	Moisture	
600 91631 33	VGWU 040-01 (102313) 15		Solid	Moisture	
000-01031-33	VGWU 040-01 (102313) 20		Solid	Meieture	
600 81631 35	VGWU 040-01 (102313) 25		Solid	Moisture	
600-81631-35	VGWU 040-01 (102313) 30	Total/NA	Solid	Moisture	
600-81631-36	VGWU 040-03 (102313) 2	Total/NA	Solid	Moisture	
600-81631-36 DU	VGWU 040-03 (102313) 2'	Total/NA	Solid	Moisture	
600-81631-37	VGWU 040-03 (102313) 5'	Total/NA	Solid	Moisture	
600-81631-38	VGWU 040-03 (102313) 10'	Total/NA	Solid	Moisture	
600-81631-39	VGWU 040-03 (102313) 15'	Total/NA	Solid	Moisture	
600-81631-40	VGWU 040-03 (102313) 20'	Total/NA	Solid	Moisture	
600-81631-41	VGWU 040-03 (102313) 25'	Total/NA	Solid	Moisture	
600-81631-42	VGWU 040-03 (102313) 30'	Total/NA	Solid	Moisture	
600-81631-50	VGWU 040-06 (102313) 2'	Total/NA	Solid	Moisture	
600-81631-51	VGWU 040-06 (102313) 5'	Total/NA	Solid	Moisture	
600-81631-52	VGWU 040-06 (102313) 10'	Total/NA	Solid	Moisture	
600-81631-53	VGWU 040-06 (102313) 15'	Total/NA	Solid	Moisture	
600-81631-53 DU	VGWU 040-06 (102313) 15'	Total/NA	Solid	Moisture	
600-81631-54	VGWU 040-06 (102313) 20'	Total/NA	Solid	Moisture	
600-81631-55	VGWU 040-06 (102313) 25'	Total/NA	Solid	Moisture	
600-81631-56	VGWU 040-06 (102313) 30'	Total/NA	Solid	Moisture	
600-81631-57	VGWU 040-05 (102313) 2'	Total/NA	Solid	Moisture	
600-81631-58	VGWU 040-05 (102313) 5'	Total/NA	Solid	Moisture	
600-81631-59	VGWU 040-05 (102313) 10'	Total/NA	Solid	Moisture	
600-81631-60	VGWU 040-05 (102313) 15'	Total/NA	Solid	Moisture	
600-81631-61	VGWU 040-05 (102313) 20'	Total/NA	Solid	Moisture	
600-81631-62	VGWU 040-05 (102313) 25'	Total/NA	Solid	Moisture	
600-81631-63	VGWU 040-05 (102313) 30'	Total/NA	Solid	Moisture	
600-81631-63 DU	VGWU 040-05 (102313) 30'	Total/NA	Solid	Moisture	
600-81631-64	VGWU 040-07 (102313) 2'	Total/NA	Solid	Moisture	
600-81631-65	VGWU 040-07 (102313) 5'	Total/NA	Solid	Moisture	
600-81631-66	VGWU 040-07 (102313) 10'	Total/NA	Solid	Moisture	
600-81631-67	VGWU 040-07 (102313) 15'	Total/NA	Solid	Moisture	

QC Association Summary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

General Chemistry (Continued)

Analysis Batch: 119025 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
600-81631-68	VGWU 040-07 (102313) 20'	Total/NA	Solid	Moisture		5
600-81631-69	VGWU 040-07 (102313) 25'	Total/NA	Solid	Moisture		
600-81631-70	VGWU 040-07 (102313) 30'	Total/NA	Solid	Moisture		
600-81631-85	VGWU 040-08 (102313) 2'	Total/NA	Solid	Moisture		
600-81631-86	VGWU 040-08 (102313) 5'	Total/NA	Solid	Moisture		
600-81631-87	VGWU 040-08 (102313) 10'	Total/NA	Solid	Moisture		
600-81631-87 DU	VGWU 040-08 (102313) 10'	Total/NA	Solid	Moisture		0
600-81631-88	VGWU 040-08 (102313) 15'	Total/NA	Solid	Moisture		ð
600-81631-89	VGWU 040-08 (102313) 20'	Total/NA	Solid	Moisture		•
600-81631-90	VGWU 040-08 (102313) 25'	Total/NA	Solid	Moisture		9
600-81631-91	VGWU 040-08 (102313) 30'	Total/NA	Solid	Moisture		
600-81631-99	VGWU 040-09 (102313) 2'	Total/NA	Solid	Moisture		
600-81631-100	VGWU 040-09 (102313) 5'	Total/NA	Solid	Moisture		
600-81631-101	VGWU 040-09 (102313) 10'	Total/NA	Solid	Moisture		
600-81631-102	VGWU 040-09 (102313) 15'	Total/NA	Solid	Moisture		
600-81631-103	VGWU 040-09 (102313) 20'	Total/NA	Solid	Moisture		
600-81631-104	VGWU 040-09 (102313) 25'	Total/NA	Solid	Moisture		
600-81631-104 DU	VGWU 040-09 (102313) 25'	Total/NA	Solid	Moisture		
600-81631-105	VGWU 040-09 (102313) 30'	Total/NA	Solid	Moisture		

Leach Batch: 119139

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-15	VGWU 040-04 (102213) 2'	Soluble	Solid	DI Leach	
600-81631-15 MS	VGWU 040-04 (102213) 2'	Soluble	Solid	DI Leach	
600-81631-15 MSD	VGWU 040-04 (102213) 2'	Soluble	Solid	DI Leach	
600-81631-16	VGWU 040-04 (102213) 5'	Soluble	Solid	DI Leach	
600-81631-17	VGWU 040-04 (102213) 10'	Soluble	Solid	DI Leach	
600-81631-18	VGWU 040-04 (102213) 15'	Soluble	Solid	DI Leach	
600-81631-19	VGWU 040-04 (102213) 20'	Soluble	Solid	DI Leach	
600-81631-20	VGWU 040-04 (102213) 25'	Soluble	Solid	DI Leach	
600-81631-21	VGWU 040-04 (102213) 30'	Soluble	Solid	DI Leach	
600-81631-22	VGWU 040-02 (102213) 2'	Soluble	Solid	DI Leach	
600-81631-23	VGWU 040-02 (102213) 5'	Soluble	Solid	DI Leach	
600-81631-24	VGWU 040-02 (102213) 10'	Soluble	Solid	DI Leach	
600-81631-25	VGWU 040-02 (102213) 15'	Soluble	Solid	DI Leach	
600-81631-25 MS	VGWU 040-02 (102213) 15'	Soluble	Solid	DI Leach	
600-81631-25 MSD	VGWU 040-02 (102213) 15'	Soluble	Solid	DI Leach	
600-81631-26	VGWU 040-02 (102213) 20'	Soluble	Solid	DI Leach	
600-81631-27	VGWU 040-02 (102313) 25'	Soluble	Solid	DI Leach	
600-81631-28	VGWU 040-02 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-29	VGWU 040-01 (102313) 2'	Soluble	Solid	DI Leach	
600-81631-30	VGWU 040-01 (102313) 5'	Soluble	Solid	DI Leach	
600-81631-31	VGWU 040-01 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-32	VGWU 040-01 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-33	VGWU 040-01 (102313) 20'	Soluble	Solid	DI Leach	
600-81631-34	VGWU 040-01 (102313) 25'	Soluble	Solid	DI Leach	
600-81631-35	VGWU 040-01 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-35 MS	VGWU 040-01 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-35 MSD	VGWU 040-01 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-36	VGWU 040-03 (102313) 2'	Soluble	Solid	DI Leach	
600-81631-37	VGWU 040-03 (102313) 5'	Soluble	Solid	DI Leach	

TestAmerica Job ID: 600-81631-1

QC Association Summary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

General Chemistry (Continued)

Leach Batch: 119139 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-38	VGWU 040-03 (102313) 10'	Soluble	Solid	DI Leach	
LCS 600-119139/28-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCS 600-119139/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
MB 600-119139/1-A	Method Blank	Soluble	Solid	DI Leach	
MB 600-119139/27-A	Method Blank	Soluble	Solid	DI Leach	

Leach Batch: 119229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-39	VGWU 040-03 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-39 MS	VGWU 040-03 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-39 MSD	VGWU 040-03 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-40	VGWU 040-03 (102313) 20'	Soluble	Solid	DI Leach	
600-81631-41	VGWU 040-03 (102313) 25'	Soluble	Solid	DI Leach	
600-81631-42	VGWU 040-03 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-50	VGWU 040-06 (102313) 2'	Soluble	Solid	DI Leach	
600-81631-51	VGWU 040-06 (102313) 5'	Soluble	Solid	DI Leach	
600-81631-52	VGWU 040-06 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-53	VGWU 040-06 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-54	VGWU 040-06 (102313) 20'	Soluble	Solid	DI Leach	
600-81631-55	VGWU 040-06 (102313) 25'	Soluble	Solid	DI Leach	
600-81631-56	VGWU 040-06 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-56 MS	VGWU 040-06 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-56 MSD	VGWU 040-06 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-57	VGWU 040-05 (102313) 2'	Soluble	Solid	DI Leach	
600-81631-58	VGWU 040-05 (102313) 5'	Soluble	Solid	DI Leach	
600-81631-59	VGWU 040-05 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-60	VGWU 040-05 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-61	VGWU 040-05 (102313) 20'	Soluble	Solid	DI Leach	
600-81631-62	VGWU 040-05 (102313) 25'	Soluble	Solid	DI Leach	
600-81631-63	VGWU 040-05 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-64	VGWU 040-07 (102313) 2'	Soluble	Solid	DI Leach	
600-81631-65	VGWU 040-07 (102313) 5'	Soluble	Solid	DI Leach	
600-81631-66	VGWU 040-07 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-66 MS	VGWU 040-07 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-66 MSD	VGWU 040-07 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-67	VGWU 040-07 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-68	VGWU 040-07 (102313) 20'	Soluble	Solid	DI Leach	
600-81631-69	VGWU 040-07 (102313) 25'	Soluble	Solid	DI Leach	
LCS 600-119229/28-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCS 600-119229/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
MB 600-119229/1-A	Method Blank	Soluble	Solid	DI Leach	
MB 600-119229/27-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 119258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-15	VGWU 040-04 (102213) 2'	Soluble	Solid	9056	119139
600-81631-15 MS	VGWU 040-04 (102213) 2'	Soluble	Solid	9056	119139
600-81631-15 MSD	VGWU 040-04 (102213) 2'	Soluble	Solid	9056	119139
600-81631-16	VGWU 040-04 (102213) 5'	Soluble	Solid	9056	119139
600-81631-17	VGWU 040-04 (102213) 10'	Soluble	Solid	9056	119139
600-81631-18	VGWU 040-04 (102213) 15'	Soluble	Solid	9056	119139

TestAmerica Houston

TestAmerica Job ID: 600-81631-1

General Chemistry (Continued) Analysis Batch: 119258 (Continued)

QC Association Summary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM Page 72 of 210 5

Prep Batch

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Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method
600-81631-19	VGWU 040-04 (102213) 20'	Soluble	Solid	9056
600-81631-20	VGWU 040-04 (102213) 25'	Soluble	Solid	9056
600-81631-21	VGWU 040-04 (102213) 30'	Soluble	Solid	9056
600-81631-22	VGWU 040-02 (102213) 2'	Soluble	Solid	9056
600-81631-23	VGWU 040-02 (102213) 5'	Soluble	Solid	9056
600-81631-24	VGWU 040-02 (102213) 10'	Soluble	Solid	9056
600-81631-25	VGWU 040-02 (102213) 15'	Soluble	Solid	9056
600-81631-25 MS	VGWU 040-02 (102213) 15'	Soluble	Solid	9056
600-81631-25 MSD	VGWU 040-02 (102213) 15'	Soluble	Solid	9056
600-81631-26	VGWU 040-02 (102213) 20'	Soluble	Solid	9056
600-81631-27	VGWU 040-02 (102313) 25'	Soluble	Solid	9056
600-81631-28	VGWU 040-02 (102313) 30'	Soluble	Solid	9056
600-81631-29	VGWU 040-01 (102313) 2'	Soluble	Solid	9056
600-81631-30	VGWU 040-01 (102313) 5'	Soluble	Solid	9056
600-81631-31	VGWU 040-01 (102313) 10'	Soluble	Solid	9056
600-81631-32	VGWU 040-01 (102313) 15'	Soluble	Solid	9056
600-81631-33	VGWU 040-01 (102313) 20'	Soluble	Solid	9056
600-81631-34	VGWU 040-01 (102313) 25'	Soluble	Solid	9056
600-81631-35	VGWU 040-01 (102313) 30'	Soluble	Solid	9056
600-81631-35 MS	VGWU 040-01 (102313) 30'	Soluble	Solid	9056
600-81631-35 MSD	VGWU 040-01 (102313) 30'	Soluble	Solid	9056
600-81631-36	VGWU 040-03 (102313) 2'	Soluble	Solid	9056

VGWU 040-03 (102313) 5'

VGWU 040-03 (102313) 10'

Lab Control Sample

Lab Control Sample

Method Blank

Method Blank

Analysis Batch: 119416

600-81631-37

600-81631-38

LCS 600-119139/28-A

LCS 600-119139/2-A

MB 600-119139/1-A

MB 600-119139/27-A

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-39	VGWU 040-03 (102313) 15'	Soluble	Solid	9056	119229
600-81631-39 MS	VGWU 040-03 (102313) 15'	Soluble	Solid	9056	119229
600-81631-39 MSD	VGWU 040-03 (102313) 15'	Soluble	Solid	9056	119229
600-81631-40	VGWU 040-03 (102313) 20'	Soluble	Solid	9056	119229
600-81631-41	VGWU 040-03 (102313) 25'	Soluble	Solid	9056	119229
600-81631-42	VGWU 040-03 (102313) 30'	Soluble	Solid	9056	119229
600-81631-50	VGWU 040-06 (102313) 2'	Soluble	Solid	9056	119229
600-81631-51	VGWU 040-06 (102313) 5'	Soluble	Solid	9056	119229
600-81631-52	VGWU 040-06 (102313) 10'	Soluble	Solid	9056	119229
600-81631-53	VGWU 040-06 (102313) 15'	Soluble	Solid	9056	119229
600-81631-54	VGWU 040-06 (102313) 20'	Soluble	Solid	9056	119229
600-81631-55	VGWU 040-06 (102313) 25'	Soluble	Solid	9056	119229
600-81631-56	VGWU 040-06 (102313) 30'	Soluble	Solid	9056	119229
600-81631-56 MS	VGWU 040-06 (102313) 30'	Soluble	Solid	9056	119229
600-81631-56 MSD	VGWU 040-06 (102313) 30'	Soluble	Solid	9056	119229
600-81631-57	VGWU 040-05 (102313) 2'	Soluble	Solid	9056	119229
600-81631-58	VGWU 040-05 (102313) 5'	Soluble	Solid	9056	119229
600-81631-59	VGWU 040-05 (102313) 10'	Soluble	Solid	9056	119229
600-81631-60	VGWU 040-05 (102313) 15'	Soluble	Solid	9056	119229
600-81631-61	VGWU 040-05 (102313) 20'	Soluble	Solid	9056	119229

Soluble

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QC Association Summary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

General Chemistry (Continued)

Analysis Batch: 119416 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-62	VGWU 040-05 (102313) 25'	Soluble	Solid	9056	119229
600-81631-63	VGWU 040-05 (102313) 30'	Soluble	Solid	9056	119229
600-81631-64	VGWU 040-07 (102313) 2'	Soluble	Solid	9056	119229
600-81631-65	VGWU 040-07 (102313) 5'	Soluble	Solid	9056	119229
600-81631-66	VGWU 040-07 (102313) 10'	Soluble	Solid	9056	119229
600-81631-66 MS	VGWU 040-07 (102313) 10'	Soluble	Solid	9056	119229
600-81631-66 MSD	VGWU 040-07 (102313) 10'	Soluble	Solid	9056	119229
600-81631-67	VGWU 040-07 (102313) 15'	Soluble	Solid	9056	119229
600-81631-68	VGWU 040-07 (102313) 20'	Soluble	Solid	9056	119229
600-81631-69	VGWU 040-07 (102313) 25'	Soluble	Solid	9056	119229
LCS 600-119229/28-A	Lab Control Sample	Soluble	Solid	9056	119229
LCS 600-119229/2-A	Lab Control Sample	Soluble	Solid	9056	119229
MB 600-119229/1-A	Method Blank	Soluble	Solid	9056	119229
MB 600-119229/27-A	Method Blank	Soluble	Solid	9056	119229

Leach Batch: 119474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-70	VGWU 040-07 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-70 MS	VGWU 040-07 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-70 MSD	VGWU 040-07 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-85	VGWU 040-08 (102313) 2'	Soluble	Solid	DI Leach	
600-81631-86	VGWU 040-08 (102313) 5'	Soluble	Solid	DI Leach	
600-81631-87	VGWU 040-08 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-88	VGWU 040-08 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-89	VGWU 040-08 (102313) 20'	Soluble	Solid	DI Leach	
600-81631-90	VGWU 040-08 (102313) 25'	Soluble	Solid	DI Leach	
600-81631-91	VGWU 040-08 (102313) 30'	Soluble	Solid	DI Leach	
600-81631-99	VGWU 040-09 (102313) 2'	Soluble	Solid	DI Leach	
600-81631-100	VGWU 040-09 (102313) 5'	Soluble	Solid	DI Leach	
600-81631-101	VGWU 040-09 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-101 MS	VGWU 040-09 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-101 MSD	VGWU 040-09 (102313) 10'	Soluble	Solid	DI Leach	
600-81631-102	VGWU 040-09 (102313) 15'	Soluble	Solid	DI Leach	
600-81631-103	VGWU 040-09 (102313) 20'	Soluble	Solid	DI Leach	
600-81631-104	VGWU 040-09 (102313) 25'	Soluble	Solid	DI Leach	
600-81631-105	VGWU 040-09 (102313) 30'	Soluble	Solid	DI Leach	
LCS 600-119474/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
MB 600-119474/1-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 119606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-70	VGWU 040-07 (102313) 30'	Soluble	Solid	9056	119474
600-81631-70 MS	VGWU 040-07 (102313) 30'	Soluble	Solid	9056	119474
600-81631-70 MSD	VGWU 040-07 (102313) 30'	Soluble	Solid	9056	119474
600-81631-85	VGWU 040-08 (102313) 2'	Soluble	Solid	9056	119474
600-81631-86	VGWU 040-08 (102313) 5'	Soluble	Solid	9056	119474
600-81631-87	VGWU 040-08 (102313) 10'	Soluble	Solid	9056	119474
600-81631-88	VGWU 040-08 (102313) 15'	Soluble	Solid	9056	119474
600-81631-89	VGWU 040-08 (102313) 20'	Soluble	Solid	9056	119474
600-81631-90	VGWU 040-08 (102313) 25'	Soluble	Solid	9056	119474
600-81631-91	VGWU 040-08 (102313) 30'	Soluble	Solid	9056	119474

TestAmerica Houston

TestAmerica Job ID: 600-81631-1

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QC Association Summary

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

General Chemistry (Continued)

Analysis Batch: 119606 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
600-81631-99	VGWU 040-09 (102313) 2'	Soluble	Solid	9056	119474
600-81631-100	VGWU 040-09 (102313) 5'	Soluble	Solid	9056	119474
600-81631-101	VGWU 040-09 (102313) 10'	Soluble	Solid	9056	119474
600-81631-101 MS	VGWU 040-09 (102313) 10'	Soluble	Solid	9056	119474
600-81631-101 MSD	VGWU 040-09 (102313) 10'	Soluble	Solid	9056	119474
600-81631-102	VGWU 040-09 (102313) 15'	Soluble	Solid	9056	119474
600-81631-103	VGWU 040-09 (102313) 20'	Soluble	Solid	9056	119474
600-81631-104	VGWU 040-09 (102313) 25'	Soluble	Solid	9056	119474
600-81631-105	VGWU 040-09 (102313) 30'	Soluble	Solid	9056	119474
LCS 600-119474/2-A	Lab Control Sample	Soluble	Solid	9056	119474
MB 600-119474/1-A	Method Blank	Soluble	Solid	9056	119474

TestAmerica Job ID: 600-81631-1

TestAmerica Houston

Project/Site: HES Transfer Sites, Lea County NM

Client: ARCADIS U.S., Inc.

Lab Chronicle

Matrix: Solid

Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-15

Lab Sample ID: 600-81631-16

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Lab Sample ID: 600-81631-17 Matrix: Solid

Lab Sample ID: 600-81631-18

Batch Dil Batch Initial Final Batch Prepared Prep Type Method Number or Analyzed Analyst Туре Run Factor Amount Amount Lab Total/NA Analysis Moisture 119025 10/28/13 08:43 AYS TAL HOU 1 Soluble Leach DI Leach 5 g 50 mL 119139 10/29/13 09:39 DAW TAL HOU Soluble 9056 5 mL 5 mL 119258 10/30/13 01:02 DAW TAL HOU Analysis 1

Client Sample ID: VGWU 040-04 (102213) 15' Date Collected: 10/22/13 15:45 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 01:20	DAW	TAL HOU

Client Sample ID: VGWU 040-04 (102213) 20' Date Collected: 10/22/13 15:48 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 01:38	DAW	TAL HOU

TestAmerica Houston

Client Sample ID: VGWU 040-04 (102213) 2'	
Date Collected: 10/22/13 15:36	
Date Received: 10/25/13 09:57	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		10	5 mL	5 mL	119258	10/29/13 23:49	DAW	TAL HOU

Client Sample ID: VGWU 040-04 (102213) 5' Date Collected: 10/22/13 15:38 Date Received: 10/25/13 09:57

Client Sample ID: VGWU 040-04 (102213) 10'

Date Collected: 10/22/13 15:42

Date Received: 10/25/13 09:57

Ргер Туре	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		100	5 mL	5 mL	119258	10/30/13 00:44	DAW	TAL HOU

Lab Sample ID: 600-81631-19 Matrix: Solid

Matrix: Solid

Released to Imaging: 7/9/2021 2:17:22 PM

11/5/2013

Date Collected: 10/22/13 15:50 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 01:57	DAW	TAL HOU

Client Sample ID: VGWU 040-04 (102213) 30' Date Collected: 10/22/13 15:55 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 02:51	DAW	TAL HOU

Client Sample ID: VGWU 040-02 (102213) 2' Date Collected: 10/22/13 16:06 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		10	5 mL	5 mL	119258	10/30/13 03:09	DAW	TAL HOU

Client Sample ID: VGWU 040-02 (102213) 5' Date Collected: 10/22/13 16:07 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		100	5 mL	5 mL	119258	10/30/13 03:28	DAW	TAL HOU

Client Sample ID: VGWU 040-02 (102213) 10' Date Collected: 10/22/13 16:10 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		100	5 mL	5 mL	119258	10/30/13 03:46	DAW	TAL HOU

Lab Sample ID: 600-81631-22 Matrix: Solid

Lab Sample ID: 600-81631-20

Lab Sample ID: 600-81631-21

TestAmerica Job ID: 600-81631-1

Matrix: Solid

Matrix: Solid

Released to Imaging: 7/9/2021 2:17:22 PM

TestAmerica Houston

Matrix: Solid

Lab Sample ID: 600-81631-23 Matrix: Solid

Lab Sample ID: 600-81631-24

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-25

Lab Sample ID: 600-81631-26

10

Client Sample ID: VGWU 040-02 (102213) 15'

Date Collected: 10/22/13 16:14 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		100	5 mL	5 mL	119258	10/30/13 04:04	DAW	TAL HOU

Client Sample ID: VGWU 040-02 (102213) 20' Date Collected: 10/22/13 16:18 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		10	5 mL	5 mL	119258	10/30/13 04:59	DAW	TAL HOU

Client Sample ID: VGWU 040-02 (102313) 25' Date Collected: 10/23/13 09:57 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		50	5 mL	5 mL	119258	10/30/13 05:17	DAW	TAL HOU

Client Sample ID: VGWU 040-02 (102313) 30' Date Collected: 10/23/13 10:20 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		50	5 mL	5 mL	119258	10/30/13 05:35	DAW	TAL HOU

Client Sample ID: VGWU 040-01 (102313) 2' Date Collected: 10/23/13 10:29 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		5	5 mL	5 mL	119258	10/30/13 06:30	DAW	TAL HOU

Lab Sample ID: 600-81631-27 Matrix: Solid

Lab Sample ID: 600-81631-28

Lab Sample ID: 600-81631-29

Matrix: Solid

Matrix: Solid

TestAmerica Houston

Matrix: Solid

Matrix: Solid

Project/Site: HES Transfer Sites, Lea County NM

Batch

Туре

Leach

Batch

Туре

Leach

Analysis

Analysis

Client Sample ID: VGWU 040-01 (102313) 15'

Analysis

Analysis

Client Sample ID: VGWU 040-01 (102313) 10'

Client Sample ID: VGWU 040-01 (102313) 5'

Batch

Method

Moisture

DI Leach

9056

Batch

Method

Moisture

DI Leach

9056

Client: ARCADIS U.S., Inc.

Date Collected: 10/23/13 10:31

Date Received: 10/25/13 09:57

Date Collected: 10/23/13 10:33

Date Received: 10/25/13 09:57

Date Collected: 10/23/13 10:36

Date Received: 10/25/13 09:57

Prep Type

Total/NA

Soluble

Soluble

Prep Type

Total/NA

Soluble

Soluble

Lab Chronicle

Initial

Amount

5 g

5 mL

Initial

Amount

5 g

5 mL

Final

Amount

50 mL

5 mL

Final

Amount

50 mL

5 mL

Batch

Number

119025

119139

119258

Batch

Number

119025

119139

119258

Prepared

or Analyzed

10/28/13 08:43

10/29/13 09:39

10/30/13 06:48

10/30/13 07:06

Dil

1

5

Dil

1

2

Factor

Factor

Run

Run

Lab

TAL HOU

TAL HOU

TAL HOU

TAL HOU

TestAmerica Job ID: 600-81631-1

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Lab Sample ID: 600-81631-30 Matrix: Solid

Lab Sample ID: 600-81631-32 Matrix: Solid

DAW

-	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 07:24	DAW	TAL HOU

Client Sample ID: VGWU 040-01 (102313) 20' Date Collected: 10/23/13 10:38 Date Received: 10/25/13 09:57

Γ	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 07:42	DAW	TAL HOU

Client Sample ID: VGWU 040-01 (102313) 25' Date Collected: 10/23/13 10:41 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 08:01	DAW	TAL HOU

TestAmerica Houston

Lab Sample ID: 600-81631-31 Matrix: Solid Prepared or Analyzed Analyst Lab 10/28/13 08:43 AYS TAL HOU DAW TAL HOU 10/29/13 09:39

Released to Imaging: 7/9/2021 2:17:22 PM

Lab Sample ID: 600-81631-33

Lab Sample ID: 600-81631-34

Matrix: Solid

Matrix: Solid

Analyst

AYS

DAW

DAW

Client Sample ID: VGWU 040-01 (102313) 30'

Date Collected: 10/23/13 10:45 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 08:55	DAW	TAL HOU

Client Sample ID: VGWU 040-03 (102313) 2' Date Collected: 10/23/13 10:59 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture	·	1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		50	5 mL	5 mL	119258	10/30/13 10:26	DAW	TAL HOU

Client Sample ID: VGWU 040-03 (102313) 5' Date Collected: 10/23/13 11:01 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		2	5 mL	5 mL	119258	10/30/13 10:45	DAW	TAL HOU

Client Sample ID: VGWU 040-03 (102313) 10' Date Collected: 10/23/13 11:03 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119139	10/29/13 09:39	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119258	10/30/13 11:03	DAW	TAL HOU

Client Sample ID: VGWU 040-03 (102313) 15' Date Collected: 10/23/13 11:07 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	10/31/13 21:21	DAW	TAL HOU

TestAmerica Houston

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Matrix: Solid

Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-35

Lab Sample ID: 600-81631-36

Matrix: Solid

Lab Sample ID: 600-81631-38 Matrix: Solid

Lab Sample ID: 600-81631-39

Lab Sample ID: 600-81631-37 Matrix: Solid

Matrix: Solid

Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-40

Lab Sample ID: 600-81631-41

10

Lab Sample ID: 600-81631-42 Matrix: Solid

Date Received: 10/25/13 09:57 Initial Batch Batch Dil Final Batch Prepared Prep Type Method Number or Analyzed Type Run Factor Amount Amount Analyst Lab Total/NA 10/28/13 08:43 AYS TAL HOU Analysis Moisture 1 119025 Soluble Leach DI Leach 5 g 50 mL 119229 10/30/13 10:09 DAW TAL HOU 10/31/13 22:52 9056 5 mL 5 mL DAW TAL HOU Soluble Analysis 1 119416

Client Sample ID: VGWU 040-06 (102313) 2' Date Collected: 10/23/13 12:13 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	10/31/13 23:10	DAW	TAL HOU

Client Sample ID: VGWU 040-06 (102313) 5' Date Collected: 10/23/13 12:15 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		2	5 mL	5 mL	119416	10/31/13 23:28	DAW	TAL HOU

TestAmerica Houston

Client Sample ID: VGWU 040-03 (102313) 20'	
Date Calle stade 40/02/42 44:40	

Date Collected: 10/23/13 11:10 Date Received: 10/25/13 09:57

Γ	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	10/31/13 22:16	DAW	TAL HOU

Client Sample ID: VGWU 040-03 (102313) 25' Date Collected: 10/23/13 11:15 Date Received: 10/25/13 09:57

Client Sample ID: VGWU 040-03 (102313) 30'

Date Collected: 10/23/13 11:18

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	10/31/13 22:34	DAW	TAL HOU

Lab Sample ID: 600-81631-50 Matrix: Solid

Lab Sample ID: 600-81631-51

Matrix: Solid

Date Collected: 10/23/13 12:18

Date Received: 10/25/13 09:57

Date Collected: 10/23/13 12:24

Date Received: 10/25/13 09:57

Date Collected: 10/23/13 12:26

Date Received: 10/25/13 09:57

Prep Type

Total/NA

Soluble

Soluble

Prep Type

Total/NA

Soluble

Soluble

Lab Chronicle

Initial

Amount

5 g

5 mL

Initial

Amount

5 g

5 mL

Final

Amount

50 mL

5 mL

Final

Amount

50 mL

5 mL

Batch

Number

119025

119229

119416

Batch

Number

119025

119229

119416

Dil

1

Dil

1

1

Factor

Factor

Run

Run

Batch

Туре

Leach

Batch

Туре

Leach

Analysis

Analysis

Client Sample ID: VGWU 040-06 (102313) 20'

Analysis

Analysis

Client Sample ID: VGWU 040-06 (102313) 15'

Client Sample ID: VGWU 040-06 (102313) 10'

Batch

Method

Moisture

DI Leach

9056

Batch

Method

Moisture

DI Leach

9056

Matrix: Solid

TAL HOU

TAL HOU

TAL HOU

Matrix: Solid

TAL HOU

TAL HOU

TAL HOU

Matrix: Solid

Matrix: Solid

Lab

Lab

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-52

Analyst

AYS

DAW

DAW

Lab Sample ID: 600-81631-53

Analyst

AYS

DAW

DAW

Prepared

or Analyzed

10/28/13 08:43

10/30/13 10:09

11/01/13 00:23

Prepared

or Analyzed

10/28/13 08:43

10/30/13 10.09

11/01/13 00:41

10

Lab Sample ID: 600-81631-54 Matrix: Solid

Batch Batch Dil Initial Final Batch Prepared Method Prep Type Type Run Factor Amount Amount Number or Analyzed Analyst Lab 10/28/13 08:43 TAL HOU Total/NA Analysis Moisture 1 119025 AYS Soluble DI Leach 5 g 50 mL 119229 10/30/13 10:09 DAW TAL HOU Leach DAW TAL HOU Soluble Analysis 9056 1 5 mL 5 mL 119416 11/01/13 00:59

Client Sample ID: VGWU 040-06 (102313) 25' Date Collected: 10/23/13 12:28 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 01:18	DAW	TAL HOU

Client Sample ID: VGWU 040-06 (102313) 30' Date Collected: 10/23/13 12:30 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 01:36	DAW	TAL HOU

TestAmerica Houston

Lab Sample ID: 600-81631-56

Lab Sample ID: 600-81631-55

Client: ARCADIS U.S., Inc.

Date Collected: 10/23/13 12:46

Date Received: 10/25/13 09:57

Date Collected: 10/23/13 12:47

Date Received: 10/25/13 09:57

Date Collected: 10/23/13 12:49 Date Received: 10/25/13 09:57

Prep Type

Total/NA

Soluble

Soluble

Prep Type

Total/NA

Soluble

Soluble

Prep Type

Total/NA

Soluble

Soluble

Lab Chronicle

Initial

Amount

5 g

5 mL

Amo

Final

Amount

50 mL

5 mL

Batch

Number

119025

Dil

1

1

Dil

1

1

Factor

Factor

Run

Run

Matrix: Solid

TAL HOU

Lab

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-57

Analyst

AYS

5

10

Lab Sample ID: 600-81631-59

	Matrix	k: Solid

Dil Initial Final Batch Prepared Run Factor Amount Amount Number or Analyzed Analyst Lab 10/28/13 08:43 TAL HOU 1 119025 AYS 5 g 50 mL 119229 10/30/13 10:09 DAW TAL HOU DAW TAL HOU 1 5 mL 5 mL 119416 11/01/13 03:07

Client Sample ID: VGWU 040-05 (102313) 15' Date Collected: 10/23/13 12:53 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 04:02	DAW	TAL HOU

Client Sample ID: VGWU 040-05 (102313) 20' Date Collected: 10/23/13 12:55 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 04:20	DAW	TAL HOU

TestAmerica Houston

Released to Imaging: 7/9/2021 2:17:22 PM

Matrix: Solid

Lab Sample ID: 600-81631-60 Matrix: Solid

Lab Sample ID: 600-81631-61

11/01/13 02:49 DAW TAL HOU

119229 10/30/13 10:09 DAW TAL HOU 119416 11/01/13 02:31 DAW TAL HOU

Prepared

or Analyzed

10/28/13 08:43

			Lab Sample	00-81631-58 Matrix: Solid	
Initial	Final	Batch	Prepared		
Amount	Amount	Number	or Analyzed	Analyst	Lab
		119025	10/28/13 08:43	AYS	TAL HOU
5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
5 mL	5 mL	119416	11/01/13 02:49	DAW	TAL HOU

Client Sample ID: VGWU 040-05 (102313) 2'

Batch

Method

Moisture

DI Leach

9056

Batch

Method

Moisture

DI Leach

9056

Batch

Method

Moisture

DI Leach

9056

Project/Site: HES Transfer Sites, Lea County NM

Batch

Туре

Leach

Batch

Туре

Leach

Batch

Type

Leach

Analysis

Analysis

Analysis

Analysis

Client Sample ID: VGWU 040-05 (102313) 10'

Analysis

Analysis

Client Sample ID: VGWU 040-05 (102313) 5'

Matrix: Solid

Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-62

Lab Sample ID: 600-81631-63

Client Sample ID: VGWU 040-05 (102313) 25'

Date Collected: 10/23/13 12:56 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 04:38	DAW	TAL HOU

Client Sample ID: VGWU 040-05 (102313) 30' Date Collected: 10/23/13 12:58 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 04:56	DAW	TAL HOU

Client Sample ID: VGWU 040-07 (102313) 2' Date Collected: 10/23/13 13:14 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		5	5 mL	5 mL	119416	11/01/13 05:14	DAW	TAL HOU

Client Sample ID: VGWU 040-07 (102313) 5' Date Collected: 10/23/13 13:16 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 05:51	DAW	TAL HOU

Client Sample ID: VGWU 040-07 (102313) 10' Date Collected: 10/23/13 13:17 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 06:45	DAW	TAL HOU

Lab Sample ID: 600-81631-64 Matrix: Solid

Lab Sample ID: 600-81631-65

Lab Sample ID: 600-81631-66

Matrix: Solid

Matrix: Solid

Date Collected: 10/23/13 13:18

Date Received: 10/25/13 09:57

Date Collected: 10/23/13 13:24

Date Received: 10/25/13 09:57

Prep Type

Total/NA

Soluble

Soluble

Lab Chronicle

Client Sample ID: VGWU 040-07 (102313) 15'

. . .

Matrix: Solid

TAL HOU

TAL HOU

TAL HOU

Matrix: Solid

Lab

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-67

Analyst

AYS

DAW

DAW

Lab Sample ID: 600-81631-68

10/28/13 08:43

10/30/13 10:09

11/01/13 08:16

10

Lab Sample ID: 600-81631-69 Matrix: Solid

Batch Batch Dil Initial Final Batch Prepared Prep Type Method Type Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA 10/28/13 08:43 TAL HOU Analysis Moisture 1 119025 AYS Soluble Leach DI Leach 5 g 50 mL 119229 10/30/13 10:09 DAW TAL HOU 11/01/13 08:53 9056 DAW TAL HOU Soluble Analysis 1 5 mL 5 mL 119416

Client Sample ID: VGWU 040-07 (102313) 30' Date Collected: 10/23/13 13:27 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119606	11/02/13 00:33	DAW	TAL HOU

Client Sample ID: VGWU 040-08 (102313) 2' Date Collected: 10/23/13 14:43 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		5	5 mL	5 mL	119606	11/02/13 01:28	DAW	TAL HOU

TestAmerica Houston

- · · Prepared or Analyzed

Batch	Batch		ווט	initiai	Finai	Batch	
Туре	Method	Run	Factor	Amount	Amount	Number	
Analysis	Moisture		1			119025	_
Leach	DI Leach			5 g	50 mL	119229	
Analysis	9056		1	5 mL	5 mL	119416	

Client Sample ID: VGWU 040-07 (102313) 20' Date Collected: 10/23/13 13:20 Date Received: 10/25/13 09:57

Client Sample ID: VGWU 040-07 (102313) 25'

Pren Tyne	Batch	Batch Method	Run	Dil	Initial Amount	Final Amount	Batch	Prepared or Analyzed	Analyst	Lah
Total/NA	Analysis	Moisture		1	Amount	Amount	119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119229	10/30/13 10:09	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119416	11/01/13 08:35	DAW	TAL HOU

Released to Imaging: 7/9/2021 2:17:22 PM

Matrix: Solid

Lab Sample ID: 600-81631-70 Matrix: Solid

Lab Sample ID: 600-81631-85

Matrix: Solid

Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-86

Lab Sample ID: 600-81631-87

10

Lab Sample ID: 600-81631-88 Matrix: Solid

Date Received: 10/25/13 09:57 Initial Batch Batch Dil Final Batch Prepared Prep Type Туре Method Number or Analyzed Run Factor Amount Amount Analyst Lab Total/NA 10/28/13 08:43 AYS TAL HOU Analysis Moisture 1 119025 Soluble Leach DI Leach 5 g 50 mL 119474 11/01/13 14:54 DAW TAL HOU 9056 5 mL 5 mL 119606 11/02/13 02:23 DAW TAL HOU Soluble Analysis 1

Client Sample ID: VGWU 040-08 (102313) 20' Date Collected: 10/23/13 14:54 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119606	11/02/13 02:41	DAW	TAL HOU

Client Sample ID: VGWU 040-08 (102313) 25' Date Collected: 10/23/13 14:57 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119606	11/02/13 03:35	DAW	TAL HOU

TestAmerica Houston

Date Collected: 10/23/13 14:44 Date Received: 10/25/13 09:57

Date Collected: 10/23/13 14:50

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		2	5 mL	5 mL	119606	11/02/13 01:46	DAW	TAL HOU

Client Sample ID: VGWU 040-08 (102313) 10' Date Collected: 10/23/13 14:48 Date Received: 10/25/13 09:57

Client Sample ID: VGWU 040-08 (102313) 15'

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		10	5 mL	5 mL	119606	11/02/13 02:04	DAW	TAL HOU

Lab Sample ID: 600-81631-89

Lab Sample ID: 600-81631-90

Matrix: Solid

Matrix: Solid

Matrix: Solid

Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-91

Lab Sample ID: 600-81631-99

Client Sample ID: VGWU 040-08 (102313) 30'

Date Collected: 10/23/13 14:58 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119606	11/02/13 03:54	DAW	TAL HOU

Client Sample ID: VGWU 040-09 (102313) 2' Date Collected: 10/23/13 15:47 Date Received: 10/25/13 09:57

Γ	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		10	5 mL	5 mL	119606	11/02/13 04:12	DAW	TAL HOU

Client Sample ID: VGWU 040-09 (102313) 5' Date Collected: 10/23/13 15:48 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		5	5 mL	5 mL	119606	11/02/13 04:30	DAW	TAL HOU

Client Sample ID: VGWU 040-09 (102313) 10' Date Collected: 10/23/13 15:50 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		2	5 mL	5 mL	119606	11/02/13 04:48	DAW	TAL HOU

Client Sample ID: VGWU 040-09 (102313) 15' Date Collected: 10/23/13 15:53 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		5	5 mL	5 mL	119606	11/02/13 05:43	DAW	TAL HOU

Lab Sample ID: 600-81631-100 Matrix: Solid

Lab Sample ID: 600-81631-101 Matrix: Solid

Lab Sample ID: 600-81631-102

Matrix: Solid

Matrix: Solid

Matrix: Solid

TestAmerica Job ID: 600-81631-1

Lab Sample ID: 600-81631-103

Lab Sample ID: 600-81631-104

10 1 2 3 4 5 6 7

10

Client Sample ID: VGWU 040-09 (102313) 20'

Date Collected: 10/23/13 15:56 Date Received: 10/25/13 09:57

Γ	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		2	5 mL	5 mL	119606	11/02/13 06:01	DAW	TAL HOU

Client Sample ID: VGWU 040-09 (102313) 25' Date Collected: 10/23/13 15:58 Date Received: 10/25/13 09:57

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119606	11/02/13 06:19	DAW	TAL HOU

Client Sample ID: VGWU 040-09 (102313) 30' Date Collected: 10/23/13 16:00 Date Received: 10/25/13 09:57

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1			119025	10/28/13 08:43	AYS	TAL HOU
Soluble	Leach	DI Leach			5 g	50 mL	119474	11/01/13 14:54	DAW	TAL HOU
Soluble	Analysis	9056		1	5 mL	5 mL	119606	11/02/13 07:14	DAW	TAL HOU

Laboratory References:

TAL HOU = TestAmerica Houston, 6310 Rothway Street, Houston, TX 77040, TEL (713)690-4444

TestAmerica Houston

Released to Imaging: 7/9/2021 2:17:22 PM

Lab Sample ID: 600-81631-105 Matrix: Solid

Client: ARCADIS U.S., Inc. Project/Site: HES Transfer Sites, Lea County NM

Laboratory: TestAmerica Houston

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arkansas DEQ	State Program	6	88-0759	08-04-13 *
Louisiana	NELAP	6	01967	06-30-14
Oklahoma	State Program	6	9503	08-31-13 *
Texas	NELAP	6	T104704223-10-6-TX	10-31-13 *
USDA	Federal		P330-08-00217	04-01-14
Utah	NELAP	8	GULF	10-31-13 *

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Houston

Page 89 of 210 6310 Rothway Street Houston, TX 77040

	, .				
Phone	(713)	690 (-4444 Fa	x (713	690-5646

Client Information	Sampler.	Lab PM Kudchadk	kar, Sachin G	Carrier Tracking No(s):	СОС № 600-23595-8666.1
Client Contact: Mr. Jonathan Olsen	Phone /617) 751 - 8741	E-Mail sachin.ku	dchadkar@testamericainc.com		Page of 10
Company. ARCADIS U.S., Inc.	<u> </u>		Analvsis Re	auested	Bony shill poor
Address: 2020 Brianark Drive Suite 300	Due Date Requested:				Preservation Codes:
City:	TAT Requested (days):	·			A - HCL M - Hexane B - NaOH N - None
State, Zip.	Handard				C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 O - Na2SO3
TX, 77042	PO#:				F - MeOH R - Na2S2SO3 G - Amchior S - H2SO4
<u>(617)251-8741</u>	Purchase Order Requested	(0N			H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone
jonathan.olsen@arcadis-us.com Project Name:	Project #:	(es of	600-81631 Chain of C	ustody	y J - DI Water V - MCAA K - EDTA W - ph 4-5
HES Transfer Sites, Lea County NM	60004633		102		Conternational Conternation (Specify)
VGWUL 0-40 Trunk Linz		Sam	loride		
	Sample	Matrix			equin
	Sample (C=comp,	S≔solid, O=waste/oil,	0168_1 0168_1 0168_0 0218-1		otal N
Sample Identification	Sample Date Time G=grab) Preserv	ation Code:			Special Instructions/Note:
VGWU 040-10 (103213) 2'	10-22-13 1431 6	Solid	X		1 Hold
VEW4 040-10 (102213) 5'	10-22-13 1432 6	Solid	X		1 Hold
VGW4 140-10(102213)10'	10-22-13 1435 6	Solid	X		1 Hold
V6w4 040-10(102213)15'	10-22-13 1437 6	Solid			1 Hold
VGwu 040-10 (102213) 20'	10-22-13 1438 6	Solid	X .		1 Hold
1/huu 040-10 (102213) 25'	10-22-13 1442 6	Solid			1 Hold
VGWU 040-10/102213/30'	10-22-13 1445 6	Solid			1 Hold
VGWU 040-12 (102213) 2'	10-22-13 1506 6	Solid			1 Hold
V6a U 040-12 (102213) 5'	10-22-13 1508 6	Solid	X		1 Hold
Ubwu 040-12 (102213) 10'	10-22-13 1512 6	Solid			Hold
VGWU 040-12 (102213)15'	10-22-13 1514 6	Solid			1 Hold
Possible Hazard Identification		s	Cample Disposal (A fee may be a	Disposal By Lab	tained longer than 1 month) Archive For Months
Deliverable Requested: I, II, III, IV, Other (specify)	olson B Olikilown (Nadiologica	s	pecial Instructions/QC Requireme	nts:	
Empty Kit Relinquished by:	Date:	Time	e:	Method of Shipment	
Relinquished by	Date/Time: 10-74-13/1700	Company GPIRNIS	Received by:	Date/Time:	Company
Remarking by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by	Date/Time	Company	Received by:	Date/Time:/	NGT Company
Custody Seals Intact: Custody Seal No.:			Cooler Temperature(s) °C and Other R	emarks:	<u>v197</u>
Δ Yes Δ No				Ľ Į	

Chain of Custody Record

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TestAmerica Houston 6310 Rothway Street

Page 90 of 210

Received by QCD: 10/28/2019 8:04:07 AM

Houston, TX 77040

Phone (713) 690-4444 Fax (713) 690-5646

Client Information	Sampler Lab PM: Kudchar			adkar, Sachin G				Carrier Tracking	Carrier Tracking No(s):		.1
Client Contact: Mr. Jonathan Olsen	Phone: E-Mail: /////25/-274/ sachin.k			udc	hadkar@	Dtesta	mericainc.com	1		Page: Page 2 of 10	
Company:			Γ				Analysis Re			JOD #BROUT	16. Deca
Address: 2020 Promode Drive, Suite 200	Due Date Requested:		\mathbf{T}					TIT		Preservation Cod	les:
City:	TAT Requested (days):									A - HCL B - NaOH	M - Hexane N - None
HoustonState, Zip:	Standard									C - Zn Acetate D - Nitric Acid	0 - AsNaO2 P - Na2O4S
TX, 77042	PO#									E - NaHSO4 F - MeOH	Q - Na2SO3 R - Na2S2SO3
(617) 251-8741	Purchase Order Requested		<u>ê</u>							G - Amonior H - Ascorbic Acid	S - H2SO4 T - TSP Dodecahydrate
Email: jonathan.olsen@arcadis-us.com	WO#		s or l	(N N					S.	J - DI Water	V - MCAA W - ph 4-5
Project Name. HES Transfer Sites, Lea County NM	Project #: 60004633		le (Ye	es or					itaine	L - EDA	Z - other (specify)
Site: UGWU 12-40 Trunk Line	SSOW#:		Samp	λ) as	oride				of cor	Other:	
	Sample	Matrix	ered	M\$/M	- Chic	õ	EX.		mber		
	Sample (C=comp	(W=water, S=solid,	d FIII	form	5B_DF	SB_G	1 <u>8</u>		al Nu		
Sample Identification	Sample Date Time G=grab) BT	=Tissue, A=Air)		Per	801i 905i	801	803	+	Tot	Special In	structions/Note:
	Preservatio	Solid	Ĥ	Å		N	N	┦╾┦╾┞╌		11.11	
VGWU 040-12(102213) 20	10-22-17 1516 0	Solid	$\left \right $		-		╶┼╶┼╴┼╴	╶┼╾┼╼┞╼		HOLD	
V644 090-12 (102215) 25	10-22-13 1718 6	Solid	┼┦		-13					11010	<i>#</i>
1100 040 -12 (102215) 50	10-22-13 1520 6	Solid	$\left \cdot \right $	-		1		┼╌┼╌┦╌		HOLD	
V6wu 090-04 (102213) 2	10-22-13 1456 6 2NIG-22-31 5-7:7	Calid	┼┼	_			╌┼╴┽╺┾╴	┥╸┽╺┝╴		<u></u>	
V644 040 - 04 (102213) 5	10-22-13 1378 6	Solid	+			1					
VGull 040-04 (102213) 10	10-27-13 1592 6	Solia		-	-b	-					
VGnU 040 - 04 (107213) 15	10-22-13 1945 6	Solid	$\left \cdot \right $	-	$-\chi$			<u> </u>			
V6nU 040-04 (102213) 20	10-22-13 1548 6	Solid	\mathbb{H}		$-\chi$			<u> </u>		 	
V644 040 - 04 (102213) 25	10-22-13 1950 0	Solid	\prod		K	1-1		+			
VEWN 040 - 04 (102213) 30'	10-22-13 1555 6	Solid	$\left \right $	_	$-\mathcal{N}$			┦┛┨╸┨			
V6wll 040-02 (102213) 2'	10-22-13 1606 6	Solid	Ц		K	1					
Non-Hazard Contrication	on B Unknown Radiological			San	⊐ _{Retun}	n To ((A fee may be Vient	assessed IT sa Disposal Bv La	amples are retaine ab Archi	ve For	Months
Deliverable Requested: I, II, III, IV, Other (specify)	<u>_</u>			Spe	cial Instr	ruction	s/QC Requirem	ents:			
Empty Kit Relinquished by:	Date:		Tin	ne:				Method of	Shipment		
Relinquished by:	Date/Time: 10-24-13/1700 4	mpany	uş		Received	by:			Date/Time:		Company
Bettinguiscer by:	Date/Time: Co	mpany		-	Received	by.		~ ~ ~ ~ ~ ~ ~	Date/Time:		Company
Relinquished by	Date/Time: Co	mpany			Received	65	D	-	Date/The: 13	0451	Company
Custody Seals Intact: Custody Seal No.:					Cooler Ter	mperat	ne(s) °C and Other F	Remarks:	1-1-1-2		<u></u>

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Chain of Custody Record

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Page 91 of 210

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	Client Information	Sampler Ryan Nanny	Lab PN Kudch	n: nadkar, Sachin G	Carrier Tracking No(s):	COC No: 600-23595-8666.1
	Client Contact: Mr. Jonathan Olsen	Phone: (617) 251-8741	E-Mail. sachir	n.kudchadkar@testamericainc.com	1	Page. Page 3 of 10
I	Company ARCADIS U.S., Inc.	**************************************		Analysis Re	quested	Job# BOB 4 8616-0000
	Address: 2929 Briærpark Drive Suite 300	Due Date Requested:				Preservation Codes:
	City. Haustan	TAT Requested (days):				A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2
	State, Zip: TX 77042	Gtandard				D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3
	Phone:////	PO#:	{			F - MeOH R - Na2S2SO3 G - Amchíor S - H2SO4
	Email:	WO #:				H - Ascorbic Acid T - TSP Dodecahydrate 1 - Ice U - Acetone
	jonathan.olsen@arcadis-us.com Project Name:	Project #:		or No		K-EDTA W-ph 4-5
	HES Transfer Sites, Lea County NM	60004633		(Yes		C EDA Z - D(her (specky)
	VGWU 0-40 Trunk Line	·		MSD MSD Moride		0 Jo
		Sample	Matrix (wawster	n MS/ BRO BRO		equin
		Sample (C≃comp,	S=solid, O≈waste/oil,	eid Fi arforn 158_28 158_28 158_0		tal N
	Sample Identification	Sample Date Time G=grab) [BT Preservatio	r≈Tissue, A≈Air) i on Code:		╅╍╁╍┼╍┼╍┼	Special Instructions/Note:
3	VGWU 040-02 (102213)5'	10-22-13 1607 6	Solid	T X		
,	VGWU 040-07 (102213) 10'	10-22-13 1610 6	Solid	X		1
•	VGWU 040-02 (102213) 15'	10-22-13 1614 6	Solid	X		
•	VGWU 040-02 (102213) 20'	10-22-13 1618 G	Solid			1
ĩ	VGWU 040-02 (co2313) 25'	10-23-13 0957 6	Solid			1
4	VGwU 040 - 02 (102313) 30'	10-23-13 1020 6	Solid			1
	VGWU 040-01 (102313) 2'	10-23-13 1029 6	Solid			1
	V6WU 040-01 (1023/3) 5'	10-23-13 1031 6	Solid	K I I I		1
	VGWU 040-01 (102313) 10'	10-23-13 1033 6	Solid	10		1
	VGul 040-01 (102313) 15'	10-23-13 1036 6	Solid			1
か	VGWU 040-01 (102313) 20'	10-23-13 1038 6	Solid			1
4	Possible Hazard Identification			Sample Disposal (A fee may be	Dianaged By Lab	ained longer than 1 month)
`	Deliverable Requested: I, II, III, IV, Other (specify)	UTB UTKTOWN Naulological		Special Instructions/QC Requireme	ents:	Wollars
	Empty Kit Relinquished by:	Date:	F	Time:	Method of Shipment:	
	Relinquished by	Date/Time: Co	ompany	Received by	Date/Time:	Company
	Rahtforthed by:	Date/Time:	ompany	Received by:	Date/Time:	Company
-	Relinquished by:	Date/Time: Co	ompany	Received	28/32-11	Z DS Company
	Custody Seals Intact: Custody Seal No.:	ــــــــــــــــــــــــــــــــــــــ		Cooler Temperature(s) °C and Other R	Remarks:	7017
	Δ Yes Δ No				· · ·	

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6310 Rothway Street

Houston, TX 77040

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r	Phone (713) 690-4444 Pax (713) 690-5640	Sampler:	Lab FN	Л:					Carrier Tra	acking No(s):		COC No:
ļ	Client Information	Kyan Nanny	Kudc	hadkar	, Sach	in G						600-23595-8666.1
l	Grent Contact Mr. Jonathan Olsen	(617) 251 - 8741	E-Mail: sachi	n.kudc	hadka	r@test	america	ainc.com				Page: Page 4 of <i>10</i>
	Company: ARCADIS U.S., Inc.			Analysis Red				equested			BAA48616.0000	
	^{Address:} 2929 Brīarpark Drive Suite 300	Due Date Requested:										Preservation Codes:
	City: Houston	TAT Requested (days):										B - NaOH N - None
	State, Zip: TX, 77042	Standard										D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3
	Phone: (617)251-8741	PO# Purchase Order Requested		0								F - MeUH R - Na2S2SU3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate
	Email: ionathan.olsen@arcadis-us.com	WO#:		2 2 2 2 2		1					g	J - Ice U - Acetone J - DI Water V - MCAA
	Project Name: HES Transfer Sites, Lea County NM	Project #: 60004633		e (Yes es or f							talner	K - EDTA W - ph 4-5 L - EDA Z - other (specify)
	Site VGWU 0-40 Tounta Linz	SSOW#:		Samp ASD (Y	:	oride					of coi	Other:
		Sample	Matrix (Wawater	iltered n MS/h	ORO	B- Chi	втех				umbei	
		Sample (C=comp,	S=solid, O=waste/oil,	erforr	0158_1	056_26 016B_6	0218-1				otal N	
	Sample Identification	Preservat	BT=Tissue, A=Air)	ш Т Х	N N	5 © I N	N				Ť	Special instructions/Note:
34	VGnU 040-01 (102313)25'	10-23-13 1041 6	Solid		2	D					1	
	VGWU 040-01(102313) 30'	10-23-13 1045 6	Solid			0					1	
	V6w4 040-03 (102313) 2'	10-23-13 1059 6	Solid		à	2					1	
	V6ml 040-03 (102313) 51	10-23-13 1101 6	Solid		2	6]	
	V6wu 040-03 (102313) 10'	10-23-13 1103 6	Solid		Å	0					1	f
	V6wU040-03(102313)15	10-23-13 1107 6	Solid)	0					1	
	V6WU040-03(102313) 20'	10-23-13 1110 6	Solid		1	0					ł	2-23-13
	116WU040-03/102313)25'	10-23-17 1115 6	Solid			Ø					1	
	V6W4040-03/102313)30'	10-23-13 1118 6	Solid		X	0					1	
	V6WL040-11 (102313) 2'	10-23-13 1132 6	Solid)	0					1	Hold
إلى ا	VGWU 040-11 (102313) 5'	10-23-13 1134 6	Solid			<u> </u>					1	Hold
`	Possible Hazard Identification			Sar	nple D)isposa	al (A fe	e may be	assessed	if samples are	retain	ed longer than 1 month)
	Peliverable Requested: I, II, III, IV, Other (specify)	n BRaciological		Spe	cial In	structic	ons/QC	Requirem	ents:	y Lab	AICH	
	Empty Kit Relinquished by:	Date:		Time:					Meth	od of Shipment:		***************************************
	Relinquished by:	Date/Time: 10-24-13/1700	Company Accadic - 4	4	Receive	ed by:				Date/Time:		Company
4	Relinquisticed by:	Date/Time:	Company		Receive	ad by:				Date/Time:	,	Company
	Relinquished by:	Date/Time:	Company	_	Receive		S	and the second		Date/Tine:	13	0957 Company
	Custody Seals Intact: Custody Seal No.:	<u>.</u>			Cooler	Tempera	itucs(s) °	C and Other	Remarks:	77		

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Received by OCD: 10/28/2019 8:04:07 AM

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TestAmerica Houston 6310 Rothway Street

Page 93 of 210

Chain	of	Custody	Record
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Houston, TX 77040 Phone (713) 690-4444 Fax (713) 690-5646

Ē	Client Information	Sampler Ryon Nanny	Lab F Kud	• _M . chadka	ar, Sa	achin G			Carr	er Tracking	No(s)		COC No: 600-23595-866	
C	lient Contact: Ar Jonathan Olsen	Phone. (417) 751-8741	E-Ma	iil. nin kud	Ichad		stameric	ainc.com				F	Page: Fof 10	····
C	ompany:	Coll 211 VCII		T			 ^ n	alveie	Poque				hob#Booy	Rfill and
Ā	ddress:	Due Date Requested:		+-	1				Reque				Preservation C	odes:
2	929 Brianpark Drive Suite 300	TAT Requested (days):		.									A - HCL	M - Hexane
H	louston	1.1. Jack			1								C - Zn Acetate	O - AsNaO2
т Т	rate, zip: 'X, 77042	77906210											E - NaHSO4	Q - Na2SO3
P	hone: (617) 251-8741	PO#: Purchase Order Requested											G - Amchlor H - Ascorbic Acid	S - H2SO4
E	mail:	WO #:		Ъ З									I - Ice J - DI Water	U - Acetone V - MCAA
P	roject Name:	Project #:		or N								iners	K - EDTA L - EDA	W - ph 4-5 Z - other (specify)
s	IES Transfer Sites, Lea County NM	60004633 ssow#:		\7es								conta	Other:	
-	VGWU 0-40 Trunte Lina	/ /		d Sar MSD		lorid						er of		
		Sample	Matrix (wewater	iltere MS	8	0,0	BTEX					qun		
- (Sample (C≂comp,	S=solid, O=waste/oil,	eld F	15B_	56_28	21B-					otal N		
	Sample Identification	Sample Date Time G=grab) Preserva	BT=Tissue, A=Air)			8 8 N N				┼┼	┼╼┼╼┼╸	-F	Special	nstructions/Note:
JA I	VGW4 140-11 (102313) 10'	10-23-13 1138 6	Solid	ĥŤ		X	+						Hold	3
y	1/644 040-11 / 109313) 15'	10-23-13 1140 6	Solid		1	X						1	Hold	
471	VIGWIN 1040-11 (102313) 20'	10-23-13 1145 6	Solid	\square	1	b						1	Hold.	
48	16411 AMD-11 (102313) 25'	10-23-13 1150 G	Solid		1	$\overline{\chi}$			_			1	Hold	
ųς	V64404040-11 (102313) 30'	10-23-13 1155 6	Solid	Π		X						1	Hold.	
50	V6WU 040-06 (102313) 2'	10-23-13 1213 6	Solid	Π		10						1		
Ľ	16WU 040-06 (102313)5'	10-23-13 1215 6	Solid			Ø						1		
	VGWU 040-06 (102313) 10'	10-23-13 1218 6	Solid			6						Ĵ		
AN	VGWU040-06(102313)15'	10-23-13 1224 6	Solid			Ø						1		
6: X	15640 040-06 (102313) 20'	10-23-13 1226 6	Solid			Ø						1		
ૢૻૢ૾ઙૢૺૺ	VGWU 040-06 (102313) 25'	10-23-13 1228 6	Solid			X						1		
- 61 1	Possible Hazard Identification			Sa	ampl	e Dispo	sal (A f	ee may l	be asse:	sed if sa	amples are r	etained	l longer than	1 month)
20	Deliverable Requested: I, II, III, IV, Other (specify)	DI <u>6</u> UTIKNOWN RAdiological		Sr	Pecia	Instruct	tions/QC	Require	ements:	sal By La	iD	AICHIV	e <u>ror</u>	WIORIIIS
0 /2	mpty Kit Relinquished by:	Date:		Time	:					Method of	Shipment;			
	telinquished by	Date/Time:	Company Accently	-45	Rec	eived by		₩		•	Date/Time:		<u> </u>	Company
	telinguistied by:	Date/Time:	Company		Rec	eived by					Date/Time	<u>A</u>		Company
l by	telinquished by	Date/Time:	Company		Rec	See A		2-			Date/The	15	OAT	Company
eiveı	Custody Seals Intact: Custody Seal No.:	1			C00	oler Tempe	erature(s)	C and Oth	er Remark	s:			<u>- 27</u>	<u> </u>
Leci			<u></u>									<u> </u>		

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1620AU	enca	nousion

8310 Roth	away Street	
Houston,	TX 77040	

Chain of Custody Record

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2310 Rothway Street Houston, TX 77040 Phone (713) 690-4444 Fax (713) 690-5646		Chain of	Custody Re	cord		an a
Client Information	Sampler	Lab PM Kudch	adkar. Sachin G	Carrier Trackin	g No(s):	COC No 600-23595-8666.1
Client Contact:		E-Mail	kudchadkar@testamer	ricaine com		Page Lef 10
	1 (617) 291-0731			nalucia Requested		Job#:
Address:	Due Date Requested:					Preservation Codes:
2929 Briarpark Drive Suite 300 City.	TAT Requested (days):					A - HCL M - Hexane B - NaOH N - None
Houston State, Zio;	- 41 1 /					C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S
TX, 77042	Tandai d					E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3
<u>(617) 251 - 3741</u>	Purchase Order Requested					G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydra
Email: jonathan.olsen@arcadis-us.com	WO #.	N N	No)		<u>ب</u>	J - Ice U - Acetone J - Di Water V - MCAA
Project Name: HES Transfer Sites, Lea County NM	Project #: 60004633		es or		taine	L - EDA Z - other (specify)
Site: UGWL D-YD Trust Lin-	SSOW#:	lame	SD (Y		af con	Other:
	Sample	Matrix	IX/WS		ther c	••••••••••••••••••••••••••••••••••••••
	Туре	(W=water,	orm M 28D - 28D - 3_ GR(Num	
Sample Identification	Sample (C=com Sample Date Time G=grab) BT=Tissue, A=Air)	Perfo 80156 9056 80156 80156		Total	Special Instructions/Note:
	Preser	vation Code:				
VGWU 040-06(102313) 30'	1023-13 1230 6	Solid				
V6WU 040-05 (102313) 2'	10-23-13 1246 6	Solid				
VGWU 040-05 (102313) 5'	10-23-13 1247 6	Solid				
VGul 040-05 (102313) 10'	10-23-13 1249 6	Solid	N N			
1644 040-05 (102313) 15'	10-23-13 1253 6	Solid	$ \chi $)	
VGWU 040-05 (102313) 20'	10-23-13 1255 6	Solid	Ø			
16WU 040-05 (102313) 25'	10-23-13 1256 6	Solid				
VGWU 040-05(102313)30'	1023-13 1258 6	Solid				
V6WU 040-07 (102313) 2'	10-23-13 1314 6	Solid	1 D		1	
V6WU040-07(102313)5'	10-23-13 1316 6	Solid	x			
VGWU 040-07 (102313) 10'	10-23-13 1317 6	Solid				
Possible Hazard Identification		1 1	Sample Disposal (A	fee may be assessed if s	amples are retaine	d longer than 1 month)
Non-Hazard Flammable Skin Irritant Deliverable Requested: 1, II, III, IV, Other (specify)	Poison B Unknown Radiologic	al	Return To Clier	nt Disposal By La	ab Archiv	/e For Months
Empty Kit Relinquished by:	Date:	1+	ime:	Methodic	f Shipment:	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Сотрапу
Relizauisheetov		Aicolis - U Company	Received by:		Date/Time:	Company
	Date/Time:	Company	Pagaing	m	Ifforto (ffirme)	
Reiniquished Dy:	Date/ Hime:	Company	Received		02513	Of 5 - Company

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of 2	TestAmerica H
95 (6310 Rothway Street
age	Houston, TX 77040 Phone (713) 690-4444

Houston, TX 77040

Phone (713) 690-4444 Fax (713) 690-5646

Chain of Custody Record

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Client Information	Sampler. Ryan Wayny	Lab PM: Kudchadkar, Sachin G	Carrier Tracking No(s)	COC No: 600-23595-8666.1
Client Contact Mr. Jonathan Olsen	Phone: (617) 251-8741	E-Maii: sachin.kudchadkar@testamericainc.c	com	Page: Page Zof 10
Company: ARCADIS U.S., Inc.		Analys	is Requested	Job# Boo VSbib Roop
Address: 2020 Briannark Driva, Swite 300	Due Date Requested:			Preservation Codes:
City.	TAT Requested (days):			A - HCL M - Hexane B - NaOH N - None
HoustonState, Zip:	- Standard			C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S
TX, 77042 Phone.	PO#:			E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2SO3
<u>(617) 251-8741</u>	Purchase Order Requested			G - Amonior S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate
jonathan.olsen@arcadis-us.com	vv0 #.	No)		J - DI Water V - MCAA K - EDTA W - nb 4-5
Project Name: HES Transfer Sites, Lea County NM	Project #: 60004633	le (Ye		L - EDA Z - other (specify)
Ste VGWU 0-40 Trunk Lina	SSOW#:	Samp ASD (Y		Other:
	Sample	Matrix Wave of U		ied mu
	Sample (C=comp,	S=solid,		tal N
Sample Identification	Sample Date Time G=grab) Preserva			P Special Instructions/Note:
A V/SWIL DYD - D7 (102313) 15'	10-23-13 1318 6			1
6 NGWH 040-07 (102313) 20'	10-23-13 1320 6	Solid D		
G VGWU 040-07 (102313) 25'	10-23-13 1324 6	Solid D		
24 116mu 840 - 07 (102313) 30'	10-23-13 1327 6	Solid D		1
V6WU040-13 (102313) 2'	10-23-13 1348 6	Solid jo		1 4010
VGull 040-13(102313) 5'	10-23-13 1349 6	Solid X		1 Hold
V6WU 040-13(102313) 10'	10-23-13 1352 6	Solid X		1 Hold
V6WU040-13(102313)15'	10-23-13 1355 6	Solid 🕖		1 Hold
UGWI 040-13(102313) 20'	10-23-13 1357 6	Solid D		1 Hold
V6WU04A-13(102313)25'	10-23-13 1359 6	Solid 冹		1 Hold.
11/wel 040-13 (102313) 30'	10-23-13 1400 6	Solid		1 Hold
		Sample Disposal (A fee ma	ay be assessed if samples are ret	tained longer than 1 month)
Deliverable Requested: I, II, III, IV, Other (specify)	UISULI DI UTIKIUWIT KAUIOlOgical	Special Instructions/QC Requ	Jirements:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:	
Relinquished by:	Date/Time:	Company Received by:	Date/Time:	Company
Relinguished by:	Date/Time:	Company Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company Received B	Date The St	3 0957 Company
Custody Seals Intact: Custody Seal No.:		Cooler Torperative(s) C and	Other Remarks:	
			- v	

96 of 210 6310 Rothway Street

Houston, TX 77040

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Received by OCD: 10/28/2019 204:07 ANE: 20 2 2 2

Chain of Custody Record

age	Houston, 1X 77040 Phone (713) 690-4444 Fax (713) 690-5646						,								
2	Client Information	Sampler Ryan Nan-	2.7	Lab PM Kudcł	1: nadkai	, Sac	hin G			Ca	rrier Tracking	no(s):		COC No: 600-23595-8666	.1
	Client Contact: Mr. Jonathan Olsen	Phone (617)251-8	3741	E-Mail sachir	n.kudo	hadka	ar@tes	tameri	cainc.co	m				Page: Page of 10	
	Company: ARCADIS U.S., Inc.			·····				Aı	nalysis	Reque	ested			Job # B00486	16.0000
	Address: 2929 Briarpark Drive Suite 300	Due Date Requested:		Ì										Preservation Cod	es:
	City: Houston State, Zip: TX, 77042	TAT Requested (days): Handard	1											A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH	M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2SO3
	(617) 251-8741	Purchase Order Requ	lested		()									G - Amchlor H - Ascorbic Acid	S - H2SO4 T - TSP Dodecahydrate
	Email: jonathan.olsen@arcadis-us.com	WO #:		s or No)								s	J - Di Water	U - Acetone V - MCAA	
	Project Name: HES Transfer Sites, Lea County NM	Project #: 60004633			o (Ye es or								Itaine	L - EDA	Z - other (specify)
	Site VGWU 0-40 Trunk lin=	SSOW#:			sampi SD (Y		ride						of cor	Other:	
	Sample Identification	Sample Date Tir	Sample Type (C=comp, me G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Perform MS/M	8015B_DRO	9056_28D - Chlo 8015B_GRO	- 8021B- BTEX					Total Number	Special In	structions/Note:
				ation Code:	\mathbf{A}	NI	N N	N							
76 -	VGWU 040-14(102313) 2'	10-23-13 141	16 6	Solid			X						1	Hold	
29	VGWU 040 - 14 (102313) 5'	10-23-13 141	18 6	Solid			X _						1	Hold	
ço	V6W4 040- 14 (102313) 10'	10-23-13 14	20 6	Solid			<u>×</u>	_					1	Hold	-
1	V644040-14(102313)15'	10-23-13 14	22 6	Solid			X						1	Hold	
92	16mil 040 - 14 (102313)20	10.23-13 14	24 6	Solid			\times						1	Hold	
83	VGUL 040 - 14 (102313) 25'	10-23-13 14	26 G	Solid		`	χ)	Hold	
8Y	116mil 040-14 (102313) 30'	10-23-13 14:	28 6	Solid		(κ						1	Hold	
	V6WU 040-08 (102313) 2'	10-23-13 14	43 6	Solid			\otimes						1		
ZAJ	V644 040-08 (102313) 5'	10-23-13 144	14 6	Solid			N						1		
4:0	V644 040-08 (102313) 10'	10-23-13 14	48 6	Solid			\mathcal{X}						1		
	V6WU 040-08 (102313) 15'	10-23-13 14	50 6	Solid		/	N		-				1		
019	Possible Hazard Identification				San	nple l	Dispos	al (A	fee may	be asse	essed if sa	mples are	retaine	ed longer than 1 i	month)
28/2	Deliverable Requested: I, II, III, IV, Other (specify)	ON B UNKNOWN	Radiologica		Spe	cial Ir	nstructi	ons/Q	C Requir	rements:	osal By La	D	Archi	ve F or	Months
10/	Empty Kit Relinquished by:	Date:			lime:						Method of	Shipment			
ä	Relinquished by	Date/Time.	700	Company		Receiv	ed by:					Date/Time:			Company
00	Relinquister by:	Date/Time:		Company	17	Receiv	ed by:					Date/Time:	,		Company
(q pa	Relinquished by:	Date/Time ⁻		Company		Receiv	D DU	T	T			Date/Tine	5/13	0957	Company
ceiv	Custody Seals Intact: Custody Seal No.:	1		I		Cooler	Temper	ature(s)	°C and Ot	ther Remar	ks:	1.0/20		- 10- <u> </u>	L.,

of 210

Chain of Custody Record

ge 97	6310 Rothway Street Houston, TX 77040 Rhopp (712) 600 4444 Epy (712) 600 5646	Cha	ain o	fCι	istody Reco	rd		
Pa_{q}	Client Information	Sampler: Kyan Nanny	Lab PN Kudo	и . hadkar	, Sachin G	Carrier Tracking	No(s)	COC № 600-23595-8666.1
	Glient Contact Mr. Jonathan Olsen	1617) 251-8741	E-Mail sachi	: n.kudc	hadkar@testamericain	c.com		Page: Page9 of 10
	Company. ARCADIS U.S., Inc.				Analy	sis Requested	<u> </u>	Job# BADYZEILO, DODE
	Address: 2929 Briarpark Drive, Suite 300	Due Date Requested:						Preservation Codes:
ووالمالية المحافظة ا	City Houston State, Zip TX, 77042	TAT Requested (days): Handard						A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O43 E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3
	7617) 251-8741	PO #: Purchase Order Requested		æ				G - Arnchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate
	Email. jonathan.olsen@arcadis-us.com	WO #:	ľ				ø	I - Ice U - Acetone J - DI Water V - MCAA
	Project Name: HES Transfer Sites, Lea County NM	Project #: 60004633		e (Yes			tainer	K - EDTA W - ph 4-5 L - EDA Z - other (specify)
	VGWU 0-40 Trunk Lin=	SSOW#:		Sample ASD (Ye	oride		of cont	Other:
	Sample Identification	Sample Date Time Sample Date Time Sample Date Time Sample Preservation C	atrix =water, =solid, raste/oil, sue, A=Air) Code:	Field Filtered	X 8015B_DRO Z 9056_28D - Chil Z 8015B_GRO Z 8015B_GRO Z 8021B-BTEX		Total Number	Special Instructions/Note:
:Q	VGWU 040-08 (102313) 20'	10-23-13 1454 6 S	Solid	ŤÌ	X		1	
ŝ	VGWU 040-08 (102313) 25'	10-23-13 1457 6 s	Solid		X		1	
03	16wul 040-08(102313)30'	10-23-13 1458 6 s	Solid		X		1	
61	VGWU 040-15 (102313) 2'	10-23-13 1513 6 S	olid		X			Hold
	VGWU 040 - 15 (102313) 5'	10-23-13 1514 6 s	Solid		k		1	Hold
Ī	VGW4 040-15 (102313) 10'	10-23-13 1516 6 s	olid		ĺ ĺ			Hold
Ī	Ubwel pup-15/102313) 15'	10-23-13 15 18 6 s	olid					Late
_	16WIL 040-15/102313)20'	10-23-13 1522 6 s	olid		b		1	Hold
AN	116 w 11 1410-15/102313) 25'	10-23-13 1524 6 s	iolid		4		1	Hold
1:07	1/6 wil 040-15/ 102313) 30'	10-23-13 1527 6 s	olid				1	Hold
Ś	VGWU 040-09 (102313) 2'	10.23-13 1547 6 s	iolid		14		<u>,</u>	11-10
610	Possible Hazard Identification		4.	San	ple Disposal (A fee i	nay be assessed if sa	mples are retaine	ed longer than 1 month)
8/2(on B 🔄 Unknown 🔄 Radiological	,	Sne	Return To Client	Disposal By La	b Arch	ive For Months
0/2	Empty Kit Relinquished by:	Date		Lime:		Method of	Shinment	
D: 1	Relinquished by:	Date/Time:	any,		Received by.		Date/Time:	Company
0C)	Relinquishee by:	<u>10-24-1711/00</u> Ани Date/Time: Сотра	<i>а d</i> ; 5 - 4 any	15	Received by:		Date/Time:	Company
(p)	Relinquished by:	Date/Time:	- anv		Rectivedby	2		
ived		Compa	a. 1y		<u>Palos</u>		00/25/13	0757 Lompany
lece	Custody Seals Intact: Custody Seal No.: Δ Yes Δ No				Cooler Tekspelatine(s) °C ar	d Other Remarks.	11	

6310 Rothway Street

Houston, TX 77040

Received by OCD: 10/28/2019 8:04:07 AM

Chain of Custody Record

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Houston, 1X 77040 Phone (713) 690-4444 Fax (713) 690-5646

Client Information	Sampler Lab P					adkar, Sachin G					Carrie	r Tracking	No(s):		COC No: 600-23595-8666.1		
Client Contact:	Phone:	1-27	7143	E-Mail											Page:		
Mr. Jonathan Olsen	(617) 25	1-01	91	sach	In Kud	Ichad	kar@te	estam	ericain	c.com					Page/Oot (O		
ARCADIS U.S., Inc.						Analysis R						ted	·····		Broysle	16.0000	
^{Address:} 2929 Briarpark Drive Suite 300	Due Date Requested:													Preservation Cod	les:		
City:	TAT Requested (days):				ŀ										B - NaOH	N - None	
State, Zip:	Cotandar														D - Nitric Acid	P - Na2O4S	
TX, 77042	7 10 10 10	<i>e</i> '													E - NaHSO4 F - MeOH	Q - Na2SO3 R - Na2S2SO3	
(617) 251-8741	PO#: Purchase Order Requested														G - Amchior H - Ascorbic Acid	S - H2SO4 T - TSP Dodecahydrate	
Email: ionathan olsen@arcadis-us.com	WO #:				0 N										I - Ice J - DI Water	U - Acetone V - MCAA	
Project Name.	Project #:				Yes or N									iners	K - EDTA	W - ph 4-5 Z - other (specify)	
HES Transfer Sites, Lea County NM	60004633													onta	Other		
VGWU 0-40 Trunk Linz	33011#.				Sam ASD (oride							r of c			
			Sample M	atrix	ered MS/h	l g	- Chl	Q À	5					mbei			
			Type (v	f≕water, ≕solid,	er H	"DF	28D	5 6						NU			
Sample Identification	Sample Date	ample Time	(C=Comp, Om G=grab) BT=Tis	vaste/oil, sue, A=Air)	Perfe	80151	9056	80151						Tota	Special In	structions/Note:	
		\succ	Preservation	Code:	XX	N	NN	N N				İ					
VGUU 040-09(102313)5'	10-23-13 1	548	6 .	Solid			χ							1			
VGWU 040-09(102313)10'	10-23-13 14	550	6 8	Solid			X							1			
V6wU040-09(102313)15	10-23-13 1	553	6	Solid			X							1			
V6WU040-09(102313)20'	10-23-13 1	556	6 8	Solid			Ø							1			
V6u1040-09(102313)25'	10-23-13 1	558	6 8	Solid			∞)			
V6mU040-09(102313) 30'	10-23-13 10	600	6 8	Solid			\mathcal{D}					-			·		
			5	Solid													
				olid					_		-				1		
			\$	Solid		Ľ	P		-		-						
•			5	Solid										\neg			
			Ś	Solid													
Possible Hazard Identification			·····		Sá	mple	e Dispo	osal (A fee	may be	asses	sed if sa	amples are	retair	ned longer than 1	month)	
Non-Hazard Flammable Skin Irritant Poise	n B Unknown	R_{i}	adiological				Return	To Cli	ent	<u>Y</u>	Dispo	al By La	ib -	Arci	hive For	Months	
Deliverable Requested: I, II, III, IV, Other (specify)					Sp	becial	Instruc	ctions	QC R	equireme	ents:						
Empty Kit Relinquished by:	Dat	te:			Time:							Method of	Shipment:				
Relinquished by	Date/Time:	1706			-45	Rece	eived by						Date/Time:		<u>"</u>	Company	
Refinguisser By:	Date/Time:		Comp	bany		Rece	eived by:						Date/Time:			Company	
Relinquished by	Date/Time:		Com	any		Rec		Ee,	D				Data Time 5/3 0757 Company				
Custody Seals Intact: Custody Seal No.:	iy Seal No.:							erefye	e(s) °C a	nd Other F	Remarks	:	11	, <u> </u>			

13

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Login Number: 81631 List Number: 1

Creator: Lopez, Sandro R

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.6/2.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: TestAmerica Houston

Job Number: 600-81631-1

Analytical Report 536657

for Arcadis - Houston

Project Manager: Jonathan Olsen

HES Transfer

30-SEP-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)



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LCS / LCSD Recoveries	10
MS / MSD Recoveries	11
Chain of Custody	13
Sample Receipt Conformance Report	15



30-SEP-16

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

Reference: XENCO Report No(s): **536657 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) 536657. 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. 536657 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,

Kunshoah

Kelsey Brooks Project Manager

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

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





Sample Id

VGWUO40-11 (2')
VGWUO40-11 (4')
VGWUO40-10 (2')
VGWUO40-10 (4')
VGWUO40-10 (7')
VGWUO40-10 (70')
VGWUO40-14 (2')
VGWUO40-14 (4')
VGWUO40-15 (2')
VGWUO40-15 (4')
VGWUO40-13 (2')
VGWUO40-13 (4')
VGWUO40-13 (10')

Sample Cross Reference 536657

Arcadis - Houston, Houston, TX

HES Transfer

Matrix	Date Collected	Sample Depth	Lab Sample Id
S	09-12-16 10:05		536657-001
S	09-12-16 10:05		536657-002
S	09-12-16 10:05		536657-003
S	09-12-16 10:05		536657-004
S	09-12-16 10:05		536657-005
S	09-12-16 10:05		536657-006
S	09-12-16 10:05		536657-007
S	09-12-16 10:05		536657-008
S	09-12-16 10:05		536657-009
S	09-12-16 10:05		536657-010
S	09-12-16 10:05		536657-011
S	09-12-16 10:05		536657-012
S	09-12-16 10:05		536657-013





CASE NARRATIVE



Client Name: Arcadis - Houston Project Name: HES Transfer

Project ID: Work Order Number(s): 536657
 Report Date:
 30-SEP-16

 Date Received:
 09/13/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3000202 Inorganic Anions by EPA 300/300.1

Lab Sample ID 536657-010 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 536657-001, -002, -003, -004, -007, -008, -009, -010, -011, -012.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.





Project Id:Contact:Jonathan OlsenProject Location:Lovington NM

Certificate of Analysis Summary 536657

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Tue Sep-13-16 10:05 amReport Date:30-SEP-16Project Manager:Kelsey Brooks

	Lab Id:	536657-00	1	536657-0	02	536657-0	003	536657-0	04	536657-0	05	536657-0	006	
Analysis Requested	Field Id:	VGWUO40-1	1 (2')	VGWUO40-1	11 (4')	VGWUO40-10 (2')		VGWUO40-10 (4')		VGWUO40-10 (7')		VGWUO40-10 (70')		
	Depth:													
	Matrix:	SOIL	SOIL			SOIL		SOIL		SOIL		SOIL		
	Sampled:	Sep-12-16 10	Sep-12-16 10:05		Sep-12-16 10:05		Sep-12-16 10:05		0:05	Sep-12-16 10:05		Sep-12-16 10:05		
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-16-16 15	5:48	Sep-16-16 15:48		Sep-16-16 15:48		Sep-16-16 15:48		Sep-22-16 09:00		Sep-30-16 09:00		
	Analyzed:	Sep-16-16 21	Sep-16-16 21:56		2:04	Sep-16-16 22:27		Sep-16-16 22:35		Sep-22-16 1	8:09	Sep-30-16	12:57	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		44.2	10.0	ND	10.0	1980	10.0	428	10.0	259	10.0	920	5.00	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Huns Boah

Kelsey Brooks Project Manager





Project Id:Contact:Jonathan OlsenProject Location:Lovington NM

Certificate of Analysis Summary 536657

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Tue Sep-13-16 10:05 amReport Date:30-SEP-16Project Manager:Kelsey Brooks

	Lab Id:	536657-00)7	536657-0)08	536657-0	09	536657-0	10	536657-0	11	536657-0)12
Analysis Requested	Field Id:	VGWUO40-1	4 (2')	VGWUO40-	14 (4')	VGWUO40-15 (2')		VGWUO40-15 (4')		VGWUO40-13 (2')		VGWUO40-13 (4')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-12-16 1	Sep-12-16 10:05		Sep-12-16 10:05		Sep-12-16 10:05		0:05	Sep-12-16 10:05		Sep-12-16 10:05	
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-16-16 15:48		Sep-16-16 15:48		Sep-16-16 15:48		Sep-16-16 15:48		Sep-16-16 15:48		Sep-16-16 15:48	
	Analyzed:	Sep-16-16 2	Sep-16-16 22:43		22:51	Sep-16-16 22:58		Sep-16-16 23:06		Sep-16-16 23:30		Sep-16-16	23:37
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		87.0	10.0	101	10.0	ND	10.0	ND	10.0	753	10.0	714	10.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Huns Boah

Kelsey Brooks Project Manager





Project Id:Contact:Jonathan OlsenProject Location:Lovington NM

Certificate of Analysis Summary 536657

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Tue Sep-13-16 10:05 amReport Date:30-SEP-16Project Manager:Kelsey Brooks

Analysis Requested	Lab Id:	536657-013				
	Field Id:	VGWUO40-13 (10')				
	Depth:					
	Matrix:	SOIL				
	Sampled:	Sep-12-16 10:05				
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-22-16 09:00	1	l .	l .	
	Analyzed:	Sep-22-16 18:16				
	Units/RL:	mg/kg RL				
Chloride		10.1 10.0				

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Huns Boah

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 LimitSDL Sample Detection LimitLOD Limit of DetectionPQL Practical Quantitation LimitMQL Method Quantitation LimitLOQ 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	




BS / BSD Recoveries

Project Name: HES Transfer

Work Order #: 536657							Pro	ject ID:			
Analyst: MNR	D	ate Prepar	ed: 09/16/201	6			Date A	nalyzed: (09/16/2016		
Lab Batch ID: 3000202 Sample: 713850-1-	BKS	Batcl	n #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K/BLANK	SPIKE /]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
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	275	110	250	274	110	0	90-110	20	
Analyst: MNR	Date Prepared: 09/22/2016 Date Analyzed: 09/22/2016										
Lab Batch ID: 3000568 Sample: 714063-1-	BKS	Batcl	n #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K/BLANK	SPIKE /]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
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
Inorganic Anions by EPA 300/300.1 Analytes Chloride	Blank Sample Result [A] <10.0	Spike Added [B] 250	Blank Spike Result [C] 244	Blank Spike %R [D] 98	Spike Added [E] 250	Blank Spike Duplicate Result [F] 238	Blk. Spk Dup. %R [G] 95	RPD %	Control Limits %R 90-110	Control Limits %RPD 20	Flag
Inorganic Anions by EPA 300/300.1 Analytes Chloride Analyst: MNR	Blank Sample Result [A] <10.0 D	Spike Added [B] 250 ate Prepar	Blank Spike Result [C] 244 ed: 09/30/201	Blank Spike %R [D] 98	Spike Added [E] 250	Blank Spike Duplicate Result [F] 238	Blk. Spk Dup. %R [G] 95 Date A	RPD % 2 nalyzed: (Control Limits %R 90-110 09/30/2016	Control Limits %RPD 20	Flag
Inorganic Anions by EPA 300/300.1 Analytes Chloride Analyst: MNR Lab Batch ID: 3001120 Sample: 714399-1-	Blank Sample Result [A] <10.0 D BKS	Spike Added [B] 250 ate Prepar Batcl	Blank Spike Result [C] 244 ed: 09/30/201 h #: 1	Blank Spike %R [D] 98	Spike Added [E] 250	Blank Spike Duplicate Result [F] 238	Blk. Spk Dup. %R [G] 95 Date A	RPD % 2 nalyzed: (Matrix: S	Control Limits %R 90-110 09/30/2016 Solid	Control Limits %RPD 20	Flag
Inorganic Anions by EPA 300/300.1 Analytes Chloride Analyst: MNR Lab Batch ID: 3001120 Sample: 714399-1- Units: mg/kg	Blank Sample Result [A] <10.0 D BKS	Spike Added [B] 250 ate Prepar Batcl BLAN	Blank Spike Result [C] 244 ed: 09/30/201 h #: 1 K /BLANK \$	Blank Spike %R [D] 98 6 SPIKE /]	Spike Added [E] 250 BLANK S	Blank Spike Duplicate Result [F] 238 SPIKE DUP	Blk. Spk Dup. %R [G] 95 Date A	RPD % 2 nalyzed: (Matrix: S RECOVI	Control Limits %R 90-110 09/30/2016 Solid ERY STUI	Control Limits %RPD 20	Flag
Inorganic Anions by EPA 300/300.1 Analytes Chloride Analyst: MNR Lab Batch ID: 3001120 Sample: 714399-1- Units: mg/kg Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A] <10.0 D BKS Blank Sample Result [A]	Spike Added [B] 250 ate Prepar Batcl BLAN Spike Added [B]	Blank Spike Result [C] 244 ed: 09/30/201 h #: 1 K /BLANK Spike Result [C]	Blank Spike %R [D] 98 6 SPIKE /] Blank Spike %R [D]	Spike Added [E] 250 BLANK S Spike Added [E]	Blank Spike Duplicate Result [F] 238 SPIKE DUP Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G] 95 Date A LICATE Blk. Spk Dup. %R [G]	RPD % 2 nalyzed: (Matrix: S RECOVI RPD %	Control Limits %R 90-110 09/30/2016 Solid ERY STUI Control Limits %R	Control Limits %RPD 20 DY Control Limits %RPD	Flag

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 Page 109 of 210

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Form 3 - MS / MSD Recoveries

Project Name: HES Transfer

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Work Order # :	536657						Project II	D:						
Lab Batch ID:	3000202	QC- Sample ID:	536602	-003 S	Ba	tch #:	1 Matri	x: Soil						
Date Analyzed:	09/16/2016	Date Prepared:	09/16/2	016	Ar	alyst: N	MNR							
Reporting Units:	mg/kg		N	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY				
Inorgai	nic Anions by EPA 300/300.1	Parent Sample Bagwitt	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag		
	Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	% 0	%K	%RPD			
Chloride		2350	1250	3640	103	1250	3630	102	0	90-110	20			
Lab Batch ID:	3000202	QC- Sample ID:	536657	-010 S	Ba	tch #:	1 Matri	x: Soil						
Date Analyzed:	09/16/2016	Date Prepared:	09/16/2	016	Ar	alyst: N	MNR							
Reporting Units:	mg/kg	/kg MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY												
r														
Inorgai	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %B	RPD	Control Limits %R	Control Limits %RPD	Flag		
Inorgai	nic 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	nic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A] <10.0	Spike Added [B] 250	Spiked Sample Result [C] 278	Spiked Sample %R [D] 111	Spike Added [E] 250	Duplicate Spiked Sample Result [F] 279	Spiked Dup. %R [G] 112	RPD %	Control Limits %R 90-110	Control Limits %RPD 20	Flag X		
Chloride Lab Batch ID:	nic Anions by EPA 300/300.1 Analytes 3000568	Parent Sample Result [A] <10.0 QC- Sample ID:	Spike Added [B] 250 536919	Spiked Sample Result [C] 278 -001 S	Spiked Sample %R [D] 111 Ba	Spike Added [E] 250 atch #:	Duplicate Spiked Sample Result [F] 279 1 Matri	Spiked Dup. % R [G] 112 x: Soil	RPD %	Control Limits %R 90-110	Control Limits %RPD 20	Flag X		
Chloride Lab Batch ID: Date Analyzed:	hic Anions by EPA 300/300.1 Analytes 3000568 09/22/2016	Parent Sample Result [A] <10.0 QC- Sample ID: Date Prepared:	Spike Added [B] 250 536919 09/22/2	Spiked Sample Result [C] 278 -001 S 016	Spiked Sample %R [D] 111 Ba Ar	Spike Added [E] 250 tch #: nalyst: N	Duplicate Spiked Sample Result [F] 279 1 Matri MNR	Spiked Dup. %R [G] 112 x: Soil	RPD %	Control Limits %R 90-110	Control Limits %RPD 20	Flag X		
Chloride Lab Batch ID: Date Analyzed: Reporting Units:	hic Anions by EPA 300/300.1 Analytes 3000568 09/22/2016 mg/kg	Parent Sample Result [A] <10.0 QC- Sample ID: Date Prepared:	Spike Added [B] 250 536919 09/22/2 W	Spiked Sample Result [C] 278 -001 S 016 IATRIX SPIK	Spiked Sample %R [D] 111 Ba Ar E / MAT	Spike Added [E] 250 itch #: nalyst: N RIX SPI	Duplicate Spiked Sample Result [F] 279 1 Matri MNR KE DUPLICA	Spiked Dup. %R [G] 112 x: Soil TE REC	RPD % 0	Control Limits %R 90-110 STUDY	Control Limits %RPD 20	Flag X		
Chloride Chloride Lab Batch ID: Date Analyzed: Reporting Units: Inorgan	hic Anions by EPA 300/300.1 Analytes 3000568 09/22/2016 mg/kg hic Anions by EPA 300/300.1	Parent Sample Result [A] <10.0 QC- Sample ID: Date Prepared: Parent Sample Result	Spike Added [B] 250 536919 09/22/2 M Spike Added	Spiked Sample Result [C] 278 -001 S 016 [ATRIX SPIK] Spiked Sample Result [C]	Spiked Sample %R [D] 111 Ba Ar E / MAT Spiked Sample %R	Spike Added [E] 250 atch #: nalyst: M RIX SPI Spike Added	Duplicate Spiked Sample Result [F] 279 1 Matri MNR KE DUPLICA Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G] 112 x: Soil TE REC Spiked Dup. %R	RPD % 0 OVERY RPD %	Control Limits %R 90-110 STUDY Control Limits %R	Control Limits %RPD 20 Control Limits %RPD	Flag X Flag		
Inorgan Chloride Lab Batch ID: Date Analyzed: Reporting Units:	hic Anions by EPA 300/300.1 Analytes 3000568 09/22/2016 mg/kg hic Anions by EPA 300/300.1 Analytes	Parent Sample Result [A] <10.0 QC- Sample ID: Date Prepared: Parent Sample Result [A]	Spike Added [B] 250 536919 09/22/2 N Spike Added [B]	Spiked Sample Result [C] 278 -001 S 016 IATRIX SPIK Spiked Sample Result [C]	Spiked Sample %R [D] 1111 Ba Ar E / MAT Spiked Sample %R [D]	Spike Added [E] 250 atch #: nalyst: M RIX SPI Spike Added [E]	Duplicate Spiked Sample Result [F] 279 1 Matrix MNR KE DUPLICA Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G] 112 x: Soil TE REC Spiked Dup. %R [G]	RPD % 0 OVERY RPD %	Control Limits %R 90-110 STUDY Control Limits %R	Control Limits %RPD 20 Control Limits %RPD	Flag X Flag		

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.

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Form 3 - MS / MSD Recoveries

Project Name: HES Transfer

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ab Batch D: bat Analyzed:3000568 0922/2016QC- Sample D: Date Prepared:5370101 S 0922/2016Batch #: Analyst:1 Matrix:SoitSoitReporting Unit:mg/kgmg/kg $3701 - 001 S$ 0922/2016 $3043 + 3003$ NalpetsMSR $3701 - 001 S$ Nalpets $3912 - 016 - 000 S$ Nalpets $3912 - 016 - 000 S$ Nalpets $3916 - 000 S$ Nalpets $3916 - 000 S$ Nalpets $30112 - 000 S$ Nalpets $3000 - 000 S$ Nalpets $3000 - 000 S$ Nalpets $30112 - 000 S$ Nalpets $3000 - 000 S$ Nalpets $30112 - 000 S$ Nalpets $30112 - 000 S$ Nalpets $3010 - 000 S$ Nalpets $3000 - 00 S$	Work Order # :	536657						Project II):							
Date Analyze:09/22/2016Date Preparel09/22/2016Analys:MRIReporting Units:m/kgMIRUS SUPPA 300/300.1Parent Result [A)Spike Spike Result [A)Spike Result [B)Spike Result [C]Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike NBSpike Spike Spike NBSpike Spike Spike NBSpike Spike Spike NBSpike Spike Spike SpikeSpike Spike Spike Spike NBSpike Spike Spike Spike Spike NBSpike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spike Spi	Lab Batch ID:	3000568	QC- Sample ID:	537017	-001 S	Ba	tch #:	1 Matri	x: Soil							
Reporting Unix mg/kg NETRIX SPIKE /MATERIX SPIKE DUPLICATE RECOVERY STUDY Inor gain Analytes $\frac{Nample}{Mample}}{Analytes}$ $\frac{Spike}{IC}$ $\frac{Spike}{IC}$ $\frac{Spike}{NR}$ $\frac{Spike}{Result}}{IC}$ $\frac{Spike}{Result}}{Result}$ $\frac{Spike}{Result}$	Date Analyzed:	09/22/2016	Date Prepared:	09/22/2	016	Ar	alyst: N	MNR								
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Reporting Units:	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY					
AnalytesAcadem [A]Academ [B]Point [B]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point [C]Point <br< th=""><th>Inorga</th><th>nic Anions by EPA 300/300.1</th><th>Parent Sample Bosult</th><th>Spike</th><th>Spiked Sample Result</th><th>Spiked Sample</th><th>Spike</th><th>Duplicate Spiked Sample</th><th>Spiked Dup.</th><th>RPD</th><th>Control Limits</th><th>Control Limits</th><th>Flag</th></br<>	Inorga	nic Anions by EPA 300/300.1	Parent Sample Bosult	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag			
Chloride190012503070941250304091190-1020Lab Batch ID: Abalyzed:3001120QC-Sample ID: 930/2016536657-006 SBat-h:: Analyzed:1Matrix:: SoilSoilSoil SoilSoil Analyzed:1Matrix:: SoilSoil SoilSoil SoilSoil Analyzed:NoSoil Soil SoilSoil AddedNoSoil Soil Soil Soil (ClSoil Soil Soil Soil (ClSoil Soil Soil Soil 		Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%K [G]	% 0	%K	%KPD				
Lab Batch ID: Choride3001120QC - Sample ID: Date Prepared536657-006 S 09/30/2016Batch #: Hark: Hark: HAIL'S HAIL'S HAIL'S HAIL'S HAIL'S HAIL'S HAIL'S 	Chloride		1900	1250	3070	94	1250	3040	91	1	90-110	20				
Date Analyzed: 99/30/2016 Date Prepare: 99/30/2016 Analysts: MRR Reporting Units: m/kg Analysts by EPA 300/300.1 Parent Sample Result [A] Spike Sample Resul	Lab Batch ID:	3001120	QC- Sample ID:	536657	-006 S	Ba	tch #:	1 Matri	x: Soil							
Reporting Units: mg/kg MATRIX SPIKE VATURE SPICE VERUE VER	Date Analyzed:	09/30/2016	Date Prepared:	09/30/2	016	Ar	alyst: N	MNR								
Inorganic Anions by EPA 300/300.1Parent Sample Result [A]Spiked Spike Added [B]Spiked Sample Result [C]Spiked Sample Nd (D]Spiked Sample Added [E]Spiked Sample Added [E]Spiked Spiked Sample Spiked Sample Result [F]Spiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NSpiked NS	Reporting Units:	mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY													
AnalytesIAIIAIIEIIAIIAIIEIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAIIAI	Inorga	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result	Spiked Sample %B	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD	Control Limits %R	Control Limits %RPD	Flag			
Chloride920250116096250115092190-11020Lab Batch ID: Date Analyzed:3001120 09/30/2016QC - Sample ID: Date Prepared: $537439 - 001$ S 09/30/2016Batch #: Analyzet:1Matrix: Soil 501100 20Chloride09/30/2016Date Prepared:09/30/2016Analyst:MNR 501100 501100 501100 5011000 50110000 $50110000000000000000000000000000000000$		Analytes	[A]	[B]	[0]	[D]	[E]	itesuit [i]	[G]							
Lab Batch ID:3001120QC- Sample ID:537439-001 SBatch #:1Matrix: SoilDate Analyzed:09/30/2016Date Prepared:09/30/2016Analyst:MNRReporting Units:mg/kgMATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDYInorganic Anions by EPA 300/300.1Parent Sample Result [A]Spiked [B]Spiked Result [B]Spiked Spiked (D]Duplicate Spiked Spiked Spiked Spiked Sample (E]Spiked Spiked Spiked Spiked Spiked Sample (E]Duplicate Spiked Spiked Spiked Spiked Sample (E]Spiked Spiked Spiked Spiked Spiked Spiked Sample (E]Spiked Spiked 	Chloride		920	250	1160	96	250	1150	92	1	90-110	20				
Date Analyzed: $09/30/2016$ Date Prepared: $09/30/2016$ Analyst: MNR Reporting Units: mg/kg MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY Inorganic Anions by EPA 300/300.1 Parent Sample Result [A] Spiked Sample [C] Spiked [C] </th <td>Lab Batch ID:</td> <td>3001120</td> <td>QC- Sample ID:</td> <td>537439</td> <td>-001 S</td> <td>Ba</td> <td>tch #:</td> <td>1 Matri</td> <td>x: Soil</td> <td></td> <td></td> <td></td> <td></td>	Lab Batch ID:	3001120	QC- Sample ID:	537439	-001 S	Ba	tch #:	1 Matri	x: Soil							
Reporting Units: mg/kg MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY Inorganic Anions by EPA 300/300.1 Parent Sample Result [A] Spike Added [B] Spike (Sample Result [C]) Spike Added [B] Spike (Sample Result [C]) Sp	Date Analyzed:	09/30/2016	Date Prepared:	09/30/2	016	Ar	alyst: N	MNR								
Inorganic Anions by EPA 300/300.1Parent Sample Result [A]Spike 	Reporting Units:	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY					
Analytes [A] [B] [C] [A] [E] [A] [C] [Inorga	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result	Spiked Sample %B	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD	Control Limits %R	Control Limits %RPD	Flag			
Chloride 4120 2500 6760 106 2500 6650 101 2 90-110 20		Analytes	[A]	[B]	[~]	[D]	[E]	Acout [1]	[G]							
	Chloride		4120	2500	6760	106	2500	6650	101	2	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.

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	D#:	СН	AIN (AN	OF CL IALYS	(JSTOD SIS REC	Y & I QUE:	LABO ST FO	RATO	DRY	Page <u> </u>	_ of <u> </u>	Lab Work Order # 536657
Contect & Company Name:	Telephone:		· · · · · · · · · · · · · · · · · · ·	Preservativ	• E							Keys Preservation Key: Container information Key:
Arcaais; olsen	Fax:	348 14	-	Filtered (~								A. H.SO 1. 40 ml Vial B. HCL 2. 1 LAmber
2 2929 Brianpark D	~			Container						+		C. HNO, 3. 250 ml Plastic D. NaOH 4. 500 ml Plastic
City Suit 300 Zip	E-mail Address:		- 'alteration		PAR	MET	ER ANA	LYSIS 8	METH	ÓD	·	F. Other 6. 2 oz. Glass 7. 4 oz. Glass
"HUNSTON TX 7704	2 Jonathan	orsen carca	1912.00	r /	' . /		. /		· /	' /	/	G. Other: 8. 8 oz. Glass H. Other:
LOVINGTIN, NM (HES					φ /							10. Other:
Melisa Phan	Sampler's Segnature	<u> </u>		. /	<u>ş</u>	/				/		SO - Soli SE - Sediment NL - NAPL/OII W - Water SL - Sludge SW - Sample Wp
Sample ID	Collection Date Time	Type (-⁄) Comp Grab	Matrix	5		/				/	/	T-Tissue A-Air Other REMARKS
VGWU040-11(2')	9/12/14/1005	X		X								
VGWU040-11(4')	9/12/16/1007			X								
1GW11040-10(Z')	9/12/14/1050			\mathbf{x}								
VGWU040-10(4')	9/12/14/1053	X										
IGWU040-10(7')	7/12/10/1109	X		X							HOLL	>
GWUD40-10(70')	9/12/11/1300	X		X							HOL	D
VGWU040-14 (2')	9/12/14/1345	X		\star	, ,							
VGW11040-14(4')	9/12/16/1350	X		X								
VGWU040-15(2')	9/12/16/1415	X		\times								
VGWU1040-15(4')	9/12/16/417			\checkmark								
VGWUD40-13(2')	9/12/11/1500	X		X								·
VGWU040-13(4')	9/12/11/1503			\times								
VGWU040-13(10')	9/12/16/1518	X		X							Hor	-D
Special Instructions/Comments: Standard TA	1					i	⊔ Special Q/	A/QC Instruc	:tions(√):			
Laboratory Inform	nation and Receipt	at (,/)	Printed	Relin	quished By		Printed Name:	Received By	Ч. — .	R Printed Name:	Alinquished	By Laboratory Received By
		ar (*)	Me	lisaf	han		K12	Mix	<u> </u>	IN	UH	UUUU. 1003
Cooler packed with ice (✓)	🗇 Intact	Not Intact	Signat	ure: T	1C	Ī	Signilature:	the	τ, ⁽	Signature:"	·	Simatra
Specify Turneround Requirements:	Sample Receipt:	_0	Firm	rcadi	ـــــــــــــــــــــــــــــــــــــ		FiniCourier:	\sim		Firm/Courier:		Fim:
Shipping Tracking #:	Condition/Cooler Te	emp: <u>B</u>	Date/T	12/16	1630		Date/Time:	2/11	0435	Date/Time:		Date/Time:
	Dis	tribution:	WHITE -	- Laborator	y returns with	results			YELLOW -	Lab copy		PINK – Retained by Arcadis

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Final 1.003

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Released to Imaging: 7/9/2021 2:17:22 PM

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Final 1.003

XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Arcadis - Houston	Acceptable Temperature Range: 0 - 6 degC
Date/ Time Received: 09/13/2016 10:05:00 AM	Air and Metal samples Acceptable Range: Ambient
Work Order #: 536657	Temperature Measuring device used : r8
Sample Recei	ipt Checklist Comments
#1 *Temperature of cooler(s)?	
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seal present on shipping container/ cooler?	Yes
#5 *Custody Seals intact on shipping container/ cooler?	Yes
#6 Custody Seals intact on sample bottles?	Yes
#7 *Custody Seals Signed and dated?	Yes
#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 b	bubble)? N/A
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? E samples for the analysis of HEM or HEM-SGT which are verifi analysts	Except for N/A fied by the
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnA	Ac+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

Date: 09/13/2016

Checklist reviewed by: Mms Avah Kelsey Brooks

Date: 09/13/2016

Analytical Report 536864

for Arcadis - Houston

Project Manager: Jonathan Olsen

HES Transfer

11-OCT-16

Collected By: Client





1211 W. Florida Ave, Midland TX 79701

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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)



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11-OCT-16

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

Reference: XENCO Report No(s): **536864 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) 536864. 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. 536864 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,

Kunshoah

Kelsey Brooks Project Manager

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Sample Id

VGWUO40-12 (2')
VGWUO40-12 (4')
VGWUO40-17 (2')
VGWUO40-17 (4')
VGWUO40-16 (2')
VGWUO40-16 (4')
VGWUO40-16 (50')
VGWUO40-19 (2')
VGWUO40-19 (4')
VGWUO40-18 (2')
VGWUO40-18 (4')
VGWUO40-18 (70')
VGWU85-06 (2')
VGWU85-06 (4')
VGWU85-06 (10')
VGWU85-06 (50')
VGWU85-11 (2')
VGWU85-11 (4')
VGWUSAT3-03 (4')
VGWUSAT3-03 (40')
VGWUSAT3-05 (4')
VGWUSAT3-05 (40')
VGWUSAT3-05 (40') VGWU118-15 (2')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (4')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (4') VGWU118-18 (7')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (4') VGWU118-18 (7') VGWU118-18 (10')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (4') VGWU118-18 (7') VGWU118-18 (10') VGWU118-18 (10') VGWU85-06 (7')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (4') VGWU118-18 (7') VGWU118-18 (10') VGWU18-06 (7') VGWU85-06 (7')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (4') VGWU118-18 (7') VGWU118-18 (10') VGWU85-06 (7') VGWU85-06 (7') VGWU85-11 (7')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (4') VGWU118-18 (7') VGWU118-18 (10') VGWU85-06 (7') VGWU85-06 (7') VGWU85-11 (7') VGWU85-11 (10') VGWU85-11 (11')
VGWUSAT3-05 (40') VGWU118-15 (2') VGWU118-15 (4') VGWU118-18 (2') VGWU118-18 (2') VGWU118-18 (4') VGWU118-18 (10') VGWU118-18 (10') VGWU85-06 (7') VGWU85-06 (7') VGWU85-11 (10') VGWU85-11 (11') VGWU118-15 (7')

Sample Cross Reference 536864

Arcadis - Houston, Houston, TX

HES Transfer

Matrix	Date Collected	Sample Depth	Lab Sample Id
S	09-13-16 08:50		536864-001
S	09-13-16 08:55		536864-002
S	09-13-16 10:30		536864-003
S	09-13-16 10:34		536864-004
S	09-13-16 09:58		536864-005
S	09-13-16 10:00		536864-006
S	09-13-16 10:48		536864-007
S	09-13-16 11:46		536864-008
S	09-13-16 11:50		536864-009
S	09-13-16 12:14		536864-010
S	09-13-16 12:16		536864-011
S	09-13-16 13:23		536864-012
S	09-13-16 14:41		536864-013
S	09-13-16 14:42		536864-014
S	09-13-16 14:44		536864-016
S	09-13-16 15:27		536864-017
S	09-13-16 16:00		536864-018
S	09-13-16 16:01		536864-019
S	09-14-16 09:49		536864-023
S	09-14-16 10:40		536864-024
S	09-14-16 11:11		536864-025
S	09-14-16 11:55		536864-026
S	09-14-16 14:00		536864-027
S	09-14-16 14:01		536864-028
S	09-14-16 14:30		536864-031
S	09-14-16 14:31		536864-032
S	09-14-16 14:32		536864-033
S	09-14-16 14:33		536864-034
S	09-13-16 14:43		Not Analyzed
S	09-13-16 16:02		Not Analyzed
S	09-13-16 16:05		Not Analyzed
S	09-13-16 16:21		Not Analyzed
S	09-14-16 14:02		Not Analyzed
S	09-14-16 14:03		Not Analyzed





CASE NARRATIVE



Client Name: Arcadis - Houston Project Name: HES Transfer

Project ID: Work Order Number(s): 536864 Report Date: *11-OCT-16* Date Received: *09/15/2016*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None





Certificate of Analysis Summary 536864

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Thu Sep-15-16 11:30 amReport Date:11-OCT-16Project Manager:Kelsey Brooks

	Lab Id:	536864-00)1	536864-0	536864-002		536864-003		536864-004		536864-005		006
Analysis Paguastad	Field Id:	VGWUO40-1	VGWUO40-12 (2')		VGWUO40-12 (4')		VGWUO40-17 (2')		VGWUO40-17 (4')		VGWUO40-16 (2')		-16 (4')
Analysis Requested	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	,
	Sampled:	Sep-13-16 0	8:50	Sep-13-16	08:55	Sep-13-16 10:30		Sep-13-16 1	0:34	Sep-13-16 09:58		Sep-13-16	10:00
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-20-16 0	8:00	Sep-20-16 08:00		Sep-20-16 (08:00	Sep-20-16 0	8:00	Sep-20-16 0	8:00	Sep-20-16	08:00
	Analyzed:	Sep-20-16 1	4:44	Sep-20-16	14:51	Sep-20-16	14:59	Sep-20-16 1	5:07	Sep-20-16 1	5:15	Sep-20-16	15:23
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		86.6	86.6 10.0		10.0	52.8	10.0	34.8	10.0	329	10.0	881	10.0

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Huns Boah

Kelsey Brooks Project Manager





Certificate of Analysis Summary 536864

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Thu Sep-15-16 11:30 amReport Date:11-OCT-16Project Manager:Kelsey Brooks

	Lab Id:	536864-00)7	536864-0	008	536864-009		536864-010		536864-011		536864-0	012
Analysis Paguastad	Field Id:	VGWUO40-16	VGWUO40-16 (50')		VGWUO40-19 (2')		VGWUO40-19 (4')		VGWUO40-18 (2')		VGWUO40-18 (4')		18 (70')
Anaiysis Kequesiea	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-13-16 1	0:48	Sep-13-16	11:46	Sep-13-16 11:50		Sep-13-16 1	2:14	Sep-13-16	12:16	Sep-13-16	13:23
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-30-16 0	9:00	Sep-21-16 10:00		Sep-21-16	10:00	Sep-21-16 1	0:00	Sep-21-16	10:00	Sep-30-16	09:00
	Analyzed:	Sep-30-16 1	3:18	Sep-21-16	12:10	Sep-21-16	12:33	Sep-21-16 1	2:41	Sep-21-16	12:49	Sep-30-16	13:26
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		16.4	5.00	54.2	10.0	59.6	10.0	65.3	10.0	318	10.0	142	5.00

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Certificate of Analysis Summary 536864

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Thu Sep-15-16 11:30 amReport Date:11-OCT-16Project Manager:Kelsey Brooks

	Lab Id:	536864-01	3	536864-014		536864-016		536864-017		536864-018		536864-019	
Analysis Paguastad	Field Id:	VGWU85-06	5 (2')	VGWU85-06 (4')		VGWU85-06 (10')		VGWU85-06 (50')		VGWU85-11 (2')		VGWU85-1	11 (4')
Anulysis Kequesieu	Depth:												
	Matrix:	SOIL	SOIL			SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-13-16 14	4:41	Sep-13-16	14:42	Sep-13-16 14:44		Sep-13-16 1	5:27	Sep-13-16	16:00	Sep-13-16	16:01
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-21-16 10	0:00	Sep-21-16 10:00		Sep-30-16 09:00		Oct-10-16 09:35		Sep-21-16	10:00	Sep-21-16	10:00
	Analyzed:	Sep-21-16 12	2:57	Sep-21-16 1	7:46	Sep-30-16 1	13:47	Oct-10-16 1	9:19	Sep-21-16	13:28	Sep-21-16	13:36
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		6120	6120 100		50.0	3760	50.0	37.8	5.00	14.0	10.0	31.1	10.0

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Certificate of Analysis Summary 536864

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Thu Sep-15-16 11:30 amReport Date:11-OCT-16Project Manager:Kelsey Brooks

	Lab Id:	536864-0	23	536864-0	024	536864-025		536864-026		536864-027		536864-0)28
Analysis Paguastad	Field Id:	VGWUSAT3-	03 (4')	VGWUSAT3-03 (40')		VGWUSAT3-05 (4')		VGWUSAT3-05 (40')		VGWU118-15 (2')		VGWU118-	15 (4')
Analysis Requested	Depth:												
	Matrix:	SOIL	SOIL			SOIL		SOIL		SOIL		SOIL	
	Sampled:	Sep-14-16 0	9:49	Sep-14-16	10:40	Sep-14-16 11:11		Sep-14-16 1	1:55	Sep-14-16	14:00	Sep-14-16	14:01
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-21-16 1	0:00	Sep-30-16 09:00		Sep-30-16 09:00		Oct-10-16 0	9:35	Sep-21-16	10:00	Sep-21-16	10:00
	Analyzed:	Sep-21-16 1	3:44	Sep-30-16 1	13:54	Sep-30-16	4:01	Oct-10-16 1	9:26	Sep-21-16	13:51	Sep-21-16	13:59
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		454	454 10.0		5.00	943	5.00	ND	5.00	18.5	10.0	ND	10.0

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Certificate of Analysis Summary 536864

Arcadis - Houston, Houston, TX Project Name: HES Transfer



Date Received in Lab:Thu Sep-15-16 11:30 amReport Date:11-OCT-16Project Manager:Kelsey Brooks

	Lab Id:	536864-03	31	536864-0	32	536864-0	33	536864-0	34	
Analysis Paguastad	Field Id:	VGWU118-1	8 (2')	VGWU118-	18 (4')	VGWU118-1	18 (7')	VGWU118-13	8 (10')	
Anulysis Kequesieu	Depth:									
	Matrix:	SOIL		SOIL		SOIL		SOIL		
	Sampled:	Sep-14-16 1	4:30	Sep-14-16	4:31	Sep-14-16 1	4:32	Sep-14-16 1	4:33	
Inorganic Anions by EPA 300/300.1	Extracted:	Sep-21-16 1	0:00	Sep-21-16 1	0:00	Sep-30-16 0	9:00	Oct-10-16 0	9:35	
	Analyzed:	Sep-21-16 1	4:23	Sep-21-16 1	4:46	Sep-30-16 1	4:08	Oct-10-16 1	9:33	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		91.4	10.0	355	10.0	307	5.00	41.3	5.00	

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Page 10 of 21

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 LimitSDL Sample Detection LimitLOD Limit of DetectionPQL Practical Quantitation LimitMQL Method Quantitation LimitLOQ 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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(602) 437-0330	
	(281) 240-4200 (214) 902 0300 (210) 509-3334 (432) 563-1800 (602) 437-0330





BS / BSD Recoveries

Project Name: HES Transfer

Work Order #: 536864							Proj	ject ID:			
Analyst: MNR	D	ate Prepar	red: 09/20/201	16			Date A	nalyzed: (09/20/2016		
Lab Batch ID: 3000344 Sample: 713949-1-	BKS	Batc	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE /]	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUI	DY	
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	250	100	250	257	103	3	90-110	20	
Analyst: MNR	D	ate Prepar	red: 09/21/201	16			Date A	nalyzed: (09/21/2016		
Lab Batch ID: 3000445 Sample: 713999-1-1	BKS	Batc	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	LICATE	E RECOVERY STUDY						
Inorganic Anions by EPA 300/300.1	Blank	Spike	Blank	Blank	Spike	Blank	Blk. Spk		Control	Control	
Analytes	Sample Result [A]	Added [B]	Spike Result [C]	Spike %R [D]	Added [E]	Spike Duplicate Result [F]	Dup. %R [G]	RPD %	Limits %R	Limits %RPD	Flag
Analytes Chloride	Sample Result [A] <10.0	Added [B] 250	Spike Result [C] 246	Spike %R [D] 98	Added [E] 250	Spike Duplicate Result [F] 250	Dup. %R [G] 100	RPD %	Limits %R 90-110	Limits %RPD 20	Flag
Analytes Chloride Analyst: MNR	Sample Result [A] <10.0 D	Added [B] 250 ate Prepar	Spike Result [C] 246 red: 09/30/201	Spike %R [D] 98	Added [E] 250	Spike Duplicate Result [F] 250	Dup. %R [G] 100 Date A	RPD % 2 nalyzed: (Limits %R 90-110 09/30/2016	Limits %RPD 20	Flag
Analytes Chloride Analyst: MNR Lab Batch ID: 3001120 Sample: 714399-1-1	Sample Result [A] <10.0 D SKS	Added [B] 250 ate Prepar Bate	Spike Result [C] 246 red: 09/30/201 h #: 1	Spike %R [D] 98	Added [E] 250	Spike Duplicate Result [F] 250	Dup. %R [G] 100 Date A	RPD % 2 nalyzed: (Matrix: S	Limits %R 90-110 09/30/2016 Solid	Limits %RPD 20	Flag
Analytes Chloride Analyst: MNR Lab Batch ID: 3001120 Sample: 714399-1-1 Units: mg/kg	Sample Result [A] <10.0 D 3KS	Added [B] 250 ate Prepar Bate BLAN	Spike Result [C] 246 red: 09/30/201 h #: 1 K /BLANK S	Spike % R [D] 98 16 SPIKE / 1	Added [E] 250 BLANK \$	Spike Duplicate Result [F] 250 SPIKE DUP	Dup. %R [G] 100 Date A	RPD % 2 nalyzed: (Matrix: S RECOVI	Limits %R 90-110 09/30/2016 Solid ERY STUI	Limits %RPD 20 DY	Flag
Analytes Chloride Analyst: MNR Lab Batch ID: 3001120 Sample: 714399-1-1 Units: mg/kg Inorganic Anions by EPA 300/300.1 Analytes	Sample Result [A] <10.0 BKS Blank Sample Result [A]	Added [B] 250 ate Prepar Batc BLAN Spike Added [B]	Spike Result [C] 246 red: 09/30/201 h #: 1 K /BLANK Spike Result [C]	Spike %R [D] 98 16 SPIKE /] Blank Spike %R [D]	Added [E] 250 BLANK S Spike Added [E]	Spike Duplicate Result [F] 250 SPIKE DUP Blank Spike Duplicate Result [F]	Dup. %R [G] 100 Date A LICATE Blk. Spk Dup. %R [G]	RPD % 2 nalyzed: (Matrix: S RECOVI	Limits %R 90-110 09/30/2016 Solid ERY STUI Control Limits %R	Limits %RPD 20 DY Control Limits %RPD	Flag

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 Page 126 of 210





BS / BSD Recoveries

Project Name: HES Transfer

Work Order #: 536864		Project ID:									
Analyst: MNR	D	ate Prepar	red: 10/10/201	.6			Date A	nalyzed:	10/10/2016		
Lab Batch ID: 3001741 Sample: 714723-1-E	BKS	Bate	h #: 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / I	BLANK	SPIKE DUPI	LICATE	RECOVI	ERY STUI	ΟY	
Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Chloride	<5.00	250	250	100	250	262	105	5	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 Page 127 of 210

Received by OCD: 10/28/2019 8:04:07 AM



Form 3 - MS / MSD Recoveries

Project Name: HES Transfer

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Work Order # :	536864						Project II):				
Lab Batch ID:	3000344	QC- Sample ID:	536602	-002 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	09/20/2016	Date Prepared:	09/20/2	016	An	alyst: N	MNR					
Reporting Units:	mg/kg		Μ	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgan	nic Anions by EPA 300/300.1	Parent Sample Posult	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Kesuit [F]	%R [G]	% 0	%K	%RPD	
Chloride		2780	1250	4000	98	1250	4030	100	1	90-110	20	
Lab Batch ID:	3000344	QC- Sample ID:	536660	-002 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	09/20/2016	Date Prepared:	09/20/2	016	An	alyst: N	MNR					
Reporting Units:	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgan	nic Anions by EPA 300/300.1	Parent Sample Result	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]	Result [1]	[G]				
Chloride		1970	1250	3230	101	1250	3210	99	1	90-110	20	
Lab Batch ID:	3000445	QC- Sample ID:	536864	-008 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	09/21/2016	Date Prepared:	09/21/2	016	An	alyst: N	MNR					
Reporting Units:	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgan	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]		[D]	[E]		[G]				
Chloride		54.2	250	298	98	250	294	96	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.

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Form 3 - MS / MSD Recoveries

Project Name: HES Transfer

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Work Order # :	536864						Project II):				
Lab Batch ID:	3000445	QC- Sample ID:	536864	-028 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	09/21/2016	Date Prepared:	09/21/2	016	An	alyst: N	MNR					
Reporting Units:	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgan	nic Anions by EPA 300/300.1	Parent Sample Posult	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	[B]		⁷ 6K [D]	E]	Kesun [r]	50K [G]	70	70K	%KPD	
Chloride		<10.0	250	250	100	250	244	98	2	90-110	20	
Lab Batch ID:	3001120	QC- Sample ID:	536657	-006 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed:	09/30/2016	Date Prepared:	09/30/2	016	An	alyst: N	MNR					
Reporting Units:	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgan	nic Anions by EPA 300/300.1	Parent Sample Result	Spike	Spiked Sample Result	Spiked Sample %B	Spike	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD	Control Limits %R	Control Limits	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]	Kesutt [F]	[G]	/0	701		
Chloride		920	250	1160	96	250	1150	92	1	90-110	20	
Lab Batch ID:	3001120	QC- Sample ID:	537439	-001 S	Ba	tch #:	1 Matrix	x: Soil				
Date Analyzed:	09/30/2016	Date Prepared:	09/30/2	016	An	alyst: N	MNR					
Reporting Units:	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgan	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]		[G]				
Chloride		4120	2500	6760	106	2500	6650	101	2	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.

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Form 3 - MS / MSD Recoveries

Project Name: HES Transfer

Work Order # :	536864						Project II	D:				
Lab Batch ID:	3001741	QC- Sample ID:	538189	-001 S	Ba	tch #:	1 Matri	x: Soil				
Date Analyzed:	10/10/2016	Date Prepared:	10/10/2	016	Ar	alyst: N	MNR					
Reporting Units:	mg/kg		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgan	nic Anions by EPA 300/300.1	Parent Sample Result	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample Besult [F]	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	[B]	[C]	/0K [D]	[E]	Kesunt [F]	[G]	70	70K	70KI D	
Chloride		1720	250	1980	104	250	1970	100	1	90-110	20	
Lab Batch ID:	3001741	QC- Sample ID:	538316	-006 S	Ba	tch #:	1 Matri	x: Soil				
Date Analyzed:	10/10/2016	Date Prepared:	10/10/2	016	Ar	alyst: N	MNR					
Reporting Units:	mg/kg		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgai	nic Anions by EPA 300/300.1	Parent Sample Result	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample Bosult [F]	Spiked Dup. %P	RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]	Kesult [F]	[G]		701		
Chloride		258	250	501	97	250	493	94	2	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.

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appler's Priphold Name:	Sampler's Sig	nature: /					Z /	/	/ /	· /		/	/	H. Other.		9. Othe 10. Othe	r
Mensa Phan		M				/ -	401				/			SO - Soll W - Water	SE- SL-	Sediment Sludge	NL - NAPL/OII SW - Sample W
Sample ID	Date	Time	Comp	(✓) Grab	Matrix	13	:/				/			REMA	RKS	Vir.	Other:
GWUD40-12(2')	9/13/16	850		X	50	X		1		1			<u> </u>				
1GW1040-12(4')	9/13/16	855		X	50	\times								· ·			
<u>GWU040-17(2)</u>	9/12/16	1030		<u>X</u>	50	X											
<u>16WU040-17(4)</u>	913116	1034		×	SO	X	-										
GWU040-16(2)	9/13/16	958		X	30	X											
IGW10410-16(4')	9/13/10	1000		X	SO	<u>×</u>		<u> </u>									
GWU040-16(50)	9/13/14	1048		X	50	×							Hou	$\overline{\mathcal{A}}$	<i>.</i>		
<u>GWU040-19(2')</u>	9/13/14	1146		X	So		<u> . </u>	<u> </u>							: 		
1GW11040-19(4)	9/13/16	1150		X	50	X	· ·	<u> </u>	_								
<u>IGWU040-18(2)</u>	91/13/16	1214		×	50	7	ļ	<u> </u>		-							**
1GWM040-18(4)	9/3/14	1216		\times	So	X											
GWU040-18(70)	91/13/10	15/3		<u>×</u>	20	<u> </u>					· · · · · · · · · · · · · · · · · · ·		HOL	<u>-D</u>			
GW1040-X5C 00-	Alertic	n 1111			5					<u> </u>							
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Standard TAT																	
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Si Jonathan Olsen Address: Suite 300 BY 1929 Buarbark Dr City State Zp	Fax: E-mail Address	».95-	3,48	374		Preservative Filtered (-') & of Container Container Information	1 1 7 1				2. METH			Preservation A. H ₂ SO, B. HCL C. HNO, D. NaOH E. None F. Other:	l Kay:	Container Inf 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Pla 4. 500 ml Pla 5. Encore 6. 2 core Cline	ormation Key Istic Istic
⁶ [HOUSTON, TX 77092 Project NamerLocation (City, State): <u>CONTRACTOR NM (HES)</u> Sample V PrinterName: MULISA Phan Sample ID	Jtna Project#: Sampler's Sig Colle	than.	(U.S.C. Type	Cave (1)	adis.c	hleri.	e de la companya de l							G. Other: H. Other: Matrix Key: SO - Soil W - Water T - Tissue	SE - Se SL - Sh A - Air	7.4 oz Glas: 8.8 oz Glas: 9. Other: 10. Other: idiment. Nt. idge SV Ot	i s NAPL/Oil V- Sample Wir her:
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VGWU85 - U(4')	9/13/14	lion		\mathbf{x}	<u> </u>	$\hat{\mathbf{x}}$								<u>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ </u>		<u></u>	
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VGWUSAT3-13(4')	9/14/14	949		X	SO	X											
VGWUSAT3-03(40')	9/14/14	1040		X	SO	X							HOL	D			
GWUSAT3-05(4')	9/14/16	1111		X	SO	\times							HOL	Ď			
VGWUSAT3-05(40')	9/14/16	1155		X	50	X							HOL	D			
GMU118-15(Z')	11/14/16	1300		X	SO	X			7.0								
Standard TAT	on and Pace	1400				Dellas	ilebad By:			VQC Instruc	:uons(∨):		1				
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VGWU118-15(4')	9/14/16	1401														······································
VGWU118-15(7)	1/14/16	1402								:			tto	ND		
VGWU118-15(10) 1/14/16	1403											H	OLD		
VGWU118-18(2)	9/14/16	1490														
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Specify Turnaround Requirements:	Sample F	Receipt:		c	Firm	cadio			Firm/Couries	$\frac{1}{1}$	-	Firm/Courier:		Firm:	Van	(0)
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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Arcadis - Houston Date/ Time Received: 09/15/2016 11:30:00 AM Work Order #: 536864

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

Temperature Measuring device used : R8

S	ample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	6.3	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seal present on shipping contain	er/ cooler? Yes	
#5 *Custody Seals intact on shipping contained	er/ cooler? Yes	
#6 Custody Seals intact on sample bottles?	Yes	
#7 *Custody Seals Signed and dated?	Yes	
#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 relinquish	ed/ received? Yes	
#12 Chain of Custody agrees with sample lab	el(s)? Yes	
#13 Container label(s) legible and intact?	Yes	
#14 Sample matrix/ properties agree with Cha	in 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	st(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, samples for the analysis of HEM or HEM-SGT analysts.	HCL, H2SO4? Except for N/A which are verified by the	
#23 >10 for all samples preserved with NaAs0	D2+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

Date: 09/15/2016

Checklist reviewed by: Mmr Arah Kelsey Brooks

Date: 09/16/2016

Analytical Report 570585

for Arcadis - Houston

Project Manager: Jonathan Olsen

HES Transfer Sites

Boo48611.1701.00002

16-DEC-17

Collected By: Client





1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2017-142)

> Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-17-15), 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 (T104704400-17-13) 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)



16-DEC-17

Project Manager: Jonathan Olsen Arcadis - Houston 10205 Westheimer Rd., Suite 800 Houston, TX 77042

Reference: XENCO Report No(s): **570585 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) 570585. 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. 570585 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,

Mike Kimmel Client Services Manager

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Sample Cross Reference 570585

Page 138 of 210

Arcadis - Houston, Houston, TX

HES Transfer Sites

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Dup-1 (120717)	W	12-07-17 00:00		570585-001
Equipment Blank (120717)	W	12-07-17 10:38		570585-002
VGWU040-MW-1 (120717)	W	12-07-17 11:28		570585-003



CASE NARRATIVE

Client Name: Arcadis - Houston Project Name: HES Transfer Sites

 Project ID:
 Boo48611.1701.00002

 Work Order Number(s):
 570585

Report Date: *16-DEC-17* Date Received: *12/07/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Received by OCD: 10/28/2019 8:04:07 AM

Contact:

Project Location:



Jonathan Olsen

Buckeye, NM

Certificate of Analysis Summary 570585

Arcadis - Houston, Houston, TX Project Name: HES Transfer Sites



Date Received in Lab:Thu Dec-07-17 02:21 pmReport Date:16-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	570585-00)1	570585-0	02	570585-0	03		
Analysis Requested	Field Id:	Dup-1 (1207	(17)	Equipment Blank (120717)		VGWU040-MW-1 (120717)			
Analysis Kequesieu	Depth:								
	Matrix:	WATER		WATER	ł	WATER	ł		
	Sampled:	Dec-07-17 0	0:00	Dec-07-17 1	0:38	Dec-07-17 1	1:28		
Chloride by EPA 300	Extracted:	Dec-08-17 1	5:30	Dec-08-17 1	5:30	Dec-08-17 1	5:30		
	Analyzed:	Dec-08-17 2	3:49	Dec-08-17 2	3:55	Dec-09-17 0	0:13		
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL		
Chloride		459	5.00	ND	0.500	470	5.00		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Mike Kimmel Client Services 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 LimitSDL Sample Detection LimitLOD Limit of DetectionPQL Practical Quantitation LimitMQL Method Quantitation LimitLOQ 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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	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

.

Work Order	#: 570585							Proj	ject ID:]	Boo48611.	1701.0000	2
Analyst:	MNV	D	ate Prepar	red: 12/08/201	7			Date A	nalyzed:	12/08/2017		
Lab Batch ID:	: 3035553 Sample: 7635708-	1-BKS	Batc	h #: 1					Matrix: V	Water		
Units:	mg/L		BLAN	K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUPI	LICATE	RECOV	ERY STUI	ЭY	
	Chloride by EPA 300	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate Posult [F]	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analy	rtes		[D]		נען	[E]	Kesuit [F]	[6]				
Chloride		< 0.500	20.0	19.1	96	20.0	19.2	96	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

Work Order # :	570585						Project I	D: Boo48	611.1701.	00002		
Lab Batch ID:	3035553	QC- Sample ID:	570535	-001 S	Ba	tch #:	1 Matri	x: Drinki	ng Water			
Date Analyzed:	12/08/2017	Date Prepared:	12/08/2	017	Ar	alyst: N	MNV					
Reporting Units:	mg/L		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	Chloride by EPA 300	Parent Sample	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
	Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
Chloride		5.57	25.0	31.2	103	25.0	31.7	105	2	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.

9		f:			СН	AIN (AN	OF CUS	STOE S RE	DY &	LABC	DRAT	ORY	Page _	<u>]</u> of _	Lab Wor	k Order # 570585	-
ts to:	Contact & Company Name: Jongthan Olsen Arcadis	Telephone: 713-	953-	4874	1		Preservative Filtered (</th <th>ENA</th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th>Preservation Ke</th> <th>Keys ey: Container Inform</th> <th>nation K</th>	ENA				-			Preservation Ke	Keys ey: Container Inform	nation K
nd Resul	Address 10205 westherimar Chan Suite 800	Fax:	NA				# of Containers Container Information	3							B. HCL C. HNO ₃ D. NaOH	1, 40 ml Vial 2, 1 L Amber 3, 250 ml Plastic 4, 500 ml Plastic	
Project	Houston Tx 77042	Project #:	han, O	Isenle	areadi	s. Lom		PAF	RAMET	ERANA	LYSIS	& METH	HOD	/	E. None F. Other: G. Other:	5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass	
HE Samp	ES Transfor Sites Buckaye, No ofors Printed Name:	M Boo Sampler's Si	<u>48611.</u> Ignature:	1701	0000	2	1							/	H. Other: Matrix Key:	9. Other: 10. Other:	
	Sample ID	Colle	ection Time	Typ Comp	e (✓) Grab	Matrix	Chlen	/							W - Water T - Tissue	SL - Sludge SW - S A - Air Other:	Sample
Di	1-1(120717)	12-7-17	-		V	W	1								TEM/TITE		
19	uipmanTBlank (120717)	12-7-17	1038		V	W	1							Ja	rs of C	int alread	ly
16	WU040-MW-[(120717]	12-7-17	1128		V	W	/							1	had wa	iter in th	en
_															10	all ancz	0
_						-											
									-								
-														emp:	3.5	IR ID:R-8	_
pec	cial Instructions/Comments:									Special Q	A/QC Instru	ctions(√):	(CF:(0-6: (6-23	-0.2°C) 3: +0.2°C)		Λ
	Laboratory Informati	on and Rece	eipt				Relingui	shed By	-		Received B	,	(Correcte	ed Temp:	5.2	_
ib Na	ame: Xenco	Cooler Cu	ustody Sea	al (~)		Printed	Name: 741 Nav	ny		Printed Name:	a tim	ener.	Printed Name	adu	mer Prin	Bill Palence	By
f C	cooler packed with ice (✓)	L) Inta	ct	□ No	ot Intact	Signatu	3 y	5		Signature:	inde	wat	Signature:	nd	Sigr	ature Boll Ral	
5 ippir	- day TAT	Sample F	Receipt: /Cooler Tei	mp: /	70	Firm. A Date/Tin	cadis,			Firm/Courier:	15	0	Firm/Courier	ns	Firm	Xenco	~
_						12-	7-17/1	603		12-7-1	7/4	103	12-7	-17 1	14:26 Date	12-8-17 11:	15

ק
XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Arcadis - Houston Date/ Time Received: 12/07/2017 02:21:00 PM Work Order #: 570585

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

Temperature Measuring device used : R8

S	ample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.3	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping containe	r/ cooler? No	
#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	d/ received? Yes	
#10 Chain of Custody agrees with sample labe	els/matrix? Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	
#13 Samples properly preserved?	Yes	
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated tes	st(s)? Yes	
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	No	
#18 Water VOC samples have zero headspace	e? N/A	

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

Analyst: ch

PH Device/Lot#: 213315

Checklist completed by:

Comis- Kannedy Connie Hernandez

Checklist reviewed by:

Mike Kimmel

Date: 12/16/2017

Date: 12/08/2017

Certificate of Analysis Summary 594037

Page 146 of 210

ARCADIS, Midland, TX Project Name: VGWU040

Project Id:B0048611.1701Contact:Brett KrehbielProject Location:Hobbs, NM

Date Received in Lab: Fri Jul-27-18 04:40 pm Report Date: 01-AUG-18 Project Manager: Kelsey Brooks

	Lab Id:	594037-0	01	594037-0	002		
Analysis Paguastad	Field Id:	Dup-1(0726	Dup-1(072618)		1(072618)		
Anuiysis Kequesieu	Depth:						
	Matrix:	WATER	ł	WATE	R		
	Sampled:	Jul-26-18 0	0:00	Jul-26-18 1	7:03		
Chloride by EPA 300	Extracted:	Jul-31-18 1	4:00	Jul-31-18 1	4:00		
	Analyzed:	Jul-31-18 1	8:31	Jul-31-18 1	8:44		
	Units/RL:	mg/L	RL	mg/L	RL		
Chloride		526	125	556	125		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager

Analytical Report 594037

for ARCADIS

Project Manager: Brett Krehbiel

VGWU040

B0048611.1701

01-AUG-18

Collected By: Client

6701 Aberdeen, Suite 9 Lubbock, TX 79424

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) 01-AUG-18

Project Manager: **Brett Krehbiel ARCADIS** 1004 N. Big Spring St. Midland, TX 79701

Reference: XENCO Report No(s): **594037 VGWU040** Project Address: Hobbs, 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) 594037. 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.

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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,

sur Tr

Kelsey Brooks Project Manager

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Sample Cross Reference 594037

ARCADIS, Midland, TX

VGWU040

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Dup-1(072618)	W	07-26-18 00:00		594037-001
VGWU040-MW1(072618)	W	07-26-18 17:03		594037-002

.

CASE NARRATIVE

Client Name: ARCADIS Project Name: VGWU040

 Project ID:
 B0048611.1701

 Work Order Number(s):
 594037

Report Date: 01-AUG-18 Date Received: 07/27/2018

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

ARCADIS, Midland, TX

VGWU040

Sample Id:	Dup-1(072618)		Matrix:	W	ater		Date Received:07.2	27.18 16.4	0
Lab Sample Io	d: 594037-001		Date Colle	cted: 07	7.26.18 00.00				
Analytical Me	ethod: Chloride by EPA	300					Prep Method: E30	00P	
Tech:	RNL						% Moisture:		
Analyst:	RNL		Date Prep:	07	7.31.18 14.00				
Seq Number:	3058427								
Parameter		Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	526	125	5 17.3	mg/L	07.31.18 18.31		50

ARCADIS, Midland, TX

VGWU040

Sample Id:	VGWU040-MW1(072	2618)	Matrix:	Wa	ater]	Date Received:07.2	27.18 16.4	0
Lab Sample Id	d: 594037-002		Date Colle	ected: 07	.26.18 17.03				
Analytical Me	ethod: Chloride by EPA	300				1	Prep Method: E30	00P	
Tech:	RNL						% Moisture:		
Analyst:	RNL		Date Prep:	. 07.	.31.18 14.00				
Seq Number:	3058427								
Parameter		Cas Number	Result	RL	MDL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	556	125	17.3	mg/L	07.31.18 18.44		50

.

- 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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	nt Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	atory 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

QC Summary 594037

ARCADIS

VGWU040

Analytical Method:	Chloride by EPA 30	0						Pre	ep Metho	d: E30	0P	
Seq Number:	3058427			Matrix:	Water				Date Pre	ep: 07.3	1.18	
MB Sample Id:	7659486-1-BLK		LCS San	nple Id:	7659486-1	I-BKS		LCSE	O Sample	Id: 765	9486-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD I	RPD Limi	t Units	Analysis Date	Flag
Chloride	<0 347	25.0	26.1	104	26.0	104	90-110	0	20	mø/L	07.31.18 16:02	

Analytical Method:	Chloride by	EPA 30	0						Pı	ep Metho	od: E3	90P	
Seq Number:	3058427]	Matrix:	Waste Wa	ter			Date Pre	ep: 07.	31.18	
Parent Sample Id:	593949-001			MS San	nple Id:	593949-00	01 S		MS	D Sample	Id: 593	3949-001 SD	
Parameter		Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limi	it Units	Analysis Date	Flag
Chloride		471	1250	1830	109	1810	107	80-120	1	20	mg/L	07.31.18 16:52	

Analytical Method:	Chloride by EPA 30	00						Pı	ep Metho	d: E3	00P	
Seq Number:	3058427			Matrix:	Water				Date Pre	p: 07	.31.18	
Parent Sample Id:	593985-001		MS San	nple Id:	593985-00	01 S		MS	D Sample	Id: 59	3985-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limi	t Units	Analysis Date	Flag
Chloride	130	250	417	115	411	112	80-120	1	20	mg/L	07.31.18 19:33	

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference [D] = 100*(C-A) / B RPD = 200* | (C-E) / (C+E) | [D] = 100 * (C) / [B] Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample A = Parent Result C = MS/LCS Result E = MSD/LCSD Result MS = Matrix Spike B = Spike Added D = MSD/LCSD % Rec

.

	#; 				VALYS	IS RE	QUE	LABC ST FC	ORAT	ORY	Page _	/_ of <u>7</u>	Lab Wor	rk Order #
Contact & Company Name:	Telephone:				Preservative	E								Keys
Bratt Krahbiel (HiCaris	916-786	-5382			Filtered (✓)								Preservation Ke	ey: Container Informatio
To Address: 1004 N. Big Spring St.	I Fax:	.10			# of Container	s 2							B. HCL	2. 1 L Amber
2 34,72,300		NA			Container Information	3							D. NaOH	 250 ml Plastic 500 ml Plastic
State Zip	E-mail Address:		,		,	PAF	RAMET	RANA	LYSIS	& METI	HOD		F. Other:	5. Encore 6. 2 oz. Glass
Project Name/Location (City State)	Project #:	hbielda	readis.	com	- /	/		1				/	G. Other:	7. 4 oz. Glass 8. 8 oz. Glass
VGWUD40/ Hobbs, NM	Boo 486	611.17	0/			~ /				· /	· /		H. Other:	9. Other:
Sampler's Printed Name:	Sampler's Signatur	re:] /]								Matrix Key:	10. Other:
- Agenticity - (Collectio	The The			1/5	/							SO - Soil W - Water	SE - Sediment NL - NAPL/ SL - Sludge SW - Sampl
Sample ID	Data		pe (•)	Matrix	13	/	/	/	/			/	T - Tissue	A - Air Other:
D. a landing	Date	Comp	Grab	1	1 /	{	(/			1	REMARKS	
Uup-10126181	7-26-18 -		~ ~	u										
VGWU. 040-mw1(072618)	7-26-18 17	103	~	W										
		_		A REAL PROPERTY AND IN COLUMN										
			+ - +					X						
			-											
			1											
Special Instructions/Comments:	Swu	04ø	Tra	nt	Line	10	C	Special QA	/QC Instruc	tions(√):				
Laboratory Informat	on and Receipt				Relinqui	shed By		R	eceived By		Re	linquished B	by	Laboratory Received By
	Cooler Custor	dy Seal (✓)		Printed	Name:		Pr	inted Name:			Printed Name:		Printed	Name:
Cooler packed with ice (1)	Intact		ot Intact	Signatur	en la	1	Si	RENDA	what	e D	Signature:		Signatu	(FQ)
	-				D	>	B	rendo	NOC	ud .			Signatu	
Specily Turnaround Requirements	Sample Recei	ipt:	6	Film	calis		Fir	m/Courier:			Firm/Courier:		Firm:	
													1	

Page 10 of 11

Final 1.000

PINK – Retained by Arcadis

Page 155 of 210

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: ARCADIS	Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Temperature Measuring device used : IR3						
Date/ Time Received: 07/27/2018 04:40:00 PM							
Work Order #: 594037							
Sample Rec	eipt Checklist	Comments					
#1 *Temperature of cooler(s)?	2	.8					
#2 *Shipping container in good condition?	Y	es					
#3 *Samples received on ice?	Y	es					
#4 *Custody Seals intact on shipping container/ cooler?	Ν	/Α					
#5 Custody Seals intact on sample bottles?	Ν	/Α					
#6*Custody Seals Signed and dated?	Ν	/Α					
#7 *Chain of Custody present?	Y	es					
#8 Any missing/extra samples?	Ν	lo					
#9 Chain of Custody signed when relinquished/ received?	Y	es					
#10 Chain of Custody agrees with sample labels/matrix?	Y	es					
#11 Container label(s) legible and intact?	Y	es					
#12 Samples in proper container/ bottle?	Y	es					
#13 Samples properly preserved?	Y	es					
#14 Sample container(s) intact?	Y	es					
#15 Sufficient sample amount for indicated test(s)?	Y	es					
#16 All samples received within hold time?	Y	es					
#17 Subcontract of sample(s)?	Ν	lo					
#18 Water VOC samples have zero headspace?	Ν	/Α					

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

Analyst: asd

PH Device/Lot#: 208515

Checklist completed by:

Ashley Derstine

Date: 07/31/2018

Checklist reviewed by:

Ward Horach Kelsey Brooks

Date: 08/01/2018

B0048616.0040

Lea County, NM

Brett Krehbiel

Project Id:

Project Location:

Contact:

Certificate of Analysis Summary 603762

Arcadis - Roseville, CA, Roseville, CA Project Name: VGWU O-40 Truckline



Date Received in Lab:Sat Oct-27-18 09:00 amReport Date:31-OCT-18Project Manager:Kelsey Brooks

	Lab Id:	603762-0	01	603762-0	002		
Analysis Paguastad	Field Id:	VGWUO40-MW1		Dup-1			
Anulysis Kequesieu	Depth:						
	Matrix:	WATER	ર	WATE	R		
	Sampled:	Oct-25-18 1	4:15	Oct-25-18 (00:00		
Chloride by EPA 300	Extracted:	Oct-29-18 1	Oct-29-18 15:00		5:00		
	Analyzed:	Oct-29-18 1	9:40	Oct-29-18 1	9:45		
	Units/RL:	mg/L	RL	mg/L	RL		
Chloride		630	5.00	628	5.00		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Kuns froak

Kelsey Brooks Project Manager

Analytical Report 603762

for Arcadis - Roseville, CA

Project Manager: Brett Krehbiel

VGWU O-40 Truckline

B0048616.0040

31-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122): Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2017-142)

> Xenco-Dallas (EPA Lab Code: TX01468): Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14) Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18) Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18) Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4) 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) 31-OCT-18

Project Manager: **Brett Krehbiel Arcadis - Roseville, CA** 101 Creekside Ridge CT 200 Roseville, CA 95678

Reference: XENCO Report No(s): 603762 VGWU O-40 Truckline Project Address: Lea County, 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) 603762. 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. 603762 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,

Kung hoah

Kelsey Brooks Project Manager

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

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 603762

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Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
VGWUO40-MW1	W	10-25-18 14:15		603762-001
Dup-1	W	10-25-18 00:00		603762-002

CASE NARRATIVE

Client Name: Arcadis - Roseville, CA Project Name: VGWU 0-40 Truckline

 Project ID:
 B0048616.0040

 Work Order Number(s):
 603762

 Report Date:
 31-OCT-18

 Date Received:
 10/27/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id:	VGWUO40-MW1		Matrix:	Water]	Date Received:10.2	27.18 09.0	0
Lab Sample I	d: 603762-001		Date Colle	cted: 10.25.18 14.15				
Analytical Me	ethod: Chloride by EPA	300]	Prep Method: E30	00P	
Tech:	CHE					% Moisture:		
Analyst:	SCM		Date Prep:	10.29.18 15.00				
Seq Number:	3067928							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	630	5.00	mg/L	10.29.18 19.40		10

Released to Imaging: 7/9/2021 2:17:22 PM

Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id:	Dup-1		Matrix:	Water]	Date Received:10.2	27.18 09.0	0
Lab Sample Id	d: 603762-002		Date Colle	cted: 10.25.18 00.00				
Analytical Me	ethod: Chloride by EPA	300]	Prep Method: E30	00P	
Tech:	CHE				(% Moisture:		
Analyst:	SCM		Date Prep:	10.29.18 15.00				
Seq Number:	3067928							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	628	5.00	mg/L	10.29.18 19.45		10

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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	nt Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	atory 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

QC Summary 603762

Arcadis - Roseville, CA VGWU O-40 Truckline

Analytical Method:	Chloride by EPA 30	0						Pre	ep Metho	d: E3	00P	
Seq Number:	3067928]	Matrix:	Water				Date Pre	p: 10	.29.18	
MB Sample Id:	7665067-1-BLK		LCS San	nple Id:	7665067-1	I-BKS		LCSE	Sample	Id: 76	65067-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD I	RPD Limi	t Units	Analysis Date	Flag
Chloride	< 0.500	25.0	25.5	102	25.4	102	90-110	0	20	mg/L	10.29.18 16:37	

Analytical Method:	Chloride by	EPA 300)						P	rep Method	1: E	300P	
Seq Number:	3067928			I	Matrix:	Water				Date Prep	p: 10).29.18	
Parent Sample Id:	603729-001			MS Sam	ple Id:	603729-00	1 S		MS	D Sample	ld: 60	03729-001 SD	
Parameter]	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	s Analysis Date	Flag
Chloride		171	125	292	97	298	102	90-110	2	20	mg/L	10.29.18 17:07	

Analytical Method:	Chloride by EPA 30)0						Pi	rep Metho	od: E3	00P	
Seq Number:	3067928			Matrix:	Water				Date Pr	ep: 10	.29.18	
Parent Sample Id:	603732-002		MS San	nple Id:	603732-00	02 S		MS	D Sample	e Id: 60	3732-002 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	208	125	353	116	340	106	90-110	4	20	mg/L	10.29.18 18:44	Х

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference

[D] = 100*(C-A) / B $\begin{aligned} \text{RPD} &= 200^* \mid (\text{C-E}) / (\text{C+E}) \mid \\ \text{[D]} &= 100^* (\text{C}) / \text{[B]} \end{aligned}$ Log Diff. = Log(Sample Duplicate) - Log(Original Sample) LCS = Laboratory Control SampleA = Parent Result C = MS/LCS Result E = MSD/LCSD Result

MS = Matrix Spike B = Spike AddedD = MSD/LCSD % Rec

.

Page 9 of 11

ARCADIS	# :			СН		OF CL		DY &		RATO	DRY	Page _/	of	Lab Wor	k Order#
Contact & Company Name: g Brett Krehbiel (Arcadis) Address:	Telephone: 916-786- Fax:	5382	L		:	Preservativ Filtered (/ # of Contain	• E) ers 2					·		Preservation Kr A. H.SO. B. HCL	Keys ey: Container Information Key 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plantin
101 Creekside Ridge Court, Suite 200 City State Zip Roseville CA 95678	E-mail Addre	ss:				Container Informatio	<u>3</u> PA	RAME	TER ANA	LYSIS 8	8 METH	OD		D. NaOH E. None F. Other.	4. 500 ml Plastic 5. Encore 6. 2 oz. Glass
Project Name/Location (City, State): VGWU 0-40 Trunkline, Lea County, NM Sampler's Printed Name: RAPHAEL FRAMES Sample ID	Project #: B00486 Sampler's Su Colle	16.0040	Typ) De (*)	Matrix	Monide	^{USEPA} 300.1							G. Other: H. Other: Matrix Key: SO - Soil W - Water T - Tissue	7. 4 oz. Glass 8. oz. Glass 9. Other: 10. Other: SE - Sediment NL - NAPL/Oil SL - Sludge SW - Sample Wig A - Air Other:
VGWUO40-MW1	Date 19/25/18	Time	Comp	Grab	W	/ ठॅ x				(REMARK	5
Dup-1	19/25/18	\square	W	X	W	X				5			1		
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			-										-		
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Special instructions/comments:	1.00 million and a second	-								QA/QC Instru	uctions(~):				
Laboratory Inform	ation and Rec	ceipt Custody Se	al (√)		Print	Reli ed Name:	nquished B	<u> </u>	Printed Name	Received E	<u>sy</u> // .	Printed Nam	Relinquishe e:	d By	Laboratory Received By
XENCS	- K	act		Not lata -4	R	PHAEL	FRANCO		Espe	rang	ionale	2631	Crant	dreada	Driaring life
Specify Turnersund Requirements:	Sample	Receipt:	<u></u> п		Firm	PJ			FirmCourier:	a Gov	ps.	Firm/Coprier	r As	al F	MULMO7ILL
Stipping Tracking #:	Conditio	n/Cooler T	⁻ emp:	0.8_	Date	/Time:	8/		Date/Time:	-18	8:39	Date/Time:	-18	11-02	MALLY AGAN
20730826 CofC AR Form 08.27.2015		Die	stributio	on:	WHITE	- Laborato	ory returns	with resu	110-26		YELLOW	- Lab copy		1,00	PINK – Retained by Arcadis

Received by OCD: 10/28/2019 8:04:07 AM

Final 1.000

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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Arcadis - Roseville, CA	Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient						
Date/ Time Received: 10/27/2018 09:00:00 AM							
Work Order #: 603762	Temperature Measuring device used : R8						
Sample Rec	eipt Checklist Comments						
#1 *Temperature of cooler(s)?	.8						
#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						
#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						
#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: BT

PH Device/Lot#: A032690

Date: 10/29/2018

 Checklist completed by:
 Ballo Tal

 Brianna Teel
 Brianna Teel

 Checklist reviewed by:
 Many Abrah

 Kelsey Brooks
 Kelsey Brooks

Date: 10/29/2018

B0048616.0040

Lea County, NM

Brett Krehbiel

Project Id:

Project Location:

Contact:

Certificate of Analysis Summary 603763

Arcadis - Roseville, CA, Roseville, CA Project Name: VGWU O-40 Truckline



Date Received in Lab:Sat Oct-27-18 09:00 amReport Date:30-OCT-18Project Manager:Kelsey Brooks

	Lab Id:	603763-0	01	603763-0	02	603763-0	003	603763-0	04	603763-0	05	
Analysis Degreested	Field Id:	VGWUO40	0-20	VGWUO40-21		VGWUO40-22		VGWUO40-23		VGWUO40-24		
Analysis Kequesieu	Depth:											
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	Sampled:	Oct-25-18 1	Oct-25-18 12:10		Oct-25-18 12:20		12:30	Oct-25-18 1	2:50	Oct-25-18 13:00		
Chloride by EPA 300	Extracted:	Oct-29-18 1	Oct-29-18 11:30		Oct-29-18 11:30		1:30	Oct-29-18 1	1:30	Oct-29-18 1	1:30	
	Analyzed:	Oct-29-18 1	Oct-29-18 15:38		Oct-29-18 15:43		Oct-29-18 15:55		6:01	Oct-29-18 1	6:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		<4.95	4.95	938	4.98	27.5	4.96	972	4.99	<5.01	5.01	

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Kung froak

Kelsey Brooks Project Manager

Analytical Report 603763

for Arcadis - Roseville, CA

Project Manager: Brett Krehbiel

VGWU O-40 Truckline

B0048616.0040

30-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122): Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2017-142)

> Xenco-Dallas (EPA Lab Code: TX01468): Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14) Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18) Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18) Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4) 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) 30-OCT-18

Project Manager: **Brett Krehbiel Arcadis - Roseville, CA** 101 Creekside Ridge CT 200 Roseville, CA 95678

Reference: XENCO Report No(s): 603763 VGWU O-40 Truckline Project Address: Lea County, 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) 603763. 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. 603763 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,

Kung hoak

Kelsey Brooks Project Manager

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

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 603763

Page 171 of 210

Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
VGWUO40-20	S	10-25-18 12:10		603763-001
VGWUO40-21	S	10-25-18 12:20		603763-002
VGWUO40-22	S	10-25-18 12:30		603763-003
VGWUO40-23	S	10-25-18 12:50		603763-004
VGWUO40-24	S	10-25-18 13:00		603763-005

CASE NARRATIVE

Client Name: Arcadis - Roseville, CA Project Name: VGWU 0-40 Truckline

 Project ID:
 B0048616.0040

 Work Order Number(s):
 603763

 Report Date:
 30-OCT-18

 Date Received:
 10/27/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id:	VGWUO40-20		Matrix:	Soil]	Date Received:1	0.27.18 09.0	0
Lab Sample Id	l: 603763-001		Date Collec	cted: 10.25.18 12.10				
Analytical Me	ethod: Chloride by EPA	300]	Prep Method: E	2300P	
Tech:	CHE					% Moisture:		
Analyst:	CHE		Date Prep:	10.29.18 11.30]	Basis: W	Vet Weight	
Seq Number:	3067996							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	<4.95	4.95	mg/kg	10.29.18 15.38	U	1

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Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id:	VGWUO40-21		Matrix:	Soil		Date Received	1:10.27.18 0	9.00
Lab Sample Id	l: 603763-002		Date Colle	cted: 10.25.18 12.20				
Analytical Me	ethod: Chloride by EPA	300				Prep Method:	E300P	
Tech:	CHE					% Moisture:		
Analyst:	CHE		Date Prep:	10.29.18 11.30		Basis:	Wet Weigh	nt
Seq Number:	3067996							
Parameter		Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil
Chloride		16887-00-6	938	4.98	mg/kg	10.29.18 15.	43	1



Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id:	VGWUO40-22		Matrix:	Soil		Date Received	:10.27.18 09.0	00
Lab Sample Io	d: 603763-003		Date Colle	cted: 10.25.18 12.30				
Analytical Me	ethod: Chloride by EPA	300				Prep Method:	E300P	
Tech:	CHE					% Moisture:		
Analyst:	CHE		Date Prep:	10.29.18 11.30		Basis:	Wet Weight	
Seq Number:	3067996							
Parameter		Cas Number	Result	RL	Units	Analysis Da	ite Flag	Dil
Chloride		16887-00-6	27.5	4.96	mg/kg	10.29.18 15.5	55	1

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Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id:	VGWUO40-23		Matrix:	Soil		Date Received	:10.27.18 09	9.00
Lab Sample Id	l: 603763-004		Date Colle	cted: 10.25.18 12.50				
Analytical Me	ethod: Chloride by EPA	300				Prep Method:	E300P	
Tech:	CHE					% Moisture:		
Analyst:	CHE		Date Prep:	10.29.18 11.30		Basis:	Wet Weigh	t
Seq Number:	3067996							
Parameter		Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil
Chloride		16887-00-6	972	4.99	mg/kg	10.29.18 16.	01	1



Arcadis - Roseville, CA, Roseville, CA

VGWU O-40 Truckline

Sample Id:	VGWUO40-24		Matrix:	Soil	I	Date Received:1	0.27.18 09.00)
Lab Sample Id	l: 603763-005		Date Collec	cted: 10.25.18 13.00				
Analytical Me	ethod: Chloride by EPA	300			I	Prep Method: E	300P	
Tech:	CHE				ç	% Moisture:		
Analyst:	CHE		Date Prep:	10.29.18 11.30]	Basis: W	Vet Weight	
Seq Number:	3067996							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	<5.01	5.01	mg/kg	10.29.18 16.06	U	1

Released to Imaging: 7/9/2021 2:17:22 PM

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 Clie	nt Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	atory 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

QC Summary 603763

Arcadis - Roseville, CA VGWU O-40 Truckline

Analytical Method:	Chloride by EPA 30	0						Pr	ep Metho	od: E3	300P	
Seq Number:	3067996			Matrix:	Solid				Date Pre	ep: 10	.29.18	
MB Sample Id:	7665051-1-BLK		LCS San	nple Id:	7665051-1	I-BKS		LCSI	O Sample	Id: 76	65051-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	<5.00	250	246	08	246	08	90-110	0	20	ma/ka	10 29 18 13.25	

Analytical Method:	Chloride by E	EPA 300)						Pı	ep Metho	od: E30	OP	
Seq Number:	3067996]	Matrix:	Soil				Date Pre	ep: 10.2	29.18	
Parent Sample Id:	603758-002			MS San	nple Id:	603758-00	02 S		MS	D Sample	e Id: 603	758-002 SD	
Parameter	Pa R	arent lesult	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride		146	250	403	103	402	102	90-110	0	20	mg/kg	10.29.18 15:06	

Analytical Method:	Chloride by EPA 30)0						P	rep Metho	od: E30	90P	
Seq Number:	3067996			Matrix:	Soil				Date Pro	ep: 10.	29.18	
Parent Sample Id:	603767-001		MS San	nple Id:	603767-00	01 S		MS	D Sample	e Id: 603	3767-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	163	248	414	101	421	104	90-110	2	20	mg/kg	10.29.18 13:46	

MS/MSD Percent Recovery Relative Percent Difference LCS/LCSD Recovery Log Difference

[D] = 100*(C-A) / B $\begin{aligned} \text{RPD} &= 200^* \mid (\text{C-E}) / (\text{C+E}) \mid \\ \text{[D]} &= 100^* (\text{C}) / \text{[B]} \end{aligned}$ Log Diff. = Log(Sample Duplicate) - Log(Original Sample) LCS = Laboratory Control SampleA = Parent Result C = MS/LCS Result E = MSD/LCSD Result

MS = Matrix Spike B = Spike AddedD = MSD/LCSD % Rec

.

				CH	AIN (AN	OF CUS	S RE	QUE	LABO ST FC	RAT(DRY	Page _	_of_(Lab Work (Order #
Contact & Company Name:	Telephone:					Preservative	E		:						Keys
Address:	916-786- Fax:	-5382				Filtered (*)							-	A. H.SO	Container Information 1. 40 ml Vial 2. 11 Amber
101 Creekside Ridge Court, Suite 200						# or containers	9							C. HNO ₃ D. NaOH	3. 250 ml Plastic 4. 500 ml Plastic
City State Zip Roseville CA 95678	E-mail Addres	s: biel@arca	dis.com				PAF	RAMET	ERANA	LYSIS	METH	OD	l	F. Other	5. Encore 6. 2 oz. Glass 7. 4 oz. Glass
ject Name/Location_(City, State):	Project #:						1.00		/		. /		· · · /	G. Other: H. Other:	8. 8 oz. Glass 9. Other:
GWU O-40 Trunkline, Lea County, NM	B00486 Sampler's Sig	i16.0040 matury: //					5							Matrix Key:	10. Other:
APHAEL FRANCES	R			i.		1 37								SO - Soil W - Water	SE - Sediment NL - NAPL/ SL - Sludge SW - Samp
Sample ID	Date	Time	Тур	€(v) Grah	Matrix	hlonide	/							REMARKS	A-Air Other:
/GWUO40-20	10-25-618	1210	50	X	so	x	(/		(((
/GWUO40-21	10/25/18	1220	50	X	SO	x	- T							· · · ·	
(GWUO40-22	19/25/18	12 30	50	X	SO	X									
/GWUO40-23	1/25/19	12 50	50	X	SO	X							:		
/GWUO40-24	1 /25/18	1360	50	x	SO	X									
															· · · · · · · · · · · · · · · · · · ·
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a la l la fan afin a l Canana a fan					1										
ecial mortuculous/comments.									L] Special C	2A/QC Instru	ictions(√):				
Laboratory Informat	Cooler C	ustody Sea	al (*)		Printe	Relinqu ed Name:	IISNED BY		Printed Name	Received E	<u>y</u> J,	Printed-Nam	kelinquishe ::	Prime	Laboratory Received By
X ENC ↔ Cooler packed with ice (✓)	× Inte	ict	D N	ot Intact	Rssigna	DAGE E	RANCO	2	Signature:	Gan (sign ralez	Signature:	a Go	Constat S	TUMPATA
ecity Turneround Requirements:	Sample F	Receipt:			Firm:	0			Firm/Courier:	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- ()	Firm/Couried	- 	V X	na
ipping Tracking #:	Condition	1/Cooler Te	mp: <u>/)</u>	.8	Date/	Time:	1		Date/Time:	10 -		Date/Time:	1-10	11 ng Dates	1719/10
730828 CofC AD Earm 08 37 2015		Dis	tribution	1:		- Laboratory	<u>o</u> 900 refurns v) vith result	110-26 5	-18 5	<u>/:34</u>	10 20	18	11-00 IL	NK - Retained by Aread

Received by OCD: 10/28/2019 8:04:07 AM

Final 1.000

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XENCO Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: Arcadis - Roseville, CA	Acceptable Temperature Range: 0 - 6 degC						
Date/ Time Received: 10/27/2018 09:00:00 AM	Air and Metal samples Acceptable Range: Ambien						
Work Order #: 603763	Temperature Measuring	g device used : R8					
Sample Rec	eipt Checklist	Comments					
#1 *Temperature of cooler(s)?	.8						
#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						
#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)?	N/A						
#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#:

Date: 10/29/2018

Checklist completed by: Ballo Tal Brianna Teel Checklist reviewed by: Muno Morah Kelsey Brooks

Date: 10/29/2018

ATTACHMENT 3.

Soil Boring Logs and Monitor Well Logs





Project: B0048616 Template:ChevronSoilBoring.ldfx Data File:VGWUO40-01 Date:6/25/2014





Remarks: ags = above ground surface; AK = air knife; amsl = above mean sea level; AR = air rotary; bgs = below ground surface; ppm = parts per million; HV=Hydrovac; * - Possible false PID readings due to instrument error.

Project: B0048616 Template:ChevronSoilBoring.ldfx Data File:VGWUO40-02 Date:6/25/2014





Project: B0048616 Template:ChevronSoilBoring.ldfx Data File:VGWUO40-03 Date:6/26/2014

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Project: B0048616 Template:ChevronSoilBoring.ldfx Data File:VGWUO40-04 Date:6/26/2014







Project: B0048616 Template:ChevronSoilBoring.ldfx Data File:VGWUO40-06 Date: 6/26/2014





Project: B0048616 Template:ChevronSoilBoring.ldfx Data File:VGWUO40-07 Date: 9/23/2014





Data File:VGWUO40-08 Date: 9/23/2014

Re	D aic Drill	ing (by/F(i) Comp	GD: bany:	10/2 Har	3220 rison	39 and	8:04:07 AN Cooper Inc./k	Well/Boring ID: VGWUO40-09 Cooper	Chevre Page 191 of 210
	Drill Sam	ing N pling	Neth g Me	od: ^A thod:	Air Ro	otary ovel			Client: Chevron EMC Location: VGWUO40- Trunk Line from VGWU Battery	
	Bor Des	ehol cript	e De tions	pth: By:	30' b R.Na	gs anny				
Γ			<u>ر</u>			(c				
	UEPIH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppn	Analytical Sample	Geologic Column	Stratigraphic Description	
_)						1			
-		_		ΠV					INDY CLAY (TOPSOIL), Brown (10YR5/3), silt to tine grained, trace medium grains in sample, loose to ots in sample, dry.	becoming blocky at 0.5' in depth,
-		-	1	AR	5	3.2				ieu, ury, sinceous beuding.
-	5	-5 -				33	×			
-		_				0.0			LICHE, White (2.5Y8/1), vrey firm to indurated, powdery, dry, trace sand, very fine grained, sub-round	ded, poorly sorted.
-		-	2	AR	5					
-	10	-10 -					R	$\left \right\rangle$		
-		_				1.8				
-		-	3	AR	5				LICHE SAND, Very Pale Brown (10YR8/2), firm grained, sub-rounded, poorly sorted, weakly to slight lcareous.	ly firm cementation, dry, strongly
-	15	-15 -					- THE			
-		_				1.6				
-		-	4	AR	5					
-	20	-20 -								
-	20					2.7		5	NDSTONE, Very Pale Brown (10YR8/3), fine grained, sub-rounded, moderately sorted, firmly cemen	ted, dry, calcareous.
-		-	5	AR	5					
-	25	-								
F	CΔ	- cs -				2.1				
ŀ		-	6	AR	5					
+	20	-				3.5	×			
	50	-30-								



Project: B0048616 Template:ChevronSoilBoring.ldfx Data File:VGWUO40-09 Date: 9/23/2014

ARC		S Design &	Consultancy al and ets									Boring	No.: VGV	VUO40-	-10
Soil B	orin		a												
Project Na				MC			Date Star	ed: 09/12/	2016		l ogger:	Melisa	<u>Sheet: 1</u> Phan	of	2
Project Ni	umber:	B004	8616.0C	040.0003A		– Da	ate Complet	ed: 09/12/	2016	Revie	ewed by:	A. Leł	nman		
Project Lo	cation:	LEA	COUNT	Y, NEW MEXICO				<u></u>	D	ate Re	eviewed:	01/07	/2019		
Depth	Sample	Blow	Recovery	Sample ID	PID	USCS		De	escriptio	'n			Constru	ction	Well
(leet)	Interval	Counts	(111.)	-	(ppiii)		(0,0-2,0') 50%		tic: 10%	sand fir	ne to mediur	n: 10%		115	
1]						gravel, angula	r to subangula	r; dry; roc $\nabla \mathbf{R} \ 7$	ots (orga	anic matter);	low			
2	-			VGWUO40-10 (2) at 1050			(2 0-10 0') 90	% SILT_nonpla	stic: 5%	sand m	edium: 5% d	nravel			
3	7						subrounded; I	high reaction to	HCI; whi	ite (10YI	R 0/1).	gravoi,			
4]			VGWUO40-10 (4) at											
5	1 1			1000											
6	1														
7	1			VGWUO40-10 (7) at											
<u> </u>				1105											
9															
10															
11															
12															
13															
14															
15															
16	1 1														
17	1														
18													native mative	d with	
19															
20															
21							At 20.0 ft bgs, gravel, subrou	90% SILT, noi Inded; high rea	nplastic; { iction to H	5% sano HCI; whit	d, medium; 5 te (10YR 0/1	5% I).			
22															
23															
24															
25															
26															
27															
28															
29															
30	1/ 1														
31	1						(30.0-50.0') 9 nonplastic; dr	0% SAND, very /; weak to no re	/ fine to meaction to	nedium; o HCI; pi	10% silt, nk (10YR 7/	3).			
32	1										-				
33	1 1														
34															
35															
Drilling Co	o.:	HCI [Drilling				Sa	mpling Met	hod <u>:NA</u>	4					
Driller:		<u>Kenn</u>	<u>y Coope</u>	r			Sa	mpling Inter	rval <u>:2, 4</u>	4, 7 a	<u>nd 70 ft b</u>	ogs			
Drilling Me	ethod:	<u>Air R</u>	otary				Wa	ter Level S	tart (ft.	. bgs. <u>)</u>	: NA				
Drilling Flu	uid:	None	!				Wa	ter Level F	inish (f	ft. btoo	:. <u>):NA</u>				
	g	<u>NA</u>	ot: " / in-	inch: has- holow grows	d ourfoor	. ppm= -	Co	nverted to \	/Vell:		res	X	<u>OVI</u>		
rtemarks:		million	NA = not	applicable / available		, μμπ– μ	<u>No</u>	th Coor:	INA						
2016 boring	gs are g	eneral	y logged	in intervals: 0-10, 20,	30-50, 6	0-70 ft b	ogs. Eas	<u>st Co</u> or:							

	ncy				Boring	No.: <u>VGWUO40-</u>	·10
Soil Boring Log Project Name: CHEVRO Project Number: B004861 Project Location: LEA COL	DN EMC 6.0040.0003A UNTY, NEW MEXICO		_ _ Da	Date Started: <u>09/12/2016</u> te Completed: <u>09/12/2016</u> Revi Date R	Logger: <u>Melisa</u> iewed by: <u>A. Ler</u> eviewed: <u>01/07/</u>	Sheet: 2 of Phan Iman 2019	2
Depth Sample Blow Reco (feet) Interval Counts (i	overy in.) Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
36 37 38 39 40 41 42 43 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 56 57 58 59 60 61 62 63 64 65 67 68 69 70 71 72	VGWUO40-10 (70) at 1300			(6070.0') 90% SAND, very fine to medium; moist; weak to no reaction to HCl; yellowish I	10% silt, nonplastic; brown (10YR 5/4).	Backfilled with native material	
Remarks: '/ ft= fee	t; " / in= inch; bgs= belov gged in intervals: 0-10, 20, 3	v groun 80-50, 60	d surfa)-70 ft b	ace; ppm= parts per million; NA= n gs.	ot applicable / av	ailable.	
INGENTBO							

ARCAD	Design & Consultancy for natural and built assets					Boring	No.:_VGWUO40-	11
Soil Borir	na Loa					,	Sheet: 1 of	1
Project Name:	CHEVRON E	EMC			Date Started: 09/12/2016	Logger: <u>Melisa</u>	a Phan	
Project Number	r: <u>B0048616.00</u>	040.0003A		_ Da	te Completed: 09/12/2016 Rev	viewed by: <u>A. Leh</u>		
Project Location	n: <u>LEA COUNT</u>	Y, NEW MEXICO		_	Date F		/2019	
Depth Sampl (feet) Interva	e Blow Recovery al Counts (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
	HCI Drilling	VGWUO40-11 (2) at 1005 VGWUO40-11 (4) at 1007			(0.0-2.0') 85% SILT, nonplastic; 15% sand, i dry; high reaction to HCl; light gray (caliche)	to medium sand; paliche) (10YR 8/2).	Backfilled with native material	
		ər			Sampling Interval: 2 and 4	ft bas		
Drilling Method	Air Rotarv	51			Water Level Start (ft. bos): NA		
Drilling Fluid:	None				Water Level Finish (ft. btc	.):NA		
Drilling Rig	NA				Converted to Well:	Yes	No	
Remarks:	' / ft= feet: " / in=	inch; bgs= below around	d surface	e; ppm= p	arts per Surface Flev ·NA	, <u>Ľ</u>		
	million: NA= not	applicable / available		-, pp p	North Coor			
2016 borings are	denerally lodged	in intervals: 0-10, 20, 3	30-50.6	0-70 ft b	ds. Foot Coor			

.

ARC		esign & Consultancy r natural and uilt assets								Boring	No.: VGWUO40-	-12
Soil Bo	ring L	og									Sheet: 1 of	1
Project Nam	ne: <u>CH</u>	EVRON E	MC			Date Started:	09/13/2016		Logger:	<u>Melisa</u>	a Phan	
Project Num	nber: <u>B0</u> ation: LE	048616.00 A COUNT	040.0003A Y NEW MEXICO		_ Da	ate Completed:	<u>09/13/2016</u>	. Revie)ate Re	ewed by:	<u>A. Lel</u> 01/07	hman /2019	
										<u>01/01/</u>		
Depth Sa (feet) In	ample Blo nterval Cou	w Recovery nts (in.)	Sample ID	PID (ppm)	USCS Class		Descriptio	on			Construction Details	Well
			VGWUO40-12 (2) at 0850 VGWUO40-12 (4) at 0855			(0.0-4.0') 60% SIL dry; weak reaction	T, nonplastic; 40% to HCl; light gray (0 ft bgs.	sand, ve 10YR 7/2	ery fine to m 2).	edium;	Backfilled with native material	
Drilling Co.:	<u>HC</u>	I Drilling				Sampl	ing Method <u>:N/</u>	A				
Driller:	<u>Ke</u>	nny Coope	er			Sampl	ing Interval <u>:2</u> a	<u>and 4 f</u>	ft bgs			
Drilling Meth	nod: <u>Air</u>	Rotary				Water	Level Start (ft.	. bgs. <u>):</u>				
Drilling Fluid	d: <u>No</u>	ne				Water	Level Finish (f	tt. btoc	:. <u>):NA</u>		No	
	<u>NA</u>	- foot: " / :	inch: hac- holow	d ourfeet	. ppm= -	Conve	rted to Well:		res	<u>></u>		
Remarks:	' / ft:	= teet; " / in=	Inch; bgs= below ground	a surtace	; ppm= p	parts per Surfac	e ⊨lev. <u>:NA</u>					
2016 borings	milli are gener	ally logged	applicable / available. in intervals: 0-10, 20, 3	30-50, 6	North (gs. Fact C	000r:						

ARCAD	S Design & Consultancy for natural and built assets					Boring	No.: VGWUO40-	-13
Soil Borin	a Loa					c	Shoot: 1 of	1
Project Name:	<u>CHEVRON E</u>	MC			Date Started: 09/12/2016	Logger: <u>Melisa</u>	Phan	1
Project Number	: <u>B0048616.00</u>	040.0003A		_ Da	ate Completed: 09/12/2016 Revi	iewed by: <u>A. Leh</u>	man	
Project Location	: LEA COUNT	Y, NEW MEXICO		_	Date R	Reviewed: 01/07/	2019	
Depth Sample (feet) Interva	e Blow Recovery Counts (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
		VGWUO40-13 (2) at 1500 VGWUO40-13 (4) at 1503 VGWUO40-13 (10) at 1518			(0.0-4.0') 60% SILT, nonplastic; 40% sand, v dry; weak reaction to HCI; light gray (Caliche bill of the sand; 5% gravel, rounded to subrounded; hig dry; white (10YR 8/1). End of boring at 10.0 ft bgs.	lium sand, 5% fine the reaction to HCl;	Backfilled with native material	
					Sompling Mathed NA			
Driller:	HUI UTIIIINg Kenny Coope	۲			Sampling Method:NA	1 10 ft bas		
Drilling Method	Air Rotary	51			Water Level Start (ft. bos): NA		
Drilling Fluid:	None				Water Level Finish (ft. bto	c.):NA		
Drillina Ria	NA				Converted to Well:	Yes X	No	
Remarks:	' / ft= feet; " / in=	inch; bgs= below groun	d surface	; ppm= r	parts per Surface Elev.:NA			
	million; NA= not	applicable / available.		<u></u> ۲	North Coor:			
2016 borings are	generally logged	in intervals: 0-10, 20,	30-50, 6	0-70 ft b	egs. East Coor:			

ARC		S Design	Consultancy ral and					Boring	No.: VGWUO40	-14
Soil B	oring									
Project Na			VRON F	MC			Date Started: 09/12/2016	Logger: Melis	<u>Sheet: 1 of</u> a Phan	1
Project Nu	umber:	<u>B004</u>	8616.0C	040.0003A		Da	te Completed: 09/12/2016 Rev	iewed by: <u>A. Le</u>	hman	
Project Lo	cation:	<u>LEA</u>	COUNT	Y, NEW MEXICO			Date R	Reviewed: <u>01/07</u>	7/2019	
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
				VGWUO40-14 (2) at 1345 VGWUO40-14 (4) at 1350			(0.0-4.0') 75% SAND, fine to medium; 15% s gravel, angular to subangular; well sorted; dr to HCI; pink (7.5YR 7/3). Note: Secondary color gray (7.5YR 6/1).	silt, nonplastic; 10% y; moderate reaction	Backfilled with native material	
Drilling Co) .:	<u>HCI I</u>	Drilling				Sampling Method:NA			
Driller:		<u>Kenr</u>	<u>y Coope</u>	r			Sampling Interval: 2 and 4	ft bgs		
Drilling Me	ethod:	<u>Air R</u>	otary				Water Level Start (ft. bgs.	<u>): NA</u>		
້ອ Drilling Flu	uid:	<u>None</u>	!				Water Level Finish (ft. bto	c. <u>):NA</u>		
Drilling Rig	g	NA					Converted to Well:	Yes	⊠ No	
Remarks:		' / ft= fe	eet; " / in=	inch; bgs= below groun	d surface	; ppm= p	arts <u>p</u> er Surface Elev. <u>:NA</u>			
		million	NA= not a	applicable / available.			North Coor:			
2016 boring	js are g	enerall	y logged i	n intervals: 0-10, 20,	30-50, 6	0-70 ft bợ	gs. East Coor:			

ARC		S Design & for natu built ass	Consultancy al and ets					Boring	No.: <u>VGWUO40-</u>	15
Soil B	orin	alc	nd						haati 1 of	1
Project Na	ame:		VRON E	MC			Date Started: 09/12/2016	Logger: <u>Melisa</u>	Phan	1
Project Nu	umber:	<u>B004</u>	8616.0C	040.0003A		_ Da	te Completed: <u>09/12/2016</u> Rev	iewed by: <u>A. Leh</u>	man	
Project Lo	cation	LEA	COUNT	Y, NEW MEXICO			Date F	Reviewed: <u>01/07/2</u>	2019	
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
				VGWUO40-15 (2) at 1415 VGWUO40-15 (4) at 1417			(0.0-4.0') 80% SAND, fine to medium; 10% gravel, subangular; well sorted; dry; modera pink (7.5YR 7/3).	silt, nonplastic; 10% te reaction to HCI;	Backfilled withnative material	
Drilling Co	D.:	HCI [Drilling				Sampling Method:NA			
Driller:		Kenn	y Coope	er			Sampling Interval:2 and 4	ft bgs		
Drilling Me	ethod:	<u>Air R</u>	otary				Water Level Start (ft. bos.): NA		
Drilling Flu	uid:	None					Water Level Finish (ft. btc	.):NA		
Drilling Ri	a.a.	NA					Converted to Well	Yes	No	
Remarka:	Я	<u>11/71</u>	et: " / in-	inch: bas= below aroun	d surface	nnm= n	Convented to Well,			
		/ IL- IE	NA = not	non, bys- below groun		-, ppm- p	North Coort			
2016 boring	ns are d	million; enerall	ina = not a	applicable / available. in intervals: 0-10_20	30-50 6	0-70 ft h				
	yo are y	GUCIAII	y iogyeu i	11 milervals. 0-10, 20,	JU-JU, C		9 ^{3.} East Coor:			

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ARC		S Design of for nature built ass	Consultancy ral and sets					Boring	No.: VGWUO40-	16
Soil Bo	oring	alc	ba						Sheet: 1 of	2
Project Na	me:		VRON E	MC			Date Started: 09/13/2016	Logger: <u>Melisa</u>	a Phan	2
Project Nu	mber:	<u>B004</u>	<u>8616.0C</u>	040.0003A		_ Da	te Completed: <u>09/13/2016</u> Rev	iewed by: <u>A. Lel</u>	nman	
Project Lo	cation:	<u>LEA</u>	COUNT	Y, NEW MEXICO			Date F	Reviewed: <u>01/07</u>	/2019	
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
$ \begin{bmatrix} 1 \\ 2 \\ 3 \\ 4 \\ - 3 \\ - 4 \\ - 5 \\ - 6 \\ - 7 \\ - 6 \\ - 7 \\ - 8 \\ - 9 \\ - 10 \\ - 11 \\ - 12 \\ - 13 \\ - 14 \\ - 15 \\ - 14 \\ - 15 \\ - 16 \\ - 17 \\ - 18 \\ - 19 \\ - 20 \\ - 21 \\ - 22 \\ - 23 \\ - 24 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25 \\ - 25$				VGWUO40-16 (2) at 0958 VGWUO40-16 (4) at 1000			(0.0-4.0') 75% SAND, very fine to medium; 1 15% gravel, subangular to angular; well sorte moderate reaction to HCl; pink (7.5YR 7/3). (4.0-10.0') 80% SILT, nonplastic; 10% sand, 10% gravel, subrounded to subangular; high white (10YR 8/1). At 20.0 ft bgs, 80% SILT, nonplastic; 10% sand, 10% gravel, subrounded to subangular; high white (10YR 8/1).	IO% silt, nonplastic; ed; dry; weak to fine to medium; reaction to HCl; dry; and, fine to medium; reaction to HCl; dry;	Backfilled with native material	
Drilling Co	.:	HCI I	Drilling				Sampling Method: <u>NA</u>			
Driller:		<u>Kenn</u>	<u>y Coope</u>	er			Sampling Interval: 2, 4 and	d 50 ft bgs		
Drilling Me	thod:	<u>Air R</u>	otary				Water Level Start (ft. bgs.	<u>): NA</u>		
Drilling Flu	iid:	None	!				Water Level Finish (ft. bto	oc. <u>):NA</u>		
Drilling Rig	9	NA	+ - + / '	in the large of the			Converted to Well:	Yes	No No	
Remarks:		' / ft= fe	eet; " / in=	Inch; bgs= below groun	d surface	; ppm= p	parts per Surface Elev.:NA			
2016 boring	s are g	million	y logged i	applicable / available. in intervals: 0-10, 20,	30-50, 6	0-70 ft b	North Coor: ^{gs.} East Coor:			

Soil Bo Project Na Project Nu Project Loo	ADIS oring me: mber: cation:	<u>CHEV</u> <u>B004</u>	Consultancy And VRON E 8616.0C COUNT	MC 140.0003A Y, NEW MEXICO		Da	Date Started: <u>09/13/2016</u> ate Completed: <u>09/13/2016</u> Rev Date R	Boring Logger: <u>Melisa</u> iewed by: <u>A. Le</u> ceviewed: <u>01/07</u>	No.: <u>VGWUO40</u> Sheet: 2 of a Phan hman 7/2019	2
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 50 51		' / ft=	feet: " / /	VGWUO40-16 (50) at 1048			(30.0-50.0') 90% SAND, fine to medium; 109 dry; weak reaction to HCI; pink (7.5YR 7/3).	6 silt, nonplastic;	Backfilled withnative material	
2016 boring	s are ge	nerally	logged i	n intervals: 0-10, 20, 3	30-50, 6	0-70 ft b	gs.			
URGENTB										

ARC	ADIS	Design & Consultancy for natural and built assets									Boring N	No.: VGW	<u>JO40-</u>	17
Soil Bo	orina	Loa									S	hoot 1	of	1
Project Na	me: <u>(</u>	CHEVRON E	MC			Date Sta	arted: 09	/13/2016	L	_ogger:	Melisa	Phan	01	1
Project Nu	mber: <u>E</u>	<u>30048616.0C</u>	040.0003A		_ Da	ate Compl	eted: <u>09</u>	/13/2016	Reviev	ved by:	<u>A. Leh</u>	man		
Project Loo	cation: <u>L</u>	EA COUNT	Y, NEW MEXICO		_			Da	ate Rev	viewed:	01/07/2	2019		
Depth (feet)	Sample E Interval Co	Blow Recovery ounts (in.)	Sample ID	PID (ppm)	USCS Class			Descriptior	n			Construct Details	ion S	Well
			VGWUO40-17 (2) at 1030 VGWUO40-17 (4) at 1034			(0.0-4.0') 6d dry; weak n	ng at 4.0 ft h	nplastic; 40% s Cl; light gray (1	sand, very 10YR 7/2).	/ fine to me	sdium;	Backfilled native mat	with erial	
Drilling Co	.: <u>F</u>	ICI Drilling				S	ampling	Method:NA	4					
Driller:	k	Kenny Coope	r			S	ampling	Interval <u>:2 a</u>	and 4 ft	bgs				
Drilling Me	thod: <u>A</u>	Air Rotary				V	/ater Lev	vel Start (ft.	bgs. <u>):</u>	NA				
Drilling Flu	id: <u>N</u>	lone				V	/ater Lev	vel Finish (fl	t. btoc.)	:NA		1		
Drilling Rig	<u>1</u> 1	NA				C	onverted	to Well:	□ Y	es	X	No		
Remarks:	'/	' ft= feet; " / in=	inch; bgs= below ground	d surface	; ppm= p	oarts per S	urface E	lev. <u>:NA</u>						
	m	illion; NA= not a	applicable / available.			N	orth Coc	or:						
2016 boring	s are gen	erally logged i	n intervals: 0-10, 20, 3	30-50, 60	0-70 ft b	gs. E	ast Coor							

ARC		S Design of for natu built as:	Consultancy rail and ets					Boring	No.: VGWUO40-	-18
Soil B	oring	o I r	nd						Shoot: 1 of	2
Project Na	me:		VRON E	MC			Date Started: 09/13/2016	Logger: Melisa	a Phan	2
Project Nu	mber:	<u>B004</u>	8616.0C	040.0003A		_ Da	te Completed: 09/13/2016 R	eviewed by: <u>A. Le</u>	hman	
Project Lo	cation:	LEA	COUNT	Y, NEW MEXICO			Date	e Reviewed: <u>01/07</u>	/2019	
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 6 \\ 7 \\ 8 \\ 9 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ 22 \\ 23 \\ 24 \\ 25 \\ 26 \\ 27 \\ 28 \\ 29 \\ 30 \\ 31 \\ 32 \\ 33 \\ 33 \\ 34 \\ 35 \\ 35 \\ 35 \\ 35 \\ 35 \\ 35 \\ 35 \\ 35$				VGWUO40-18 (2) at 1214 VGWUO40-18 (4) at 1216			(0.0-4.0') 80% SAND, fine to medium; 10 gravel, subangular to angular; well sorted HCI; pink (7.5YR 7/3). (4.0-10.0') 75% SILT, nonplastic; 10% se 15% gravel, subrounded; high reaction to 8/1). At 20.0 ft bgs, 75% SILT, nonplastic; 10% 15% gravel, subrounded; high reaction to (8/1).	% silt, nonplastic; 10% ; dry; weak reaction to nd, very fine to fine; o HCl; dry; white (10YR 6 sand, very fine to fine; o HCl; dry; white (10YR 10% silt, nonplastic; 5% o HCl; pink (7.5YR 7/3).	Backfilled with native material	
Drilling Co	o.:	HCI	Drilling				Sampling Method:NA			
Driller:		Kenn	y Coope	er			Sampling Interval: 2, 4 a	and 70 ft bgs		
Drilling Me	ethod:	<u>Air R</u>	otary				Water Level Start (ft. bo	gs. <u>): NA</u>		
Drilling Flu	uid:	None					Water Level Finish (ft. I	otoc.):NA		
Drilling Rig NA							Converted to Well:	Yes >	No	
Remarks	9	'/ ft= fe	et; " / in=	inch; bgs= below groun	d surface	e; ppm= p	arts per Surface Elev.:NA			
		million	NA= not a	applicable / available		<u></u> P	North Coor:			
2016 boring	s are g	enerall	y logged i	n intervals: 0-10, 20, 3	30-50, 6	0-70 ft b	gs. East Coor:			

ARC		S Design & for natu built ass	Consultancy ral and sets					Borinę	g No.:_ VGWUO40	-18
Soil B Project Na Project Nu Project Lo	Oring me: mber: cation:	<u>CHE</u> <u>B004</u> LEA)G VRON E 8616.0C COUNT`	MC 940.0003A Y, NEW MEXICO		Da	Date Started: <u>09/13/2016</u> ate Completed: <u>09/13/2016</u> Rev Date F	Logger: <u>Melis</u> iewed by: <u>A. Le</u> Reviewed: <u>01/07</u>	Sheet: 2 of a Phan ahman 7/2019	2
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
36 37 38 39 40 41 42 43 44 45 46 47 48 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 67 68 69 70 71				VGWU040-18 (70) at 1323			(60.0-70.0') 85% SAND, fine to medium; 109 gravel, subrounded; moist; weak reaction to (7.5YR 5/4).	% silt, nonplastic; 5% HCI; yellowish brown	Backfilled with native material	
		1/5	fort # /				111 N.A.			
2016 boring	ls are g	enerall	y logged i	n intervals: 0-10, 20,	30-50, 6	o surfa 0-70 ft b	ace, ppm– parts per million; NA= n gs.	ют арріїсаріе / а	valiade.	

ARC		S Design 8 for nature built ass	Consultancy al and ets					Boring I	No.: VGWUO40-	·19
Soil B	oring	a l c	DC						haat: 1 of	1
Project Na	ame:		/RONE	MC			Date Started: 09/13/2016	Logger: <u>Melisa</u>	Phan	1
Project Nu	umber:	<u>B004</u>	<u>8616.0C</u>	040.0003A		_ Da	te Completed: <u>09/13/2016</u> Rev	iewed by: <u>A. Leh</u>	man	
Project Lo	cation:	LEA (COUNT	Y, NEW MEXICO		_	Date F	Reviewed: <u>01/07/</u>	2019	
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
				VGWUO40-19 (2) at 1146 VGWUO40-19 (4) at 1150			(0.0-4.0') 80% SAND, fine to medium; 10% s gravel, subangular; well sorted; dry; weak res (7.5YR 7/3).	silt, nonplastic; 10% action to HCI; pink	Backfilled withnative material	
Drilling Co	D.:	HCI	Drilling				Sampling Method:NA	I		
Driller:		Kenn	y Coope	r		-	Sampling Interval:2 and 4	ft bgs		
Drilling Me	ethod:	Air R	otary				Water Level Start (ft. bgs.): NA		
Drilling Flu	uid:	<u>None</u>	-				Water Level Finish (ft. bto	c. <u>):NA</u>		
Drilling Ri	g	NA					Converted to Well:	Yes 🛛 🗙	No	
Remarks:	-	' / ft= fe	et; " / in=	inch; bgs= below groun	d surface	; ppm= p	arts per Surface Elev.:NA			
		million;	NA= not a	applicable / available.			North Coor:			
2016 boring	gs are g	enerally	/ logged i	n intervals: 0-10, 20,	30-50, 6	0-70 ft bç	^{js.} East Coor:			

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		& Consultancy Iral and					Boring	No.: VGWUO40)-MW-^	1
Soil Bori	na l c									
Broject Name			MC			Date Started: 12/04/2017	Logger: P Na	Sheet: 1 of	5	
Project Numb	er <u>0116</u>	8616.00	040 0003A		— Da	ate Completed: 12/04/2017 Rev	iewed by: A. Let	hman		
Project Locati	on [.] I FA	COUNT			_ D0	Date F	Reviewed: 01/07	//2019		
Troject Leoda						Date i		· — • · •	1	
Depth Sam (feet) Inter	nple Blow rval Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construction Details	w	ell
			-		X//XX	(0.0-0.4') No cuttings available (Hydro-Vac).			2115	2115
	/					showing trace fine grains, subrounded; poor	fractured; dry; ly sorted and		\otimes	\otimes
2						pisolites; white (2.5Y 8/1) laminated with pin	kish white (7.5Y 8/2).			
 3 \	/									
	/									
	/									
				0.7				Drilled Hole		
6									K	
 7 <u></u> /										
								Well Casing 4		
					\mathbb{K}			inch diameter – Sch.40		
9/	N									
10			-							
11	1									
13 \	/									
14										
15 V				10						
				1.0		(15.0-35.0') SANDY CALICHE, very fine, sul moderately sorted; firm; friable; dry containir	brounded; ng little to some;	Portland		
						trace caliche nodules, 0.2 to 0.3' in size; pinl	k (7.5YR 8/3).	Grout (2-110 ft)		
18										
g 19/	N									
20										
	/									
22 \										
23										
24										
	/			4 5						
				1.5						
27										
28 /										
<u> </u>	\					Sand increased to some and fine; poorly sor	ted at 28.0 ft bgs.			
	N									
Drilling Co ·	HCU	Drilling	1	I	1000010	Sampling Method Shovel				
Driller:	Kenn	v Coone	er			Sampling Interval Continu	Jous			
Drilling Metho	d: <u>Air</u> /I	Mud Rot	tary			Water Level Start (ft. bos.): NA			
Drilling Fluid:	None)	<u>,</u>			Water Level Finish (ft. bto	.):Na			
Drilling Rig	NA					Converted to Well: 🛛 🖂	Yes	No		
Remarks:	' / ft= fe	eet; " / in=	inch; bgs= below ground	d surface	e; ppm= p	arts per Surface Elev. <u>:NA</u>				
	million	; NA= not	applicable / available.			North Coor:				
gWell stick up co	nstructed	at 0 to 2 f	ft above ground surfac	e.		East Coor:				

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	DIS Design of for nature built ass	Consultancy ral and sets						Boring I	No.: <u>VGW</u>	UO40	-MW-1	
Soil Bor	ing Lo	g						S	heet: 2	of	5	
Project Nam	: <u>CHE</u>		ИС			Date Started: <u>12/04/2017</u>	Logger:	R. Nan	ny		-	
Project Num	oer: <u>B004</u> ion∙ L E A	<u>8616.004</u> COUNTY	40.0003A / NEW MEXICO		_ Da	ate Completed: <u>12/04/2017</u> Rev Date F	viewed by:	<u>A. Leh</u>	<u>man</u> 2019			
				1	_		Concorca.	01/01/2	2013			
Depth Sa (feet) Int	mple Blow erval Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description			Construc Detail	tion s	We	ell
(reet) Int	Prval Counts			(ppm) 1.5 2.2 2.7	Class	(35.0-37.0') SILICEOUS CALICHE, indurate very fine, subrounded; moderately sorted; d 5/4). (37.0-60.0') SANDSTONE, very fine to fine, sorted; friable; dry; calcareous; pink (7.5YR	d, containing ; ry; brown (7.5 [°] subrounded; j 8/3).	some YR poorly	Portlan Bentonite Grout (2-1	d mix 10 ft)		
62/	\mathbf{N}					(r.ottx 0/4).					×	Ň
Remarks:	' / ft=	feet; " / ir	n= inch; bgs= belo	w grou	nd surfa	ace; ppm= parts per million; NA= r	not applica	ble / ava	ailable.			///

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ARC		S Design & for natura	Consultancy al and ets					Borin	g No.: <u>VGW</u>	JO40	-MW-1	
Soil B	orina		DC						Shoot: 3	of	5	
Project Na	me:		/RON E	MC			Date Started: 12/04/2017	Logger: R. Na	anny	U	5	
Project Nu	mber:	B0048	8616.0C	040.0003A		_ Da	ate Completed: 12/04/2017 Rev	iewed by: <u>A. Le</u>	ehman			
Project Lo	cation:	<u>LEA (</u>	COUNT	Y, NEW MEXICO			Date R	Reviewed: 01/0	7/2019			
Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description		Construct Details	ion	We	<u>-</u>
- <u>-</u> -			. ,									\mathbb{K}
05	\ /					· · · · · · · ·						
64	\ /											
65	$ \setminus / $				60.7							
66	I V I					· · · · · · · ·						
67 -						· · · · · · · ·						
	/ \					· · · · · · · ·						
68	/											
69	/ \											
70	/ \											
⊢ ₇₁ −	A A					· · · · · · ·	(70.0-90.0') SANDSTONE, very fine to fine.	js. subrounded:	/			
	1\ /						moderately sorted; weakly cemented; dry; tra	ace caliche; pinkish				
72	\ /					· · · · · · · ·	(7.5YR 6/3).	i size, light brown				
73						· · · · · · ·						
74												
- 75 -	IV I											\otimes
					75.5							
76	+ /\					· · · · · · ·						
77	/					· · · · · · · ·						
78									Portland	1 .		
— ₇₉ —	/ \					· · · · · · ·			Grout (2-11	mix — 0 ft)		
	/ \											
80												
81	N /					· · · · · · · ·						
82	\ /					· · · · · · ·						
83 -												
	$ \setminus $											
84												
85	ł X I				92.1	· · · · · · · ·						
86						· · · · · · · ·						
87 -						· · · · · · · ·						
	/					· · · · · · ·						
88	!/ \											
89	/ \											
90						· · · · · · ·			_			
91	/					· · · · · · · ·	(90.0-145.0) SANDS I ONE, very fine to fine sorted; weakly cemented; containing trace ca	, subrounded; poorly alcareous				
	$ \setminus / $						intergranular clay and caliche; pinkish white from soft to firm; nodules 0.1-0.2' in size: liah	(7.5YR 8/2); ranging nt brown (7.5YR 6/4).			\bigotimes	
92	XI							, , , , , , , , , , , , , , , , , , ,				
93	$ / \setminus $											
94	<u>/</u>					· · · · · · · · · · ·						Ň
Remarks:		' / ft=	feet; " /	in= inch; bgs= belo	w grou	nd surfa	ace; ppm= parts per million; NA= n	ot applicable / a	vailable.			

ARCA	DIS Design 8 for natur built ass	Consultancy al and ets						Boring No	.: VGWU	040-1	/W-1	
Soil Bo	rina La	DC						Sho	ot: 1	of	5	
Project Nam	e: <u>CHE</u>	/RONE	MC			Date Started: <u>12/04/2017</u>	Logger:	R. Nanny	ei. 4 /	01	5	
Project Num	ber: <u>B004</u>	8616.0C	40.0003A		_ Da	te Completed: <u>12/04/2017</u>	Reviewed by:	A. Lehma	an			
Project Loca	tion: <u>LEA (</u>	COUNT	Y, NEW MEXICO		_	Da	ate Reviewed:	01/07/20	19			
Depth Sa (feet) In	mple Blow erval Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	1		Constructi Details	on	Wel	
$\begin{array}{c ccc} & & & \\ & & 95 \\ & & 96 \\ & & 97 \\ & & 98 \\ & & 99 \\ & & & \\ & & 99 \\ & & & & \\ & & & 100 \\ & & & & \\ & & & 101 \\ & & & & \\ & & & & 101 \\ & & & & & \\ & & & & & \\ & & & & & & $				61.247.2					Portland Bentonite n Grout (2-110	nix		
								E	Well Seal 3 inch Hydrat Bentonite Cl (110-114 1	8/8 ed hips t)		
				36.8				8	5/16 Silica S (114-149 t	and t)		
120 121 121 122 123 124 125 126				43.1		Formation became moderately to firmly bgs.	y cemented at 120.	O ft	Well Scree inch diame Sch. 40 0.0 slot (119.26-149 ft)	n 4 ter 10"		
Remarks:	' / ft=	feet; " /	in= inch; bgs= belo	w grour	nd surfa	ice; ppm= parts per million; N	A= not applica	ble / availa	able.	I.:	·.	
				<u> </u>								

ARCADIS Design & Consultancy torraturel and to asset				Boring	No.: VGWUO40-	-MW-1
Soil Boring Log				ç	Sheet [.] 5 of	5
Project Name: CHEVRON EMC		_ Da	ate Started: <u>12/04/2017</u>	Logger: <u>R. Na</u>	nny	
Project Number: <u>B0048616.0040.0003A</u>		_ Date 0	Completed: <u>12/04/2017</u> Revi	ewed by: <u>A. Leh</u>	nman /2010	
Project Location: LEA COUNTY, NEW MEXICO		_	Date R	eviewed: 01/07	/2019	
Depth Sample Blow Recovery (in.) Sample ID	PID (ppm)	USCS Class	Description		Construction Details	Well
127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 144 145 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 '/ ft= feet; " / in= inch; bgs= bek	25.3 113.2	Forn very 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	pan trace gravel, block, flint, 0.1 cm in size gs increasing in size and amount with incr mation contained trace calcareous; thin le y pale brown (10YR 8/3) at 140.0 ft bgs. 5.0-150.0') GRAVELLY SAND, very fine to rrly sorted; tightly packed; wet; containing ticolored; churt; flint and quartz pebbles; (rounded; loose; formation also contained; wnish yellow (10YR 6/3); nodules 0.2 to 0 rounded; firm; blocky and clay stone; light ses; firm; blocky; thin; light brown (7.5YR f d of boring at 150.0 ft bgs.	e, rounded at 130.0 reasing depth. enses and nodules o fine, subrounded; trace gravel; 0.1 to 0.5 cm; ; trace clay; .5 cm in size; t red; (2.5YR 6/6); 6/4).	Well Screen 4 inch diameter Sch. 40 0.010" slot (119.26-149.26 ft) End Cap	

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:	OGRID:
Arcadis U.S., Inc	329073
630 Plaza Drive	Action Number:
Highlands Ranch, CO 80129	2101
	Action Type:
	[C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bbillings	1) Each individual incident number needs a separate report, even if duplicate 2) Approved monitor well plan 3) Approved as investigation report but needs soil remediation/plan	7/9/2021

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Action 2101